

A COMPETENCY-BASED EDUCATION FRAMEWORK  
FOR LANSING COMMUNITY COLLEGE

by

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## ABSTRACT

The U.S. higher education system, thought of by many as an essential catalyst in creating and developing thinkers who innovate, and drive the economy, is undergoing fundamental change at a granular level, as technology, globalization and competition produce exponential change in the world economy. At current attainment rates, the U.S. will experience a significant skill gap that, if left unfilled, will slow productivity and economic growth (McKinsey Global Institute, 2012). Competency-based education generates graduates who mastered knowledge, skills and abilities by demonstrating what they know and can do. Leveraging technology, this self-paced learning enables students to attain credentials as quickly as they are willing and able. This study examines postsecondary CBE models in the U.S., and creates a framework for competency-based education at Lansing Community College. The framework utilizes selected CBE elements from existing models, and makes appropriate modifications taking into consideration the needs of the community, along with the culture and resources of the college. The proposed CBE framework can produce positive student outcomes, in addition to enhanced reputational and financial benefits for the college and community.

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## CHAPTER ONE: INTRODUCTION

### INTRODUCTION

The American higher education system and student performance are the focal point of many policy discussions related to the nation's economic strength and future. In the last three decades, the U.S. economy has shifted from being highly industrialized, and dominated by high-paying manufacturing jobs requiring little to no postsecondary education, to a highly productive knowledge economy fueled by technology that depends on higher levels of education and training (Glazer, 2010). For the United States to remain competitive in the global economy, it must produce significantly more high-skill workers, in light of economists' and policy makers' projections that greater demand for high quality, postsecondary credentials in the labor force are necessary to meet anticipated demand (Carnavale et al., 2010; The White House, 2009).

The push to skill-up America's workforce has included a focus on community colleges as the best vehicles to help meet expected demand. With just under half of all undergraduate students enrolled in community colleges, and millions of adults with some college credit but no degree, these institutions are well positioned to help the nation remain economically competitive (Community College Research Center, n.d.). As community colleges work to solve challenges associated with persistence, retention and other barriers to completion, institutions are examining student intake, advising and

learning methods in an effort to improve results. Competency-based education (CBE) is discussed in the literature as one potential solution to help working adult students earn credentials. A central reason advanced for this assertion is that CBE is offered in a flexible, personalized format that extends targeted academic, advising, and mentoring support to students during the learning process. Students receive assistance when and where needed, while they learn at their own pace, and demonstrate mastery of knowledge through application. CBE programs that incorporate prior learning assessment can also evaluate students' prior college-level experience for the purpose of awarding academic credit. When combined, both features can decrease time and costs to earn a degree or certificate. To earn credit, students must demonstrate mastery of competencies, using skills and knowledge acquired from any source. CBE is receiving a great deal of attention as a promising method of helping working adults attain market-relevant credentials more quickly, and at less cost than traditional, time-based higher education models. CBE is not a new learning method, however, it is experiencing resurgence in the U.S., in a quest to produce a more educated workforce.

This study explores the literature on competency-based education, along with the principles and practices used by higher education institutions in the United States that offer CBE programs. A framework was created which includes elements from various models that may work well within Lansing Community College's culture and organization. The framework's design includes education practices that hold promise for improving learning outcomes by extending beyond the knowledge students gain, into a demonstrated ability to apply that knowledge in multiple contexts. This framework

moves institutions beyond traditional academic measures of time spent in courses to relevant and demonstrated mastery of learning. At a time in which a significant skills gap—the difference between skill demand and skill supply—is projected to slow economic growth, this evolution from measuring time to measuring learning can improve the quality of higher education credentials.

Terms used throughout the study are defined in Table 1 below.

Table 1. *Definitions of Terms*

TERM	DEFINITION
Assessment	Measurement of learning through testing, portfolios, projects, papers, teacher or employer ratings, observation or benchmarks.
Carnegie unit	A mathematical formula used to measure units earned in academic work to earn academic credit, which encompasses class, laboratory, and student preparatory time, including independent study; not the same as a clock or contact hour (U.S. Department of Education, n.d.b)
Competency	A set of skills, abilities and knowledge needed to perform a specific task (Voorhees, 2002).
Competency-based education	Academic credit is provided on the basis of student learning, rather than credit or clock hours (Kelchen, 2015).
Direct assessment	The determination of mastery of competencies using a variety of methods such as written work, projects, engagement activities, and presentations that not only assess what students know, but what they are able to apply to real life situations (Klein-Collins, 2013).
Experiential credit	Academic credit earned via testing, or review and assessment of portfolios or projects.
Framework	“A basic structure of something; a set of ideas or facts that provide support for something” (“Framework,” n.d.).

TERM	DEFINITION
Globalization	“...the inevitable integration of markets, nation states, and technologies to a degree never witnessed before – in a way that is enabling individuals, corporations and nation-states to reach around the world farther, faster, deeper and cheaper than ever before and in a way that is enabling the world to reach into individuals, corporations and nation-states farther, faster, and deeper, cheaper than ever before” (Friedman, n.d.).
Knowledge economy	“Trends in advanced economies towards greater dependence on technology, information and high skill levels, and the increasing need for ready access to all of these by the business and public sectors (OECD, n.d.).
Mastery of competencies	Students must achieve a minimum score of 80% in the framework proposed by the researcher.
Prior learning assessment	“Evaluation of knowledge and skills in order to award academic credit from on-the-job-training, corporate training, independent study, military service, and volunteer service” (Academic Impressions, 2014); use of portfolios, tests, such as Advanced Placement (AP), and the College Level Examination Program (CLEP), or demonstrations and assessments of skills by experts in the discipline.
Seat time	Clock hours or credit hours based on the Carnegie unit.
Skills gap	The difference between labor market demand and labor market supply (McKinsey Global Institute, 2012).
Subscription framework	A purchase of time and access to competency units; CBE time periods vary from three to six months in duration (Kelchen, 2015).

## THE WHY

The United States must ensure its higher education system can continue to support its economic backbone in an ever-changing global economy. Economists at the McKinsey Global Institute (MGI) (2012) stated that:

If present trends persist, many nations—particularly advanced economies—could face more severe and widespread skill shortages in the coming decades, as well

as the prospect of swelling ranks of unemployed low-skill workers. Short of an unprecedented, large-scale effort to raise worker skills, we project that in 2020 the global labor supply could have 40 million too few workers with tertiary education and 90 million to 95 million too many medium- and low-skill workers. Market forces will adjust labor markets in response to these imbalances, but with potentially serious consequences: higher levels of unemployment, falling participation rates, widening income polarization between high- and low-skill workers, millions of workers trapped in low-income, marginal jobs, rising demands for public services, and heightened social tensions.

To avoid these imbalances, advanced and developing economies alike will need to accelerate the growth in completion rates in tertiary and secondary education by 2 to 2.5 times and raise the pace of job creation for low-skill workers by a factor of two to five times over the next decades. (p. 45)

The report, titled *The World at Work: Jobs, Pay, and Skills for 3.5 Billion People*, estimates the U.S. will experience a 3% skills gap by 2020, based on its current college and graduate degree attainment rate (McKinsey Global Institute, 2012).

A brief review of the latter half of the last century reveals that during the mid- to late 20<sup>th</sup> century, the U.S. economy was heavily dependent on manufacturing jobs that required minimal education (Lee & Mather, 2008). According to Glazer (2010), a once heavily industrialized workforce has changed to a service and knowledge-based workforce. Traditional manufacturing operations have moved to emerging economies that offer lower labor and regulatory costs, like those in China, India, and Mexico. This shift in labor markets has negatively impacted the U.S. economy by reducing demand for high-wage, low-skill manufacturing jobs (McKinsey Global Institute, 2012).

This shift, known as globalization, has had two major impacts on workers in the United States. First, wage stagnation resulted in a meager 5% income growth for median workers in the U.S. labor force between 1979 and 2012, except for a brief period during

the late 1990s (Shierholz & Mishel, 2013). This anemic growth has weakened purchasing power in average American households, even as productivity increased almost 75% (Shierholz & Mishel, 2013). Advances in technology, accompanied by low-skill labor market shifts, have driven this significant increase in productivity, which led to dislocations in the labor force (McKinsey Global Institute, 2012). Jobs in the U.S. increasingly require postsecondary education or training. This fundamental change in labor demand underlies the predictions made by economists at Georgetown University, that 63% of jobs in the U.S. will require some postsecondary credentials by 2018 (Carnavale et al., 2010). Often, advanced manufacturing operations in the U.S. require some postsecondary education or training (Glazer, 2010). The effect of decreased purchasing power in the consumer-driven economy in the U.S., coupled with demand for higher-skill workers to continue improving productivity signals continued economic strain ahead if the trajectory of either trend line is not flattened (McKinsey Global Institute, 2012).

A look back may shed some light on the impact of these changes. According to the U.S. Bureau of Labor Statistics (Lee & Mather, 2008), non-farm manufacturing employment declined from 24% of all jobs in 1973 to 10% in 2007, while service producing employment grew from 70% to 83% of jobs during the same time period (p. 7). Results include a decrease in blue-collar jobs, while the number of professional, administrative and information services jobs has increased. Looking ahead, experts at the Pew Research Center (2014) assert that the practical implications and consequences for those choosing to forego a postsecondary credential include lower earnings, lower

purchasing power, and increased job dissatisfaction. Expectations are that these factors will coalesce and lead to up to 33% greater rates of poverty among those with no more than a high school diploma (Pew Research Center, 2014). The societal and economic costs of poverty are high. Glazer (2010) makes the case that the return on the public's investment in producing more relevant higher education credentials will deliver positive economic results.

Traditionally, the U.S. has maintained the strongest economic position on the globe, largely due to the power of its military, financial and business acumen, and education system. While the military and financial strength of the U.S. far surpass other nations around the globe, its position in education rankings has continued to decline over the last several years (OECD, 2013). This decline in education rankings, if allowed to continue, will exacerbate the challenges outlined by economists noted above, potentially narrowing its economic advantage over other advanced and emerging economies.

Competency-based education can be used as an important tool to aid the United States in acquiring the skills future jobs will demand. Colleges and universities, in conjunction with business and industry stakeholders, can develop certificates and degrees that assure mastery of market-relevant competencies that will keep pace with the proliferation of high-skill jobs, some of which have yet to be created (McKinsey Global Institute, 2012). CBE can leverage working adults existing knowledge and skills, to produce learning outcomes that ensure mastery of content in applied, real-world contexts (Klein-Collins, 2012; Weise & Christensen, 2014). CBE has the potential to be

part of the solution for improving the nation's education attainment rankings, in addition to closing the projected skills gap (Weise & Christensen, 2014).

## **THE NEED**

The nation has a heightened need to create an educated workforce that can meet labor market demand for high-skill employees.

The United States faces a significant challenge if its workforce continues to lack the skills needed to power a knowledge economy. McKinsey Global Institute's (MGI, 2012) economists predict there will be significant skill labor gaps, as measured by education attainment, in advanced economies as early as 2020. Globalization, the deployment of technology to improve productivity, and movement of labor to achieve lower costs, has shifted demand for low-skill labor to developing economies like those in Brazil, China, India, Malaysia, and Mexico (McKinsey Global Institute, 2012). MGI's analysis of demand and supply indicates a progression toward too few high skilled workers to increase productivity and GDP growth, and too few low-skilled jobs for those without postsecondary education or training (p. 42). High skill talent is expected to be in greater demand, particularly in health care and business services fields. In the health care industry, currently, 71% of workers require some postsecondary education or training (McKinsey Global Institute, 2012). Demand for professional, scientific, and technical business services is predicted to increase as these circumstances trigger further expansion of the knowledge economy. Trends identified in the report underscore the impending need for increased numbers of postsecondary credentials in

the U.S. to support the expected advancements in research, technology, equipment, logistics, population growth, and longevity, which, together, will generate higher demand for goods and services.

A review of economic expansion in emerging markets, spurred by education, growth in global wealth and population, shows these ingredients have already begun to shift the balance of economic power, and they have had a significant impact on labor markets worldwide. Brazil, China, India, and Malaysia have each increased the number of postsecondary credential holders in their respective nations, which has improved high-skill labor supply for domestic and international markets—including those whom are working in North America (McKinsey Global Institute, 2012). U.S. corporations use inexpensive labor in China and Mexico, while the U.S. government borrows heavily from both nations (Rogers, 2012). As the U.S. grapples with its domestic economic condition, and its global economic standing, policy makers are seeking solutions to ensure it maintains its full potency.

Innovation, industrialization, technology and globalization have played significant roles in the nation's corporate and economic power during the 20<sup>th</sup> century—all fueled by adequate education, a skilled workforce, a competitive marketplace, and productivity gains. During the latter half of the 20<sup>th</sup> century, other nations have made significant economic gains, as well. Brazil, China, and India serve as examples of expanding economies (McKinsey Global Institute, 2012). Economic growth in these countries can be attributed to many factors, including measured capitalism, and the explosive growth of technology, which has spurred efficiency gains in manufacturing,

agriculture, and other previously labor-intensive industries. A key catalyst has been a deliberate focus on creating and supporting strong education systems designed to create a more educated workforce so they, the nations and individuals, can be stronger competitors in the world marketplace (McKinsey Global Institute, 2012).

The downward trend of U.S. education rankings combined with the increasing demands of the knowledge economy, prompted President Obama to establish the American Graduation Initiative (AGI) (The White House, 2009). The AGI calls for 5 million more Americans to earn a postsecondary credential by 2020, in order to keep pace with projected labor market demands. The President recognized that high school graduates attaining 4-year degrees would not meet the challenges ahead, so he charged community colleges to help reach the goals of the AGI. Why community colleges? Typically, community colleges can be more agile than 4-year institutions in responding to market and employer demands for credentials and skills development. Community colleges are affordable, easily accessible in many communities, and offer flexible options for working adults (The White House, 2009). Additionally, as of the 2012-2013 academic year, 7.4 million undergraduate students, or about 45%, attended America's public community colleges (Community College Research Center, n.d.).

Projections of demographic trends reveal that the number of high school graduates have peaked nationwide, and will remain flat over the next decade (American Association of Community Colleges, 2015). Achieving the goals of the AGI will require pursuit of non-traditional students, whom are typically older, working and emanate from traditionally underrepresented ethnic and income groups. According to the

American Association of Community Colleges (n.d.), of the 7.4 million undergraduate students attending America's community colleges, 63% are 22 years or older, and 61% are enrolled part-time. This population and those whom have earned some college credit, but have not yet earned a degree, could be a portion of the targeted labor market that needs up-skilling (Council for Adult & Experiential Learning [CAEL], 2013). Community colleges have an ability to be responsive to the needs of older, working adults by offering evening, weekend and online courses and degrees. Faculty and academic success coaches closely monitor and evaluate students' progress, and these professionals are able to intervene to provide guidance, direction and enhanced learning when and where needed. Students are not left alone to fail. Instead, they are fully supported throughout the learning experience (Book, 2014). CBE online education options enable students to complete coursework at their own pace as schedules and life commitments permit, within the established parameters of the CBE design. The AGI will be achieved through successful implementation of building blocks such as CBE that can raise household incomes, improve regional economies, and strengthen domestic economic growth (Weise & Christensen, 2014).

#### **POLICY MAKERS TAKE ACTION**

The President's other higher education priorities concentrated on college access, affordability and accountability (U.S. Department of Education, 2014a). Often cited by students and parents as barriers to credential attainment, these measures are designed to remove hurdles and encourage completion (Book, 2014; The White House, 2013). The

centralized policy changes formulated to advance these goals are contained in the gainful employment rules that were finalized in 2014. Gainful employment rules augment existing regulations that govern the eligibility of institutions to disperse federal financial aid. According to the U.S. Department of Education (2014b), the measures were established to protect students from enrolling in programs that do not lead to careers in which earnings would be insufficient to pay back student loans. The U.S. Department of Education stated:

A program would be considered to lead to gainful employment if the estimated annual loan payment of a typical graduate does not exceed 20 percent of his or her discretionary income or 8 percent of his or her total earnings. Programs that exceed these levels would be at risk of losing their ability to participate in taxpayer-funded federal student aid programs.

To improve affordability and accessibility, federal loan repayment options were expanded. Students can adjust loan repayment terms to prevent payments from exceeding 10% of discretionary income (U.S. Department of Education, 2014b). Pell grant awards were also increased to \$5,500.00 per academic year, and extended to cover summer enrollment (The White House, 2009).

The executive branch has also announced the formation of a college rating system—a tool devised to help students and their families make informed decisions as they contemplate which postsecondary institution may best fit their needs. The rating system will include, among other things, information about institutions' costs and completion rates (U.S. Department of Education, 2014b). Stricter oversight of compliance with gainful employment regulations by collaboration among multiple federal agencies was also announced by the U.S. Department of Education (2014b).

In recent decades, college has become more unaffordable and out of reach for average Americans. Those that pursue postsecondary credentials are taking on larger student debt loads than ever before—\$1.2 Trillion in 2013, second only to mortgage debt among types of consumer debt (College Board, 2013; Forbes, 2014; Reed & Cochran, 2014). This phenomenon weighs heavily on the economy, and has sparked debate about the value of a college education, in addition to questions about quality and outcomes.

Policy makers also seek to ensure college graduates are well prepared for the knowledge economy (Book, 2014; Johnstone & Soares, 2014). To meet these needs, Congress and the U.S. Department of Education want to ensure institutions of higher education can experiment with innovative approaches to help students attain high-quality credentials, at less cost and in less time (Box & LeBlanc, 2014). The literature included descriptions of demonstration projects, pilot programs, foundation partnerships, and temporary regulatory waivers as a few instruments designed to foster such innovation (Hatcher, 2014; Weise & Christensen, 2014).

The most recent action came in early 2015 when the President asked Congress to appropriate funding to ensure two years of free community college education for eligible students. Even though details about the proposal are not fully clear at this time, the policy implications have generated an important discussion about the types of investments required to help the nation regain its footing in global education attainment and competitiveness.

Policy initiatives can provide incentives for improvements in access, affordability and quality of postsecondary credentials. CBE is aligned with the policy objectives listed above by enabling access to flexible, affordable, high quality, market-relevant credentials to traditionally underserved adult students. U.S. Department of Education Secretary, Arne Duncan, announced support for CBE as a means to improve learning outcomes and increase postsecondary credential attainment (U.S. Department of Education, n.d.a). The Department is working with experimental sites to determine which education practices and federal financial aid regulatory adjustments may most effectively enable CBE, as policy makers examine methods for strengthening the workforce (Fain, 2015). Regional accrediting bodies are in varying stages of examination of CBE models, particularly those that decouple direct assessment from the credit hour. Two postsecondary institutions, Capella University and Southern New Hampshire's College for America, are the only institutions that have received approval from their accrediting bodies to offer such decoupled, direct assessment programs (Kelchen, 2015; Porter, 2014). Results from the experimental sites referenced above will likely inform accrediting bodies analysis and review of CBE programs in the future.

#### **HIGHER EDUCATION TAKES ACTION**

On the industry and private sector sides of education policy discussions, organizations like the American Association of Colleges & Universities (AAC&U) and the Lumina Foundation developed initiatives focused on improving the quality of postsecondary credentials. AAC&U's Liberal Education and America's Promise (LEAP)

Essential Learning Outcomes and Lumina’s Degree Qualifications Profile (DQP) both identify quality and competency standards for postsecondary degrees (American Association of Colleges & Universities, 2012; Lumina Foundation, 2012). These efforts are seen as important curricular changes that will help improve quality and provide assurances to students and employers about what the postsecondary credential represents. According to the Council for Adult and Experiential Learning (2012), the LEAP Essential Learning Outcomes are intended to foster broad “knowledge of science, cultures, and society; high-level intellectual and practical skills; an active commitment to personal and social responsibility and the demonstrated ability to apply learning to complex problems and challenges.” The DQP encompasses similar outcomes, but also includes “specialized knowledge in the field of discipline (terminology, tools and technologies, principal features, core theories and practices); intellectual skills, which include oral and written communications and quantitative applications; applied learning; civic learning.” Graduates should also have the ability to respond to social, environmental, and economic challenges at local, national, and global levels (Council for Adult & Experiential Learning, 2012).

In its 21<sup>st</sup> Century Report: Reclaiming the American Dream (2011), the American Association of Community Colleges (AACC) identified sobering challenges facing community colleges and students. College readiness, inadequate state support, low completion rates, and sprawling activities are just a few hurdles community colleges must overcome to improve students’ outcomes. Strong advocacy in support of the essential mission of access has been integrated with strategies to achieve greater

student success by raising credential attainment 50% by 2020 (American Association of Community Colleges, 2014). From the report, strategies include:

- Public commitment to aggressive, measurable goals, within defined timeframes. Goals should achieve equity in outcomes.
- Construct coherent, structured pathways to credential completion, ensuring students enter these pathways soon after beginning college.
- Expand prior learning assessments.
- Devise completion blueprints on both ends of the college experience. Improve student outcomes in high-risk entry-level classes, such as college-prep algebra and college-level mathematics, and help students who have completed 30 credit hours take the final steps toward completion.
- Advocate seamless transfer to universities within state policy.
- Implement reverse transfer agreements.

These strategies to better serve students are wholly aligned with competency-based education because pathways are transparent, clear and direct; credit for prior learning can be offered to advance completion; and learning is personalized to support students when and where needed.

Lansing Community College is well positioned to take action by expanding CBE. The college's history of success and expertise with CBE in career and technical, and allied health programs, including its Military Medic to Paramedic program, can be combined with its online education capabilities to offer market-relevant degrees. Survey and analysis of market opportunities should yield insight into which CBE degrees would best support employers' and community members' needs.

## THE CREDIT HOUR

As the focus of postsecondary education turns more directly toward learning outcomes and competencies that can be demonstrated in the workplace, more questions have arisen about the value of the credit hour as measured by time rather than results. Many are echoing Salman Khan's mantra that education needs to move away from a model where time is constant and outcomes are variable, to one where time is variable and outcomes are constant (Khan, 2013). As a measure of learning, the credit hour as currently designed is inadequate—it measures time, not learning. The credit hour focuses on the amount of time faculty must interact with students, and the amount of time students should spend on learning activities. Over 100 years ago, the Carnegie Unit, now known as the credit hour, was developed as a measure to determine faculty members' credits accumulated toward retirement (Shedd, 2003). It has been used since then as a measure to determine how much learning should have occurred. Traditional higher education models are often designed to have semester or term formats. Academic courses, programs, certificates and degrees are based on an accumulation of credit hours. In the U.S. higher education system, generally, 60 semester credit hours comprise an associate degree (Accreditation Commission for Community and Junior Colleges, 2014). Baccalaureate, master's and doctoral degrees vary in credit hour requirements depending on discipline or field of study. The credit hour is such an integral part of higher education that federal financial aid grants, loans and work-study are based on its measure in eligibility determination. As discussed by the Council for Adult and Experiential Learning (2012), credit hours are listed on

students' transcripts, and convey the amount of *time* a student was enrolled in a specific course. Nothing more.

In reality, however, the credit hour as a measure does not reveal any information about students' learning. Only when coupled with one's grades can the credit hour reveal any information about one's performance in college-level work. Even then, it cannot adequately measure learning. Production of higher quality learning outcomes that translate into relevant skills graduates can use in work and life environments will require improved standards, greater consistency, and less variability in results. The principle of mastery, demonstrations of knowledge and skills within multiple contexts, is a fundamental tenet of CBE, and one which can lead to greater assurances of outcomes for those whom have earned a CBE credential (Weise & Christensen, 2014). The metric of measure should be ability rather than time in grade. One need only look toward nursing as an example of a credential that acts as a warranty of knowledge and skills for those whom have earned it. While nothing is absolute, CBE has worked well in medical professions, where standards of care and skill levels must be proven before credentials are awarded.

Such an evolution—demonstrations of competence—in higher education may begin to restore employers' confidence in the credentials incumbent and new workers possess because they represent their minimum capabilities. Knowing the baseline of knowledge and skills employees are equipped with will help employers know which assignments or tasks employees should be able to accomplish. Additionally, awareness

of a baseline of knowledge and skills should assist supervisors as they craft professional development and training requirements specific to the organization's needs.

## **MEETING EXPECTATIONS**

The U.S., with the largest and strongest economy in the world, ranks 14<sup>th</sup> among the Group of 20 (G20) nations, with just 42% of its 25-34 year olds earning a higher education credential (OECD, 2012). This statistic must improve in order for the U.S. to remain globally competitive (McKinsey Global Institute, 2012; Weise & Christensen, 2014).

The public seems willing. A Gallup/Lumina Foundation poll (Calderon & Lopez, 2012) indicated 75% of respondents had an interest in obtaining a degree, if they could be assessed and awarded credit for prior learning and experience. Barriers, such as family and work commitments, along with costs of college, were identified by respondents as factors that kept them from pursuing postsecondary credentials.

Results must improve, and the need for change is evident in the results of a Gallup poll released in Spring 2014, which underscored the need for this assurance. The poll revealed that 12% of executives, and a little over 30% of parents and students, believed college graduates were adequately prepared for the workplace; 96% of chief academic officers believed graduates were ready—this gulf must be closed.

Demonstrable results will be required to narrow the gap.

Another important dimension of this discussion is the sustainability of higher education in its traditional format and business model. Escalating costs, partially due to

disinvestment by states during difficult economic times, rising student debt levels, low graduation rates, disagreement about quality of outcomes, and a competitive education marketplace mean higher education must seek alternative methods for educating students if the intent is to meet policy makers goals, and leverage market opportunities.

These are just a few of the pressures the American higher education system is under to produce positive changes in outcomes.

The Council for Adult and Experiential Learning (2012) promotes CBE as a means to increase the number of working adults, and other non-traditional students with postsecondary credentials. CBE can address the pressures listed above through:

- Mastery of market-relevant competencies that generate a more educated workforce;
- Online learning that meets students' needs for flexibility and convenience;
- Affordability through elimination of redundancies and inefficiencies built into courses, coupled with students' ability to have their prior college-level experience assessed for potential award of academic credit;
- Scaffolding of knowledge and skills that build toward desired learning outcomes;
- Ability of faculty to focus on specific, individualized student needs;
- Greater assurance of high-quality outcomes;
- Leveraging market opportunities of prospective students seeking viable education options.

## **FLEXIBILITY FOR WORKING ADULTS**

Making college attendance fit into the life of a working adult can be difficult, causing learning to compete with work, family and other commitments. Many working

adults indicate a willingness to earn a college degree. Time, money, and the structure of traditional higher education schedules; however, are barriers to achieving their goals (Council for Adult & Experiential Learning, 2012). For-profit institutions have become quite adept at fulfilling the convenience and flexibility needs of working adults. But the high cost of education through many for-profit providers has caused students' debt levels to reach new heights (Porter, 2014).

To meet the projected demands of U.S. labor markets over the next decade, working adults will need to earn relevant postsecondary credentials. Flexibility, affordability, and convenience are key elements of programs designed to engage this population. CBE, primarily offered online, can be self-paced in order to integrate effectively into the lives of working adults. At the same time, students can leverage the knowledge, skills and abilities already acquired from alternate sources, in pursuit of the credential. This is one method to help close the skills gap.

## **COMPETENCY-BASED EDUCATION**

One approach some institutions are pursuing to achieve change is by developing CBE programs—both credit hour based, and direct assessment. Competency-based education is gaining popularity because of its potential to reach those typically underserved by traditional higher education institutions (Book, 2014; Center for American Progress, 2013; Council for Adult & Experiential Learning, 2012).

CBE is an effective learning method, which requires students to demonstrate mastery of knowledge and skills. Used effectively in allied health and career and

technical education programs for many decades, CBE learning provides assurances to students, transfer institutions and employers that students are able to perform identified requirements (Center for American Progress, 2013; Council for Adult & Experiential Learning, 2012).

### Competency-Based Education—Revised and Evolving

Competency-based education is not new. According to the Center for American Progress (2013), CBE has been around for 40 years in various forms (Book, 2014). Alverno College, Excelsior College’s School of Nursing (formerly Regents College), DePaul University’s School for New Learning, Western Governors University, and Kentucky Community and Technical College System’s Learn on Demand program are just a few institutions with well-established CBE programs. Less mature, but highly visible CBE programs are helping to chart the course for the future of CBE, particularly related to U.S. Department of Education regulations for Title IV federal financial aid, and direct assessment approvals with accrediting bodies. The momentum and attention focused on these issues are important due to the criticality of Title IV—regulations that govern the eligibility and use of federal student financial aid—and its impact on college access, particularly for non-traditional and underrepresented populations. Of note, both Southern New Hampshire University’s College for America and Capella University have received approval for direct assessment, eliminating time as a barrier to credential attainment. The first public state higher education system to endorse and implement a CBE program is the University of Wisconsin System, with its UW Flexible Option

program. UW Flexible Option has enrolled 200 students in a three-month subscription format, which is not in conformance with Title IV regulations. The UW System is so confident in the future of CBE that it provides students with scholarships in lieu of federal financial aid, until it can gain approval for the model with the U.S. Department of Education (Brower & Lampe, 2014).

The exponential growth in, and ease of use of technology has fostered the use of multiple sources of learning, including open education resources (OER). OER are available to everyone with an Internet connection, 24 hours a day, 7 days a week, enhancing flexibility and affordability for students. According to the Center for American Progress (2013), many adult learners need and like the flexibility and self-paced nature CBE programs offer. Working adults seeking career advancement may find CBE programs provide a pathway to greater opportunity while leveraging existing knowledge and skills, in addition to providing practical application in their current work role. For some, this may mean they are closer to obtaining a credential than they previously imagined.

Competition from for-profit institutions is also an important driver for more robust discussion, action and creation of CBE programs. Students are demanding shorter pathways to acquire credentials, and for-profit institutions are increasingly filling the void created by the traditional higher education model.

Employers' concerns about the quality of postsecondary degrees in this information age, and employers' demand versus competency/skill supply, career readiness and advancement opportunities serve as powerful incentives for higher

education institutions to capture the portion of the market willing to try a non-traditional method for earning desired credentials. In addition to increasing enrollment, a CBE program could shorten students' paths to degree completion, saving them both time and money. When program and degree curricula are redesigned in competencies, redundancies within programs are removed. This practice does not jeopardize learning; rather it offers opportunity for appropriate reinforcement that allows students to scaffold their skills, abilities and knowledge as they demonstrate mastery (Klein-Collins, 2013). CBE program curricula are developed in close consultation and collaboration with faculty and business and industry partners to help ensure relevance to the marketplace.

The analysis and collaboration CBE requires ties its outcomes to relevant employment opportunities for students. Employers benefit by having access to the talent needed to expand and grow businesses, which, in turn, boosts regional economies. Skills gaps inhibit talent identification and acquisition by employers, limiting business and economic growth. Development of CBE degrees that meet regional labor market demand can improve the value of the higher education institutions that offer such relevant degrees, and may advance employment and earnings opportunities for graduates (Weise & Christensen, 2014).

#### Lansing Community College's Opportunity

Lansing Community College (LCC) is an urban, multi-site comprehensive community college that serves over 29,000 students that take almost 376,000 credit hours annually (Lansing Community College, 2014b). With an average age of 25

years, 66% attend full-time, 54% are female, and 46% male (Lansing Community College Center for Data Science, 2014). Located in the capital city, LCC's district covers a six-county area that has a total population of 465,263 residents (Forbes, 2014; U.S. Census Bureau, 2012). The college's annual operating budget is \$124.6 million, and 262 degree and certificate programs are offered in a three-semester format. LCC is the third largest community college in Michigan, and it charges the second-lowest in-district tuition rate among its 27 peers in the state (Lansing Community College, 2014b).

According to the Lumina Foundation's review of U.S. Census data (2013), there are 1.3 million residents in Michigan who have earned some college credit, but no degree. Within the college's service area, of the more than 465,000 residents, 25.3% of adults, or 82,068 residents 25 or older, have earned some college credit, but have not yet earned a degree (U.S. Census Bureau, 2012). This is an important market for LCC to leverage considering over 86,300 jobs went unfilled last year in Michigan (Pure Michigan Talent Connect, 2014). Therein lies the nexus between LCC and CBE.

At a time when community college enrollments are declining across the nation, completion rates have significant room for improvement, employers are unsure about the quality and consistency of higher education credentials, CBE may prove to be a useful tool to address all three issues. Economists have projected labor market demand that will not be supported by supply at current rates of postsecondary education attainment. The projections highlight a wide skills gap on the horizon without deliberate intervention to increase the number of Americans with a postsecondary credential (McKinsey Global Institute, 2012). Lansing Community College should be innovative in

its approach to reach the untapped market of more than 82,000 adult learners with some college credit, but no degree. Opportunities also exist within the current LCC student population, especially part-time students who have demonstrated success in online courses, and are on a degree pathway that aligns with employers' needs.

LCC, like many peer institutions, must prepare for the following environmental factors:

- Changing student demographics and needs;
- Declining enrollment and revenue;
- Unmet labor market needs;
- Competitive higher education marketplace; and
- Accountability measures at the state and federal levels.

A framework for a CBE program at LCC should include:

- Associate degrees tied directly to regional employers' needs;
- Clear, articulated pathways to a Baccalaureate degree;
- Three- month subscription framework;
- Monthly open-entry options;
- Selective admission criteria;
- Robust prior learning assessment;
- Valid, reliable direct assessment in a credit hour framework;
- Transcribed credit to traditional credit hours for federal financial aid eligibility and ease of transfer; and
- Use of academic success coaches, faculty mentors and advisors.

With the growing number of non-traditional students, the profile and needs of today's college students is changing; coupled with environmental pressures listed above, colleges and universities must change as well. The traditional model of all students learning the same content at the same time and pace is being questioned, and policy makers are undertaking an examination of the quality and ever-increasing cost of a higher education (Weise & Christensen, 2014). As workforce needs and student demographics change, higher education must respond with more personalized, effective learning methodologies. Competency-based education is an innovative approach that is garnering much-deserved attention from students, employers, policy makers, and institutions of higher education (Lowry, 2014).

Lansing Community College can use CBE to meet the needs of regional employers by developing and marketing degrees that meet their respective skills needs. Surveys of the cohort of prospective students within the college's service area whom have accumulated some college credit, but have not yet earned a degree should be conducted to ascertain their interest in, and need for such credentials. The potential market opportunity can also slow, or reverse the college's trend of declining enrollment that is typical to the community college sector when economic conditions improve. LCC could become a national leader in CBE, as this teaching and learning method is expanding and gaining definition.

## **SUMMARY**

The rate of future growth and expansion of the U.S. economy is tied to several factors, including innovation, technology, global population trends, globalization, skills supply, monetary policy global stability, and other important market forces. Economists at McKinsey Global Institute and Georgetown University project significant high skill labor shortages in the U.S. if current education trends persist. Predictions of slower GDP growth and lost productivity gains accompany these projections (Carnavale et al., 2010; McKinsey Global Institute, 2012; Shierholz & Mishel, 2013). Federal policies undertaken to meet labor market demands include the American Graduation Initiative, increased values of Pell grant awards, relaxation of loan repayment standards, gainful employment rules, and a rating system for higher education (U.S. Department of Education, 2014b). These are actions aimed at improving access, affordability, accountability, the quality of postsecondary credentials, and, ultimately, completion.

As an industry, higher education associations and institutions have partnered with foundations to identify areas of strength, and formulate solutions for those that require improvement. The American Association of Colleges & Universities' (AAC&U) Liberal Education and America's Promise (LEAP) Essential Learning Outcomes, the Lumina Foundation's Degree Qualifications Profile (DQP), and the American Association of Community College's (AACC) 21<sup>st</sup> Century initiatives are all focused on improving the quality of learning outcomes and related credentials. The AACC is also promoting access with success.

Both policy makers and experts in the field of education are discussing the relevance of the credit hour as a measure of learning. The credit hour is an integral part of traditional higher education, and it is woven throughout its regulatory foundation and framework. As the U.S. Department of Education works with institutions and foundations to determine which educational practices and adjustments should be made to enable competency-based education, ways to decouple the credit hour to support stronger measures of learning will emerge.

Competency-based education is a learning method available to higher education institutions to re-engage working adults who have accumulated some college credit, but have not yet earned a degree. CBE involves employers up front as credentials are designed or redesigned to ensure skills and competencies needed in the workforce are included in the learning outcomes.

In Michigan specifically, Pure Michigan Talent Connect (2014) identified over 86,000 jobs that went unfilled in 2013. The Governor's recent workforce development policy initiatives have focused on closing this skills gap by allocating targeted, competitive funding opportunities toward community colleges. If Lansing Community College develops CBE credentials that enroll working adults to attain credentials in fields with identified skills gaps, alignment with state policy makers' goals would be achieved.

Lansing Community College and other higher education institutions face significant challenges preparing the nation's workforce to meet the needs of the expanding knowledge economy as discussed in this study. The researcher found that labor market demand for high-skill workers is projected to exceed supply within the

next five years if the status quo prevails. At this point, the full consequences of a skill imbalance are not known; however, reduced productivity, lower GDP, lower economic growth, increased poverty levels, and reduced purchasing power for average Americans are expected (McKinsey Global Institute, 2012). Public policy and industry initiatives designed to satisfy labor market needs include the expansion of high quality competency-based education programs.

Lansing Community College is well positioned to help bridge the skills gap regionally and beyond. Development and implementation of a high quality competency-based education program, in conjunction with public partners at its University Center will achieve these objectives. Early efforts should target adults who have earned some college credit, but no degree. Building from the experience within its allied health, and career and technical programs, Lansing Community College has a viable path forward.

## CHAPTER TWO: LITERATURE REVIEW

### INTRODUCTION

In higher education, competency-based education is firmly affiliated with career and technical education programs, not liberal arts (Council for Adult & Experiential Learning, 2012). CBE is receiving a great deal of attention from policy makers and advocates of adult students as a faster, more affordable mechanism to increase credential attainment by traditionally underrepresented populations. It is also discussed as a potential learning method that will assure quality of outcomes, while helping to close the skills gap (Weise & Christensen, 2014). General acceptance within higher education is impeded by education infrastructure built around the credit hour as a significant unit of measure, which affects federal financial aid, transcript translation, and transfer (Porter, 2014). Standards, consistency, and design of CBE programs vary widely, and contribute to limited acceptance within the industry (Kelchen, 2015).

### THE U.S. ECONOMY

Studies examining how the U.S. economy has changed in the past 75 years use data compiled by the U.S. Department of Labor's Bureau of Labor Statistics, which analyzes and presents information each month related to employment, workforce characteristics, and labor force projections. McKinsey Global Institute (2012), Glazer

(2010), and Carnavale et al. (2010) used the information to project labor force needs, in the context of education attainment of the current labor force (U.S. Census Bureau, n.d.a). The projections highlighted weaknesses in labor supply, its pipeline, and requirements to fulfill demand.

Further studies on labor force readiness reference demographic data, education attainment, and knowledge, skills and abilities produced by current higher education models and practices as inadequate to meet future demand, prompting discussion of differing approaches to achieve labor market goals (Weise & Christensen, 2014; The White House, 2009).

#### **THE KNOWLEDGE ECONOMY AND CLOSING THE SKILLS GAP**

McKinsey Global Institute (2012), Carnavale et al. (2010), and Glazer (2010) define the knowledge economy as one in which postsecondary credentials equip workers to handle more complex problems, employing critical thinking and planning skills, along with increased use of cognitive and technological skills. These economists posit that increasing the number of workers with postsecondary credentials in science, technology, engineering, and mathematics is imperative if the U.S. is to continue improving productivity and economic growth. Glazer asserts that increased public investment in higher education must be prioritized in order to close the skills gap and meet important economic goals.

## **THE COST OF COLLEGE**

Forbes (2014) noted that the increasing cost of a college degree accompanied by escalating levels of student loan debt serve as a drag on economic growth, by stunting graduates' full participation in the economy. Student loan payments cannibalize income that might otherwise be used to buy a home, or start a family. The downward pressure on household incomes is compounded by three decades of wage stagnation, further eroding purchasing power, which is an essential ingredient for economic growth in a consumer-driven economy (Shierholz & Mishel, 2013). Polls sponsored by the Lumina Foundation also illuminate American's thoughts about increasing college costs at a time when postsecondary credentials are deemed essential (Calderon & Lopez, 2012). Several experts broadly reference the escalating cost of a college education as a barrier that affects access for students wishing to obtain a credential they believe will improve their individual earnings potential (Brower & Lampe, 2014; *Diverse Trends in Higher Education*, 2013; Lowry, 2014).

## **PUBLIC POLICY**

The Council on Adult & Experiential Learning (CAEL, 2013), the Center for American Progress (2013), and Porter (2014) detail public policy changes that would improve access to and affordability of postsecondary credentials using competency-based education frameworks. Fitness of the credit hour as a measure of learning, and as the basis for financial aid eligibility and award are discussed as topics meritorious of policy review and revision. Such reconsideration is necessary in order to lay a new

foundation that will allow innovation and expansion of CBE models that decouple the credit hour from students' access to Title IV federal student financial aid.

President Obama outlined public policy strategies to encourage legislative and public support for postsecondary institutions with the American Graduation Initiative, an effort to produce five million more graduates by 2020. Accountability measures known as gainful employment, and the college rating system are examples of changes enacted to protect students' and the public's investments in higher education. Gainful employment regulations restrict eligibility to students enrolled in career programs that lead to recognized fields that meet industry certification and accreditation standards, with available, well-paying jobs that support loan repayment. Sufficient loan repayment amounts are based on defined debt to earnings ratios. The third gainful employment benchmark assesses institutions' three-year cohort student loan default rates, which cannot exceed 30% for two consecutive years within a three-year timeframe, or is within the default zone for four consecutive years (U.S. Department of Education, 2014a). Finally, establishment of a college rating system is intended to aid education consumers in understanding how colleges and universities are performing against criteria measuring cost and graduation rates (The White House, 2009). The President promotes policies that incentivize community colleges in particular, to help produce the high-skill workforce needed for the future, noting that community colleges are an integral part of the strategy for the nation to remain competitive (The White House, 2009). The President views community colleges as nimble institutions poised to respond to the needs of regional employers and the marketplace.

The U.S. Department of Education weighed in on the policy discussion in support of competency-based education, noting its greater flexibility for higher education institutions to be innovative, while working to improve completion and increase credential attainment. Reauthorization of the Higher Education Act is discussed by some in the field as a vehicle for making changes that improve access, affordability, and accountability (Box & LeBlanc, 2014).

### **MATURE AND CONTEMPORARY COMPETENCY-BASED EDUCATION PROGRAMS**

More attention has been drawn to CBE programs as a method for improving the quality of learning outcomes, Book (2014), Klein-Collins (2013), Kelchen (2015), and Porter (2014), have studied several CBE frameworks. Book, Klein-Collins, and Kelchen analyze program structures, including those that use prior learning and/or direct assessment, and credit hour versus non-credit hour frameworks. These experts found that self-paced, online, open-entry subscription formats are multiplying. There are also CBE models which include face-to-face and hybrid instruction, and others which have partner institutions for the fulfillment of clinical and laboratory requirements. Newer programs disaggregate the faculty role into curriculum development, assessment, evaluation, mentoring, advising and coaching. Book and Kelchen further touch on pricing methodologies among subscription models, with price points ranging from \$2,000 to \$2,890 per subscription period. Porter writes about the impact of financial aid regulations on students and on the business models institutions employ. Variables include open-entry, open-exit subscription models that cost less than traditional higher

education, enabling students to cover more of the cost of their education with federal financial aid. Institutions such as Alverno College, DePaul University's School for New Learning, Western Governors University, and Westminster College have offered CBE programs for many years within the traditional credit hour format, which ensures eligible students' access to federal financial aid.

Multiple authors note that community colleges offer traditional competency-based education in career and technical education fields such as allied health, public safety, and vocational education programs, which have had proven, high quality results (Center for American Progress, 2013; Hatcher, 2014; Kelchen, 2015). Most of the newly launched CBE degrees listed in the literature are offered in technical and professional fields, such as nursing, business, and information technology. A few programs, like those offered at Northern Arizona and Lipscomb Universities have a liberal arts education focus (Riskind, 2014). It is anticipated that more CBE degrees in the liberal arts will be developed as knowledge and proficiency about how to create such CBE degrees grows.

Two requirements of traditional and nascent CBE programs are (1) significant involvement of business and industry in curriculum development, and (2) demonstrations of mastery of competencies. Contemporary CBE programs are noted as maintaining the fundamentals of mastery and market input; however, they also have new dimensions that use technology, prior learning, and direct assessment methods as a means of improving degree completion (Ganzglass & Bird, 2011; Hitchcock, 2013; Horn, 2014; Weise, 2014).

Institutions define and offer CBE programs differently. The variety and innovation taking place in the CBE arena is under study by the U.S. Department of Education, which invited interested institutions to become CBE experimental sites in its search for ways to support CBE models. Experimentation with varying models is necessary to develop standards and consistency on the path to integration into mainstream higher education (Fain, 2014; Hatcher, 2014; Porter, 2014). Weise and Christensen (2014) assert that disruptive innovations like CBE can transform higher education, and expand its accessibility to traditionally underserved students.

#### **PRIOR LEARNING AND DIRECT ASSESSMENT**

Prior learning assessment (PLA) takes multiple forms such as, testing; corporate or non-credit training; evaluation of portfolios, projects, and presentations; along with independent study, community engagement, and volunteer work (Book, 2014). PLA allows students to demonstrate their acquisition and mastery of knowledge and competency through prior experience, where the source of the knowledge is irrelevant. Students' portfolios or exam results from work and experience are assessed by experts to determine if, and how much, academic credit should be awarded. Awards of PLA credits helps narrow the number of competency units in which students must demonstrate mastery to earn related credentials. PLA credits are only awarded toward specific credentials being pursued (CAEL, 2013; Ganzglass & Bird, 2011). Institutions vary in amount and cost of PLA credits students can be awarded. For example, some institutions limit PLA credits to the equivalent of one term or one year of college credit,

which may cost a few hundred to thousands of dollars, none of which can be covered by federal financial aid (Porter, 2014).

Direct assessment, authorized by Congress in an amendment to the Higher Education Act in 2005, was intended to support Western Governors University's (WGU) CBE program by decoupling learning from seat time (Book, 2014; Porter, 2014). Instead, WGU designed its CBE program to convert directly assessed competency units to credit hour equivalencies in order to maintain federal financial aid eligibility for its students, and to ensure ease of transferability to other institutions (Johnstone, 2014). Klein-Collins (2013) and Kelchen (2015) point out that Capella and Southern New Hampshire University's (SNHU) College for America are the only two institutions that use direct assessment and have been approved by their accreditors and the U.S. Department of Education to separate seat time from learning. These approvals mean students enrolled in SNHU's Associate's degree program and Capella's business program are not restricted from Title IV federal student financial aid support (Kelchen, 2015; Porter, 2014).

As noted in the literature, adjusting Title IV regulations on prior learning and direct assessments will benefit students who wish to enroll in CBE programs. However, the changes must be made with significant consideration for institutional and individual fraud prevention, safeguarding against diploma mill support and proliferation, while at the same time improving the quality of learning outcomes and portability of credentials (Bergeron, 2013; Ganzglass & Bird, 2011; Hatcher, 2014; Porter, 2014; Voorhees, 2002).

#### **TITLE IV FEDERAL STUDENT FINANCIAL AID CHALLENGES**

Most of the literature identifies current Title IV federal financial aid regulations as barriers to full implementation and accessibility of CBE programs to students, especially those students who are traditionally underserved. Federal financial aid eligibility is determined, in part, by how much time a student spends learning; the Carnegie credit hour is the unit of measure which defines full-time and part-time student enrollment status, which governs aid award amounts to eligible students. To remain eligible for federal financial aid, students must achieve satisfactory academic progress in an accredited institution's certificate or degree program, programs that are now linked to gainful employment. An income-eligible student must be enrolled at least half-time, or six credit hours, maintain a 2.0 GPA (or the institution's equivalent passing GPA), and finish coursework in no more than 150% of the length of time the credential should take to complete. CBE models are decoupled from time, presenting a challenge for institutions, and, as a result, most institutions convert competency units to traditional credit hours to measure satisfactory academic progress. Untangling the web of Title IV regulations to accommodate CBE programs will be complex and require discussions about the role of the Carnegie unit (Bergeron, 2013; Center for American Progress, 2013; Council for Adult & Experiential Learning, 2012; Fain, 2014; Kelchen, 2015; Porter, 2014; Voorhees, 2002).

## **RELEVANCE OF THE CREDIT HOUR**

The credit hour, which originated from the Carnegie Unit, was never intended to measure learning; its initial purpose was to measure faculty workload for compensation and pension calculations (Denhart, 2013; Reed & Cochran, 2014; Riskind, 2014; Shedd, 2003). These discussions have motivated the Carnegie Foundation to undertake its own review of the relevance of the credit hour to learning. The credit hour has evolved into an important component measure of students' learning. It has also become an important metric in the eligibility and award of federal student financial aid.

CBE advocates insist that time is not a relevant measure of learning, and rather than measuring how long a student spent in a course, learning should be measure by what a student knows and can do (Center for American Progress, 2013; Klein-Collins, 2013). Self-paced, personalized learning supports students' matriculation through programs as quickly as they are able, rather than spending time on material they have already mastered. Faculty mentors and coaches are able to focus on helping students where and when they need it most (Book, 2014).

Supporters of the credit hour insist it functions as a way to distribute teaching over a reasonable time period to ensure students learn. Others also identify the credit hour as a mechanism to protect students' proof of learning for transcript purposes (Neem, 2013).

## **FLEXIBILITY AND AFFORDABILITY FOR ADULT AND NON-TRADITIONAL LEARNERS**

Proponents of CBE cite its self-paced, online format as one that offers flexibility to adult and non-traditional learners by allowing them to complete and demonstrate mastery of competencies in ways that fit their learning styles, schedules, and lives, while recognizing relevant knowledge and skills (Book, 2014; Klein-Collins, 2012). Advocates also point to open source education resources, including written documents, videos, interactive dialogues, taped lectures, podcasts, games, and other faculty-curated materials, as methods for adapting to students' learning styles, and lowering the cost of credential attainment (Klein-Collins, 2013). Kelchen (2015) identifies that no comprehensive studies of CBE programs have been conducted to verify if students actually save money. Some in academe assert the CBE framework will serve business and industry better than students, particularly those entities that may benefit from the sale of technology to institutions, or from designing curricula to meet business and industry's needs (Neem, 2013; Slayton, 2013).

Direct assessment and prior learning assessment are two fundamental components of CBE programs often cited as evidence for improving quality, shortening the time, and lowering the cost of higher education (Brower & Lampe, 2014; Klein-Collins, 2013; Weise & Christensen, 2014).

## **THE ROLE OF FACULTY**

Competency-based education programs offer a variety of faculty roles, from the more traditional models of leading courses with defined numbers of students, to those

that divide the faculty role into several parts, such as subject matter experts that develop curricula, assessments, and evaluations, and those that serve as learning facilitators, mentors, advisors, and academic success coaches (Hatcher, 2014; C. Kazin, personal communication, 2014; Klein-Collins, 2013; Riskind, 2014; Sandeen, 2014).

Some faculty fear the erosion or diminishment of the faculty role, which serves as primary educator and functions as the sole developers of curricula, course content, and assessments, and whose judgments determine students' grades, will lead to poorer outcomes for students. Institutions that have unpacked the faculty role indicate it benefits students by allowing faculty to focus attention and support when and where students need it most, further personalizing their experiences and improving their chances for mastery (Johnstone, 2014; C. Kazin, personal communication, 2014).

Disaggregation of the faculty role has the potential to reduce workload, which can result in lower compensation. Growth in information technology has resulted in learners having access to multiple sources of information and knowledge, which may be leading to the shift in the role from "sage on the stage, to guide on the side," because faculty and textbooks are no longer the primary source of information or knowledge (Johnstone, 2014).

#### **QUESTIONS ABOUT THE RIGOR AND EFFICACY OF COMPETENCY-BASED EDUCATION**

Neem (2013) and Slayton (2013) noted that the lack of standards and wide variations in CBE programs signals its lack of reliability from institution to institution.

Neem also debates the efficacy of fully online degree programs, pointing to the lack of

face-to-face interactions, which the author states can often engender rich discussions and deeper learning. Neem and Slayton further question the quality of CBE credentials due to its inconsistent application across institutions, lack of established principles of practice in establishing competency units and assessments. Concerns about the impact on students and the potential for creating a low-cost, low-quality education framework that will relegate CBE students to lower tiered educational status were also present in the literature. Neem asserts that CBE equates to minimal skills training that does not reflect a true college education because the liberal education elements are absent making CBE more of a training methodology than one imparting education.

CBE defenders identify the rigor of learning outcomes required to secure accreditation. Additionally, CBE advocates point to the demonstration of knowledge, or mastery required to earn competency units as evidence of learning and students' ability to put concepts and theories into practice (Hatcher, 2014; Horn, 2014; Jones, 2002; Khan, 2013; Klein-Collins, 2013; Weise, 2014; Weise & Christensen, 2014). These authors cite the interdisciplinary nature of competencies and their relevance to the workplace as evidence of their value to students and employers

## **DEVELOPING COMPETENCIES**

Like devising assessments, developing relevant, measureable competencies to assess is essential for providing students and employers assurances related to the value of CBE credentials. Competencies are “granular” and specific when compared to stated learning outcomes. Examples cited included requiring students to write a business

memorandum that analyzes and provides an evaluation for comparison between two vendors, writing documents with evidence to support a claim, or other specific, real-life situations one may encounter in the workplace (Kelchen, 2015; Klein-Collins, 2013). Professionals leading CBE programs stress the importance of engaging business and industry partners in identifying competencies students need to master in order to meet employer and labor market needs (Johnstone, 2014; C. Kazin, personal communication, 2014).

The Council on Adult and Experiential Learning (CAEL) supports redesign of curricula to include the Lumina Foundation's (2011) Degree Qualifications Profile (DQP), which proposes civic learning, basic theories and practices in students' fields of study, knowledge of contemporary terminology, and error free work products. CAEL also supports AAC&U's (2012) Essential Learning Outcomes, which are focused on principles to create a more knowledgeable, informed, and engaged citizenry.

## **CHALLENGES**

Most of the literature on CBE, written by authors such as Book (2014), Klein-Collins (2013), Kelchen (2015), Porter (2014), and Weise and Christensen (2014) identified a variety of challenges, including financial aid regulations, CBE definitions, transcribing and transfer of credits, and higher education traditions and culture.

Title IV federal financial aid eligibility and its regulatory framework are built around the credit hour as its primary unit of measure. CBE programs that completely decouple time from learning have difficulty ensuring students are eligible for federal

financial aid. Southern New Hampshire University's College for America and Capella University are the only institutions that have received approval from their accrediting bodies and the U.S. Department of Education to offer direct assessment CBE programs that award competency units rather than credit hours—essentially decoupling time from learning. Other institutions, such as Western Governors University and DePaul University's School for New Learning convert competency units to credit hours so students will be eligible for federal financial aid. The U.S. Department of Education is working with experimental sites to determine how regulations should be adjusted to accommodate CBE programs while limiting institutional and individual fraud risks.

The definition of competency-based education lacks consistency. Varying models across the nation use elements of CBE. CBE programs range from conversions of face-to-face courses into online courses, to elimination of redundancies and incorporation of small to large competency assessments as curricula are completely redesigned, to only direct assessment. Some CBE programs are offered in hybrid format, while others are completely online. Still others operate within traditional semesters, while others allow students to take as many assessments as they can master within a subscription period.

Transcripting and transfer of credits are not seamless. Student transcripts typically include a course title, grade, and credit hour count. The binary nature of CBE, i.e., either one is competent, or not, does not allow easy translation of performance in a traditional letter grade or GPA system without conversion from the awarding institution. And, CBE units that are not converted to traditional credit hour formats are difficult to transfer from one higher education institution to another.

Higher education and institutional cultures have evolved over time, with norms, practices and traditions that guide outcomes. Competency-based education has the potential to be a disruptive innovation in higher education by measuring learning, by assessing what students know and can do. With recognition that learning can occur outside of academic settings, comes the opportunity for real world experience to play a role in earning credentials. Technology enables access to multiple learning sources, and complements varying learning styles. Faculty support will be critical in any efforts for CBE to scale-up within traditional higher education, as faculty roles evolve to add greater value to students' learning while serving as mentors, coaches and facilitators (Klein-Collins, 2013). Culture change occurs slowly, often only after a clear vision, creation of a sense of urgency precipitating change, engagement of champions, robust and frequent communication, tracking, monitoring and recognition of progress. The norms, practices, and structures nurtured over time comprise traditions and the status quo, and they attack culture change like a virus, with a goal of maintaining the current state instead of embracing the evolution to a new state (Bolman & Deal, 2013; Kotter, 1995).

#### **WHAT WAS LEFT UNSAID?**

The researcher found the following absent from the literature:

- Comparisons of students' performance in competency-based education programs versus traditional higher education models;
- Examinations of the results of traditional higher education learning outcomes beyond polling results of various stakeholders' opinions;

- Evaluations of students' readiness for CBE programs, by category (age, race, gender, income, working/non-working, full-/part-time, first-generation);
- Production of detailed "how to" descriptions for building CBE programs in liberal arts; and
- Discussions of universal assessments within higher education in the United States.

## **SUMMARY**

Competency-based education has significant support at the public policy level, and among education experts that see its potential to help many Americans gain the skills needed in a knowledge economy (Fain, 2015; Klein-Collins, 2013). CBE advocates tout its future as one that shortens time to degree attainment by awarding experiential credit, directly assessing mastery of competencies, and decoupling time from learning to improve the quality of learning and credentials (Hatcher, 2014; Kelchen, 2015).

Concerns about scalability in light of Title IV federal financial aid regulations, and the use of the credit hour as a fundamental unit of measure for learning. Clear competency expectations and robust, reliable, and valid assessments are discussed as essential elements of CBE programs going forward (Weise & Christensen, 2014).

## CHAPTER THREE: DESIGN METHODOLOGY

### INTRODUCTION

The literature offers many suggestions for bringing competency-based education programs to scale in the American higher education system. Experts discuss the overreliance on the credit hour as an inadequate unit of measure for student learning; the need for clear, measureable competencies linked to employers' needs; and the need for reliable, valid assessments to measure student learning (Council for Adult & Experiential Learning, 2012; Kelchen, 2015; Klein-Collins, 2013). These specific, yet broad topics focus on the higher education industry's traditional methods of teaching, and regulatory changes that should be implemented to enable CBE to assist students in reaching their full academic potential. Descriptions of elements of specific institutions' CBE programs are provided, but not with great detail so as to protect the proprietary nature of their respective programs.

The framework developed for Lansing Community College is aligned with its mission and strategic plan. This study lays out a framework which contains modified replicas of CBE programs in existence around the nation, and can be supported within the college's financial and organizational structures. Additionally, faculty members within the Business department have an interest in developing and offering CBE programs in the areas of Business Management and Human Resources Management.

## LANSING COMMUNITY COLLEGE MISSION AND STRATEGIC PLAN

Lansing Community College's mission and guiding principles are in full alignment with development of CBE programs. The mission is as follows: "LCC exists so that the people it serves have learning and enrichment opportunities to improve their quality of life and standard of living" (Lansing Community College, n.d.).

The college's mission is supported by the following guiding principles:

1. LCC will be a Comprehensive Community College, focused upon offering learning opportunities in four areas: career and workforce development, general education, developmental education, and personal enrichment.
2. LCC will have a careers emphasis and, in support of this, maintain a technology-rich environment, fostering "user-" vs. classroom-level information technology skills.
3. LCC will maintain and support a well-qualified, committed, and competitively compensated faculty and staff who use both proven traditional and progressive student-centered learning approaches.
4. LCC commits to continuous improvement in its programs and services and will maintain high expectations of its students.
5. LCC will be flexible, affordable, and accountable, continuously improving student learning and support services through the assessment of measurable outcomes.
6. LCC will strive to be "state of the art" in all that it does, while pursuing a select number of cutting-edge initiatives.
7. LCC will have a local emphasis in allocating its resources, while maintaining vital connections to the world, culturally and technologically.
8. LCC, within its broader purpose of serving its entire community in diverse ways, recognizes a special responsibility to young adults, those from lower income brackets, and those requiring developmental academic or entry-level career skills.
9. LCC seeks cooperative relationships with both private and public organizations, pursuing growth not as an end in itself but only when it best serves student and community needs.

10. LCC will prepare those it serves to thrive in a diverse world by reflecting that diversity in its student enrollment, staffing, planning, and allocation of resources.
11. LCC will manage its finances in a responsible manner; allocating resources and achieving efficiencies to best serve the priority needs of its students and the taxpayers who support its operation.
12. LCC is a dedicated community member working for the betterment of all.

(Lansing Community College, n.d.)

Competency-based education is aligned with LCC's mission because it serves the workforce needs of regional employers, and it creates flexible education options that are directly linked to available, well-paying jobs. CBE presents an opportunity for the college to reach previously untapped markets of working adult students who have accumulated some college credit, but have not earned a degree, with market-relevant education options that lead to better career opportunities to improve their quality of life and standard of living.

The college's strategic plan covers six areas of focus, which are:

- Competitiveness and Innovation
- Engaged Learning
- Student Success
- Community Engagement
- Leadership, Culture and Communication
- Resource Management and Fiscal Responsibility

A well-managed CBE program supports the college's six strategic areas of focus in the following ways:

- Competitiveness and Innovation—LCC will capitalize on the untapped market of adults with some college credit, but no degree. CBE programs will be offered in high-demand, employer-informed fields that help close the existing skills gap by targeting residents seeking career change or advancement options. The college will also pursue corporate training opportunities with regional employers.
- Engaged Learning and Community Engagement—CBE programs will require application of theories, knowledge, and skills through completion of relevant assessments, such as projects that allow students to demonstrate mastery of competencies. Assessments may include service learning, presentations, interaction with employers or groups and others outside of the classroom.
- Student Success—personalized learning plans will ensure students have clear pathways, and are able to focus on areas where their knowledge, skills, and abilities need strengthening. Academic success coaches, faculty, and other student support will be available to foster students’ achievement of success.
- Leadership, Culture and Communication—since some faculty have already demonstrated an interest in CBE, it will be important to continue significant faculty involvement in the design and development of a CBE program. Implementation of a CBE program has the potential to move the college to become learner centered, with a strong emphasis on students’ learning and success. The college may also become a CBE leader in the community college sector.
- Resource Management and Fiscal Responsibility—the success of a CBE program will increase enrollment and completion, continually improving the college’s reputation for producing high-quality outcomes.

The American Council on Education (ACE, 2014) developed an infographic titled *What Does Competency-Based Education Look Like?* The visual representation depicts CBE models with varying degrees of CBE elements such as disaggregation of the faculty role, learning materials, learning support, technology, student type and fee structures. The infographic is introduced by a statement regarding competency-based education:

The shape and depth of competency-based education (CBE) shifts each time a college or university starts a CBE program, because each institution’s needs are different. Generally speaking, however, CBE programs distinguish themselves by “clearly defining and communicating what their graduates are required to know

and be able to do,” according to a report for the National Institute for Learning Outcomes Assessment. What follow are cross-sections of postsecondary elements meant to illustrate a spectrum of CBE, from the more traditional to more experimental. While necessarily non-exhaustive, the illustration is meant to give a quick introduction to how learning and other aspects of college and university work can differ according to how much CBE is applied.”

The elements of ACE’s infographic are included in Table 2.

Table 2. *What Does Competency-Based Education Look Like?*

MORE CONVENTIONAL	“MIDDLE OF THE ROAD”	LESS CONVENTIONAL
<b>Educational Model</b> <ul style="list-style-type: none"> <li>• Competencies embedded in courses</li> <li>• Faculty and textbooks</li> </ul>	<ul style="list-style-type: none"> <li>• Some classes</li> <li>• Unbundled content</li> <li>• Competencies and assessments</li> </ul>	<ul style="list-style-type: none"> <li>• No formal classes</li> <li>• Referrals to open educational resources</li> <li>• Prior-learning assessment</li> </ul>
<b>Faculty Role</b> Vertically Integrated Roles: Designing and Teaching and Assessing and Advising	Partially disaggregated roles: Designing and/or Teaching and/or Assessing and/or Advising	Disaggregated roles: Designing or Teaching or Assessing or Advising
<b>Learning Support</b> Faculty-based advising	High level of coaching and mentoring at the institution or through a contracted service	<ul style="list-style-type: none"> <li>• Online mentoring</li> <li>• Informal learning groups</li> </ul>
<b>Technology</b> Web enhancements to classroom-based course	Online delivery	Adaptive learning
<b>Typical Students</b> <ul style="list-style-type: none"> <li>• More traditional students</li> <li>• May be employed part time</li> </ul>		<ul style="list-style-type: none"> <li>• Non-traditional</li> <li>• Some postsecondary experience, but no degree</li> <li>• Some work experience</li> <li>• School and work highly integrated</li> </ul>
<b>Fee Structure</b> <ul style="list-style-type: none"> <li>• Time-bound</li> <li>• Pay per term or credit hour</li> <li>• Title IV eligible</li> </ul>	<ul style="list-style-type: none"> <li>• Fully-competency-based</li> <li>• Title IV eligible with special approval</li> </ul>	<ul style="list-style-type: none"> <li>• Subscription model (all you can learn within a given time)</li> <li>• Direct Assessment</li> <li>• Not Title IV eligible</li> </ul>

(American Council on Education, 2014)

## THE FRAMEWORK

The framework for the study, as presented in Chapter Four, is organized into three categories:

- Program design
- People involved
- CBE degree selection and development

### Program Design

The CBE framework developed for LCC uses elements identified in all three categories from Table 2: More Conventional, Middle of the Road, and Less Conventional (American Council on Education, 2014). Table 3 contains the elements which are included in LCC’s CBE framework.

Table 3. *Elements Selected for LCC’s CBE Framework*

MORE CONVENTIONAL	“MIDDLE OF THE ROAD”	LESS CONVENTIONAL
<b>Educational Model</b>	<ul style="list-style-type: none"> <li>• Unbundled content</li> <li>• Competencies and assessments</li> </ul>	<ul style="list-style-type: none"> <li>• No formal classes</li> <li>• Referrals to open educational resources</li> <li>• Prior-learning assessment</li> </ul>
<b>Faculty Role</b>	Partially disaggregated roles: Designing and/or Teaching and/or Assessing and/or Advising	Disaggregated roles: Designing or Teaching or Assessing or Advising
<b>Learning Support</b> Faculty-based advising	High level of coaching and mentoring at the institution	<ul style="list-style-type: none"> <li>• Online mentoring</li> <li>• Informal learning groups</li> </ul>

MORE CONVENTIONAL	“MIDDLE OF THE ROAD”	LESS CONVENTIONAL
<b>Technology</b>	Online delivery	
<b>Typical Students</b>		<ul style="list-style-type: none"> <li>• Non-traditional</li> <li>• Some postsecondary experience, but no degree</li> <li>• Some work experience</li> <li>• School and work highly integrated</li> </ul>
<b>Fee Structure</b> <ul style="list-style-type: none"> <li>• Time-bound</li> <li>• Pay per term</li> <li>• Title IV eligible</li> </ul>	<ul style="list-style-type: none"> <li>• Fully-competency-based</li> <li>• Title IV eligible with <b>special approval</b></li> </ul>	<ul style="list-style-type: none"> <li>• Subscription model (up to 16 credit hour equivalent competency units)</li> <li>• Direct Assessment (modified)</li> </ul>

(American Council on Education, 2014)

### *Selective Admission*

The initial target market for LCC’s competency-based education program is the population 25 years and older, identified by the U.S. Census Bureau (n.d.a) as residents having earned one year of college credit but no degree. As noted in the literature, CBE programs have the greatest potential to benefit those with work experience, as they may have already mastered competencies included in selected CBE degree programs (Center for American Progress, 2013; Council for Adult & Experiential Learning, 2012; Hatcher, 2014). In LCC’s service area—Shiawassee, Livingston, Ingham, Eaton, and Clinton (SLICE) counties—82,068 residents have been determined to fit these criteria (U.S. Census Bureau, n.d.a). Education, outreach, and marketing efforts for these prospective students may be effective due to their familiarity with LCC, and the regional

employers requesting these skills and credentials. According to LCC's Center for Data Science (2015), within the SLICE service area, the greatest percentages of jobs posted which required an Associate's degree, between December 7, 2014 and March 6, 2015, were in the following fields:

- Automotive service
- Business
- Electrical
- Environmental science
- Equipment repair
- Food service
- Health care
- Information technology
- Insurance
- Logistics
- Manufacturing
- Retail
- Security
- Telecommunications
- Travel
- Welding

Working adults may find such an affordable, flexible option attractive, particularly with the identification of clearly defined paths to a degree, supplemented by employment opportunities with regional employers. An affordable CBE option may help enable these prospective students to fit their education in with their existing commitments and responsibilities. Additionally, the ability to learn outside of a traditional classroom, yet have full faculty advice, support, and mentorship, augmented by traditional student support services, may appeal to those who have already tackled college-level work.

Assessing prospective students' work-life commitments, along with their college readiness and proficiency in learning online, will aid the college in assisting those best suited for the CBE educational delivery mode. The University of Wisconsin Extension's UW Flexible Option CBE program assesses students before admission to its CBE program to increase their likelihood of success. Prospective students must take a brief 15-minute

online survey, followed by a longer 30-minute online survey assessment; the surveys help education professionals determine if students are good candidates for the UW Flexible Option program (Brower & Lampe, 2014). The Lansing Community College framework includes a similar selection process to assess readiness for online, independent study.

### *Prior Learning Assessment*

Students admitted to the CBE program should be able to have their prior college-level or experiential learning assessed for college credit, and have a personalized learning plan developed based on a gap analysis of their current state of competence and the degree requirements. These practices should shorten the time to degree completion by not requiring students to take courses or competency modules they have already mastered (Cavanaugh, 2013). Portfolios, AP exams, CLEP exams, ACE exams, non-credit, corporate or military training, certifications, and volunteer work should be eligible for assessment wherein the qualification is competency mastery. Alverno College, Westminster College, DePaul University's School for New Learning, and Lansing Community College's Military Medic to Paramedic program are just a few examples of institutions or programs that award college credit for prior experience. The prior learning or experience must have relevancy to the competency degree program in order to receive credit (competence) toward the degree or certificate.

Establishment of a Prior Learning Assessment (PLA) center at the college will require rigorous training and establishment of clear standards for faculty or staff that serve in the assessment center. PLA is not eligible for financial aid (Porter, 2014), and

therefore should be priced affordably for students, yet ensure cost recovery for the college.

### *Direct Assessment*

Title IV federal student financial aid regulations are tightly tied to the credit hour, making the use of strict CBE direct assessment difficult for institutions and students who may need federal financial aid (Porter, 2014). The framework presented in Chapter Four replicates practices from the Western Governors University (WGU) model by using direct assessment, converting and measuring competency units in a one-for-one credit hour format. For example, WGU allows students to purchase a six-month subscription and take as many competency units as they are able. To be eligible for federal financial aid, students must meet income requirements, be enrolled at least half-time (six credit hours), and successfully complete 67% of the competency units in which they enroll in order to achieve the satisfactory academic progress standard. At WGU, the competency pass/not pass threshold is 80%, or a B, so if a student passes 67% of their competency units, they meet the satisfactory academic progress standard of maintaining a 2.0 GPA (Porter, 2014, p. 9).

### *Competency Units Earned in Credit Hour Format*

The credit hour's entrenchment in multiple aspects of higher education is significant. The literature contains recommendations of many professionals that support eliminating the use of the credit hour as a measure of student learning (Center for American Progress, 2013; Council for Adult & Experiential Learning, 2012; Klein-Collins,

2013; Weise & Christensen, 2014). Currently, however, the higher education industry is built around the credit hour, and until accrediting bodies and the U.S. Department of Education adjust regulations to accommodate academic programs not based on seat time, the CBE program at LCC will convert competency units to credit hours, in the same way institutions like Western Governors University, DePaul University's School for New Learning, and Westminster College's programs have done (Johnstone, 2014). Converting competency units to credit hours will also allow ease of transfer to other institutions of higher education.

### *Subscription Framework*

Capella, Northern Arizona University, Southern New Hampshire's College for America, Western Governors University, and University of Wisconsin Extension's UW Flexible Option program each offer subscription models; most are six months in duration (Kelchen, 2015). Wisconsin's program is the only "public system" CBE program in the nation (Porter, 2014).

The CBE programs listed above use pricing models that range from \$2,000 - \$2,890 per subscription period; the University of Wisconsin System's UW Flexible Option program has a three-month subscription term, while the balance of subscription-based institutions use six-month formats. LCC's subscription timeframe is modeled after the UW Flexible Option program, and will allow students to begin subscription terms four times per year, at the beginning of any month students choose. UW Flexible Option's students are not eligible for federal financial aid; the system provides scholarships to students as a replacement for not being authorized to disburse Pell grants for this

program because it has decoupled learning from the credit hour. LCC's program will differ in that competency units will be matched one-for-one with credit hours to maintain students' access to federal financial aid.

The LCC CBE program should be priced at \$1,600 per three-month subscription period, with a 16-competency unit cap during each subscription term. This pricing structure is very affordable, and is similar to the college's current billable hour rate of \$85 (Lansing Community College, 2014a). Subscription periods will begin when students log into their Desire2Learn account. Prior learning assessments will be billed at the adjunct faculty hourly rate of \$55, up to a maximum of \$450. When supported by revenue from state appropriations and property tax levies, these pricing models are designed to cover anticipated CBE costs. Pricing for corporate packages will be negotiated based on volume or on a sliding scale.

#### *Monthly Open-Entry Framework*

Students will be able to enroll in competency-based degree programs and competency units monthly. This format will allow flexibility for students to begin their learning at times that fit their personal and professional schedules.

#### *Course Management System*

The current course management system is the college's Web-based technology tool that enables online course delivery to students. The course management system, Desire2Learn (D2L), is the same system that is in use at the University of Wisconsin UW Flexible Option program, and should serve as an adequate CBE tool. This technology

allows interaction between faculty and students, supports posting and uploading of assignments, delivery of assessments, assignment feedback, grades, and all related course materials. All learning content can be hosted within Desire2Learn, with the exception of any clinical or laboratory assignments. D2L also allows faculty to monitor students' activities in courses, and provide prompt feedback on assessments, and essential feature of CBE (Book, 2014). Proctoring technology will need to be procured to ensure security during tests.

### *Initial Enrollment*

The initial launch year should be limited to 200 students, which will allow time to evaluate, adjust and refine the CBE program before it is offered to a wider range of students, and for a broader array of degrees. During the inaugural year, additional degrees should be selected for CBE redesign and potential launch in future years. The process identified for determining which CBE degrees to offer will likely prove useful for non-CBE degrees as well.

### *People Involved*

#### *Project Management*

The Executive Director of Enrollment Management and Program Innovation will manage the CBE degree project. This position was selected because of its college-wide responsibilities to track and monitor enrollment growth, as well as its charge to develop innovative programs. The organizational placement of the position provides access to

senior leaders, faculty, e-learning, human resources, budget, student affairs, the registrar's office, and marketing.

### *Faculty*

Faculty interest and qualifications will drive internal selection of full- and part-time CBE faculty. Year-round CBE programs are designed to meet the convenience and flexibility needs of working, adult students. LCC's framework is designed similarly to the University of Wisconsin's UW Flexible Option program, and will use existing faculty to select degrees, redesign curricula, map competencies to learning outcomes, and develop valid, reliable assessments.

The literature and presentations by CBE experts revealed that the following activities are performed by teaching and non-teaching CBE faculty (Brower & Lampe, 2014; Johnstone, 2014; C. Kazin, personal communication, 2014; Klein-Collins, 2013):

- Redesign curricula based on competencies identified for selected CBE degrees;
- Map all competencies to learning outcomes;
- Determine competency modules;
- Develop all syllabi and rubrics for competency units;
- Determine credit hour equivalencies based on competencies and learning outcomes;
- Design or recommend practice assessments and assessments;
- Determine how many times students can take assessments;
- Provide prompt feedback to students;
- Work closely with Academic Success Coaches in determining optimal approaches for assisting students; and,

- Curate learning materials

### *Professional Development*

Developing in-house CBE talent is important, and can be achieved by bringing in experts from institutions that have developed successful CBE programs during faculty professional activity days, sending interested faculty to institutions with successful programs, and sending interested faculty to CBE training conferences.

### *Academic Success Coaches*

The position of the academic success coach (ASC) is critically important for the success of the CBE program, as ASCs assist students from entry into clear pathways through completion. All CBE students will have education plans which include all competency units required for degree completion. ASCs work closely with faculty of record, and act as the main point of contact for students, providing help, guidance, assistance, and resources as needed, to personalize each student's learning experience. ASCs will use intrusive advising practices to help students stay on track. Intrusive advising will require ASCs to monitor progress and performance of students' work, and interceding when students appear to be delayed or off track to meet their stated goals. Engaging with students and faculty to ensure students receive needed support will be expected of ASCs.

Identification of appropriate learning materials is the responsibility of faculty, but ASCs will help curate and organize materials for students. Although the National Academic Advising Association (NACADA) does not recommend a specific caseload ratio,

it notes the median case load for advisors at public two-year colleges is 441 to 1 (Robbins, n.d.). ASCs will be assigned 70 students each, allowing these professionals to spend almost 30 minutes each week with every student. It is not anticipated that each student will require 30 minutes of interaction weekly (not a limit), which should enable ASCs time to track and monitor students' performance, interact with faculty, and manage learning materials.

## Competency-Based Education Degree Selection and Development

### *Selection of Competency-Based Education Degrees*

Throughout the literature, and in interviews and presentations by institutions that have launched CBE, engagement of regional employers was discussed as a key element of degree selection and competency identification in efforts to meet workforce needs (Book, 2014; Brower & Lampe, 2014; Johnstone, 2014; C. Kazin, personal communication, 2014; Kelchen, 2015; Klein-Collins, 2013; Voorhees, 2002). Institutions use business advisory committees to identify specific workforce needs that may not be evident by analyzing labor market data alone (Johnstone, 2014; C. Kazin, personal communication, 2014). Selection of CBE degrees to offer should begin with a market analysis that includes:

- Engagement of regional business and industry partners to ascertain which competencies and credentials are in demand;
- Reviews of data from the U.S. Bureau of Labor Statistics, along with the State of Michigan's Bureau of Labor Market Information, Capital Area Michigan Works! Agency, Labor/Insight Jobs (Burning Glass Technologies), and the Lansing Economic Area Partnership's employer survey in order to highlight skills gaps in the regional economy;

- A review of *What's it Worth? The Economic Value of College Majors* by Georgetown University's Center on Education and the Workforce (Carnevale, Stohl, & Melton, 2014), reveals an in-depth analysis of earnings across 171 majors, including labor force characteristics, variations in undergraduate and graduate degrees, gender, ethnicity, etc. The findings are then summarized into the following 15 categories:
  - Agriculture and Natural Resources
  - Arts
  - Biology and Life Science
  - Business
  - Communication and Journalism
  - Computers and Mathematics
  - Education
  - Engineering
  - Health
  - Humanities and Liberal Arts
  - Industrial Arts and Consumer Services
  - Law and Public Policy
  - Physical Sciences
  - Psychology and Social Work
  - Social Science

This report (Carnevale et al., 2014) may prove useful in selecting which CBE degrees to offer, when compared with employers' needs, and will provide prospective students with useful information regarding the return on their college investment.

- Development of a market survey of a sample of the 82,068 adults in the college's service area (Shiawassee, Livingston, Ingham, Clinton and Eaton counties) that the U.S. Census Bureau (n.d.a) identified as having one year of college credit but no degree. The results from the survey will help guide which residents to target based on alignment between their existing college credit or interests, and employers' needs. Poll results from a Gallup/Lumina survey (Calderon & Lopez, 2012) noted 75% of Americans are interested in obtaining a credential if they could be evaluated to receive college credit for their prior learning experience. That interest, combined with a flexible, affordable CBE option may be the incentive needed to complete their credential.
- A review of the college's existing degree offerings, taking into consideration, baccalaureate degrees offered by partner institutions at the college's University Center, should be conducted to gauge overlap between

employers’ needs, return on investment for different majors, and interests of prospective students. Partner institutions at the LCC’s University Center include Ferris State University, Lawrence Technological University, Northwood University, Siena Heights University, University of Michigan – Flint, and Western Michigan University.

This engagement, review, and analysis should help narrow the list of degrees to be offered in a CBE framework.

*Identification and Development of Degree Competencies*

The Lumina Foundation’s Degree Qualifications Profile (DQP) identifies competencies college graduates at the Associate’s, Bachelor’s and Master’s degree levels should possess upon completion (Lumina Foundation, 2011). The DQP has been embraced by some of the experts that support CBE. A few of those advocates include the Council on Adult and Experiential Learning (2012), Klein-Collins (2013), and Weise and Christensen (2014). Student learning outcomes from the DQP, developed by the Accrediting Commission for Junior and Community Colleges (n.d.), also contains a category for Institution-Specific Outcomes (not presented here), and are shown in Table 4.

Table 4. *Degree Qualifications Profile (DQP) for Associate’s Degrees*

SPECIALIZED KNOWLEDGE	BROAD, INTEGRATIVE KNOWLEDGE	INTELLECTUAL SKILLS	APPLIED LEARNING	CIVIC LEARNING
Knowledge acquired in a field or area of study to attain “depth of learning/ mastery” competencies.	Knowledge for attaining “breadth of learning/liberal education” competencies.	Analytic inquiry; use of information resources; engaging diverse perspectives; quantitative fluency;	Experience from outside the class is brought to bear on classroom material, classroom material is	Understanding ones relation to others in a civil society; developing a readiness for and acceptance of each person’s

SPECIALIZED KNOWLEDGE	BROAD, INTEGRATIVE KNOWLEDGE	INTELLECTUAL SKILLS	APPLIED LEARNING	CIVIC LEARNING
		communication fluency (all of which facilitate attainment of learning outcomes across the other categories)	brought to bear on outside the class experience	obligation to contribute to their community
<p>The student will be able to:</p> <p>Describe the scope and principal features of the field of study, citing core theories and practices, and offers a similar explication of a related field.</p> <p>Illustrate the field's current terminology.</p> <p>Generate substantially error-free products, exhibits, or performances in the field.</p>	<p>The student will be able to:</p> <p>Describe how existing knowledge or practice is advanced, tested and revised.</p> <p>Describe and examine perspectives on key debates within the field and in society.</p> <p>Illustrate core concepts of the field while executing analytical, practical or creative tasks.</p> <p>Select and apply recognized methods in interpreting discipline-based problems.</p> <p>Assemble evidence relevant to problems, describes its significance, and</p>	<p>The student will be able to:</p> <p>Identify, categorize and distinguish among ideas, concepts, theories and practical approaches to problems. (Analytic inquiry)</p> <p>Identify, categorize and appropriately cite information for an academic project, paper or performance. (Use of information resources)</p> <p>Describe how cultural perspectives could affect interpretation of problems in the arts, politics or global relations. (Engaging diverse perspectives)</p> <p>Present accurate calculations and</p>	<p>The student will be able to:</p> <p>Describe in writing a case in which knowledge and skills acquired in academic settings are applied to a challenge in a non-academic setting; evaluate the learning gained; and analyses significant concept or method related to the course of study in light of learning from outside the classroom.</p> <p>Locate, gather and organize evidence on an assigned research topic addressing a course-related question or a question of practice in a work or community setting; offer and examine</p>	<p>The student will be able to:</p> <p>Describe his or her civic and cultural background, including origins, development, assumptions and predispositions.</p> <p>Describe historical and contemporary positions on democratic values and practices, and presents his or her position on a related problem.</p> <p>Take an active role in the community (work, service, co-curricular activities) and examine civic issues encountered and insights gained.</p>

SPECIALIZED KNOWLEDGE	BROAD, INTEGRATIVE KNOWLEDGE	INTELLECTUAL SKILLS	APPLIED LEARNING	CIVIC LEARNING
	<p>uses it in analysis.</p> <p>Describe the ways in which at least two disciplines define, address and justify the importance of a contemporary challenge or problem.</p> <p>Identify, categorize and distinguish among ideas, concepts, theories and practical approaches to problems.</p>	<p>symbolic operations and explain their use either in the field of study or in interpreting social or economic trends. (Quantitative fluency)</p> <p>Present substantially error-free prose in both argumentative and narrative forms to general and specialized audiences. (Communication fluency)</p>	<p>competing hypotheses in answering the question.</p>	

(Lumina Foundation, 2011)

A tool professionals can use when identifying competencies in a multitude of fields is CareerOneStop. CareerOneStop (2014), sponsored by the U.S. Department of Labor, has captured skills and competencies from employers and experts in fields within multiple industries across the nation, and compiled them into a database. Pre-designed and customizable competency models can be developed using the CareerOneStop competency builder tool. Competency models can be constructed at the granular level, which experts assert is necessary to produce curricula and assessments required to achieve desired learning outcomes. The customizable nature of the tool allows insertion

of competencies from the DQP referenced above, or any other competency deemed necessary by employers or educators.

Figure 1 shows the CareerOneStop tool infographic and presents a visual representation of how competencies can be aligned. This information can inform curriculum development, and supports the creation of stackable credentials that can lead to a degree. In this example, a cyber-security competency model is shown, and it includes detailed descriptions of competencies that must be mastered to achieve the knowledge, skills, and abilities contemplated by the learning outcomes. Competency data provided by industry experts were used to create the model displayed in Figure 1 (Careeronestop, 2014).

Within the CareerOneStop tool, clicking on any component unit of the diagram reveals competency profiles for developing learning activities. Table 5 contains language from the “Initiative” block of Tier 1 to demonstrate a sample of specific workforce needs provided by industry experts (Careeronestop, 2014).

## Cyber-Security Competency Model

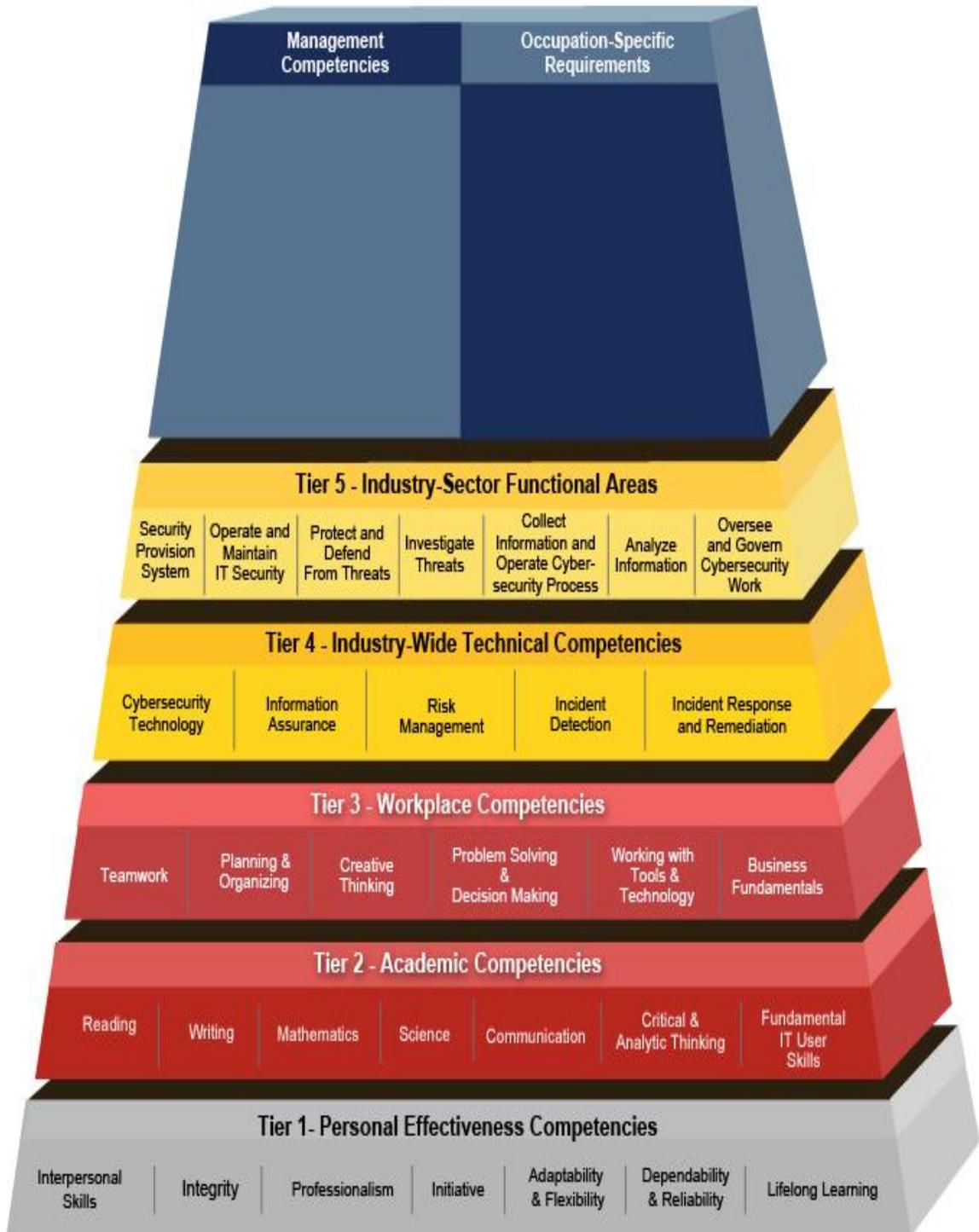


Figure 1. Cyber-Security Competency Model (Careeronestop, 2014).

Table 5. *Initiative Competency*

Initiative
Demonstrating commitment to effect job performance by taking action on one’s own and following through to get the job done.
<ul style="list-style-type: none"> <li>• Persisting               <ul style="list-style-type: none"> <li>○ Pursue work with drive and a strong accomplishment orientation</li> <li>○ Persist and expend extra effort to accomplish tasks even when conditions are difficult or deadlines are tight</li> <li>○ Persist at a task or problem despite obstacles or setbacks</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Taking initiative               <ul style="list-style-type: none"> <li>○ Go beyond the routine demands of the job</li> <li>○ Take initiative in seeking out new work challenges and increasing the variety and scope of one's job</li> <li>○ Seek opportunities to influence events and originate action</li> <li>○ Assist others who have less experience or have heavy workloads</li> <li>○ Provide suggestions for innovative approaches to improve processes or tasks</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Setting challenging goals               <ul style="list-style-type: none"> <li>○ Establish and maintain personally challenging but realistic work goals</li> <li>○ Exert effort toward task mastery</li> <li>○ Bring issues to closure by pushing forward until a resolution is achieved</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Working independently               <ul style="list-style-type: none"> <li>○ Develop one's own ways of working effectively and efficiently</li> <li>○ Perform effectively, even with minimal direction, support, or approval</li> <li>○ Take responsibility for completing one's own work assignments</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Achievement motivation               <ul style="list-style-type: none"> <li>○ Strive to exceed standards and expectations</li> <li>○ Exhibit confidence in capabilities and an expectation to succeed in future activities</li> </ul> </li> </ul>

(Careeronestop, 2014)

The information listed above in Table 5 from the CareerOneStop tool will provide the level of specific detail experts assert is required for faculty to develop high quality competencies and degrees (Johnstone & Soares, 2014). Data derived from CareerOneStop may also be useful as faculty prepare to meet with business and industry partners. A sample of the detail available from the tool, including the Essential

Learning Outcomes and the DQP, is provided in Chapter Four, for a customized Human Resources CBE degree.

### *Accreditation*

The Higher Learning Commission of the North Central Region requires institutions seek review and approval when an institution plans to offer new degrees that include more than 51% online instruction (Higher Learning Commission, 2010). The college will submit a substantive change request form to seek all required approvals from its accrediting body.

According to C. Kazin (personal communication, 2014), Southern New Hampshire University's College for America clearly mapped all learning activities and CBE General Associate's degree to its existing non-CBE degree to demonstrate the rigor of mastery of competencies required for the credential within its direct assessment model. The University of Wisconsin's UW Flexible Option program decouples seat time from its CBE offerings, rendering its students ineligible for federal financial aid at the present time. However, the University is awaiting U.S. Department of Education approval (Brower & Lampe, 2014).

The framework developed for LCC includes direct assessment, but does not decouple direct assessment from seat time. This design should not jeopardize federal financial aid eligibility for students. Essentially, the framework provides for new online degree offerings, with variable start times. These features already exist in current LCC offerings, and therefore are not expected to generate accreditation hurdles.

### *Initial Resource Requirements*

The college has many existing functions and tools on campus to support a CBE program, including its current course management system. Initial development and ongoing support for students will require additional resources for Academic Success Coaches, the establishment of a Prior Learning Assessment Center, external consulting services, professional development for faculty to learn how to develop and implement CBE, in addition to operating a PLA Center, and marketing support. Curricular matters can be completed by current full-, and part-time faculty through reassigned time. The framework, as designed, is projected to produce net positive revenue.

### **SUMMARY**

The CBE framework the researcher designed for Lansing Community College drew from successful CBE programs like those at Western Governors University, Lipscomb University, and the University of Wisconsin Extension's UW Flexible Option program. Elements were selected that are conducive to LCC's mission, strategic plan, structure, culture, and faculty interests. The CBE framework presented by the researcher will stretch the college's capabilities, test its willingness to be innovative, and provide an option for many working adults in the SLICE service area who have earned some college credit, but no degree.

## CHAPTER FOUR: COMPETENCY-BASED EDUCATION FRAMEWORK

### INTRODUCTION

CBE holds significant promise for students who are disciplined and will be diligent about mastering competencies. In the Lansing Community College service area, Shiawassee, Livingston, Ingham, Clinton, and Eaton (SLICE) counties, there are 82,068 adults that have completed one year of college but have no degree (U.S. Census Bureau, 2012). Pure Michigan Talent Connect (2014) identified over 86,300 jobs in Michigan that went unfilled in 2013. As the costs of postsecondary credentials continue to rise, and some question their quality, and graduates' preparedness for the workforce, establishment of programs like CBE may proliferate as solutions to closing the skills gap are developed (Weise & Christensen, 2014)

Lansing Community College (LCC) can leverage its strengths as a low-cost, workforce skills provider, while targeting the market of students with some college credit but no degree. The literature identifies clear, measurable competencies and rigorous, reliable, and valid assessments as essential elements of high quality competency-based education programs. Competencies should be informed by business and industry to ensure credentials are relevant to the marketplace (Kelchen, 2015; Klein-Collins, 2012). This study was undertaken to establish a framework for competency-based education at Lansing Community College that identifies:

- Program design
- People involved
- CBE degree selection and development

### COMPETENCY-BASED EDUCATION FRAMEWORK

The proposed CBE framework for LCC is presented in Table 6.

Table 6. *Framework for Competency-Based Education Degree at LCC*

ELEMENTS	RATIONALE	REQUIREMENTS	CURRENTLY IN PLACE
<b>Program Design</b>			
Selective Admission	To assure students' readiness for online, independent learning.	Develop assessment for readiness application for admission.	Health careers, & Aviation Maintenance.
Prior Learning Assessment, (adjunct rate plus overhead)	To award students college credit for knowledge & skills acquired outside of LCC.	Development of a formalized college-wide PLA function, which uses CAEL's voluntary system of quality standards.	College credit awarded based on faculty review of students' requests, which are submitted through the registrar's office.  College credit awarded for Military Medic to Paramedic program, no college credit awarded outside of MM2P. College currently accepts AP, CLEP & ACE exams.

ELEMENTS	RATIONALE	REQUIREMENTS	CURRENTLY IN PLACE
Direct Assessment	To allow students to move through degree, not repeating knowledge & skills already mastered (test out); students spend time learning what still needs to be mastered.	<p>Development of valid, reliable, clear assessments based on competencies identified in degree programs. Assessments must be designed to assure mastery of those deemed competent.</p> <p>Develop rubrics for each competency module to ensure transparency and clarity for students, and to assure consistency of application.</p> <p>Determine which online proctoring solution works best.</p> <p>Develop practice assessments for each competency module.</p>	<p>Military Medic to Paramedic program uses a direct assessment cognitive skills exam (L. Ferris-McCann, personal communication, 2014).</p> <p>None</p>
Credit hour format	To ensure students' eligibility for Title IV federal financial aid, and portability/transfer.	<p>Convert competency units to credit hours.</p> <p>Include competency descriptions on students' transcripts.</p>	None
Three month subscription, \$1,600, ls fees	To allow compressed timeframes for degree completion; supports self-paced learning.	Ensure compliance with Title IV federal financial aid; students purchase time to complete competency modules or take direct assessments.	Multiple entry points for academic programs (12 & 8 week formats).

ELEMENTS	RATIONALE	REQUIREMENTS	CURRENTLY IN PLACE
Monthly open-entry format	To allow students multiple entry points each year.	Process admission & financial aid for eligible students; connect each student with an Academic Success Coach & faculty member.	Multiple entry points for academic programs (12 & 8 week formats).
Course Management System	To support online education.	Desire2Learn fully supports CBE.	Desire2Learn
Initial enrollment cap will be 200 students	To improve the likelihood of college's ability to manage of the new program type.		No similar program on campus, but programs with components of the model exist such as MM2P.
<b>People Involved</b>			
Project Manager, Executive Director of Enrollment Management & Program Innovation	Position is responsible for assisting/overseeing development of new, innovative programs. Also responsible for leading efforts related to enrollment growth.	Identify interested faculty (may elect to use Academic Senate); develop budget; engage external consultant; initiate meetings with B&I; identify electronic proctoring tool; identify training; develop PLA Center; establish ASC positions & recruit; engage registrar & IT to develop CBE transcription; engage marketing department to develop campaign & video (external); evaluates performance for continuous improvement purposes.	College-wide leadership position, relationships/connections with faculty, e-learning & Center for Teaching Excellence

ELEMENTS	RATIONALE	REQUIREMENTS	CURRENTLY IN PLACE
Faculty (available for all subscription periods)	To accommodate the proposed CBE open-entry subscription framework.	<p>Reviews degrees currently offered; meet with B&amp;I to identify CBE degrees &amp; competencies; redesigns selected degrees; creates CBE curricula &amp; modules &amp; maps competencies to learning outcomes &amp; learning outcomes to degrees; develops practice assessments, assessments and related competency module rubrics; evaluates assessment results determines best learning materials &amp; curates them.</p> <p>Provides prompt feedback to students (within 48 hours); works closely with Academic Success Coaches (ASCs) to guide students, as needed.</p>	Current online courses.
Professional Development - Faculty	To provide professional development for CBE faculty and those that want to teach in CBE formats.	Identify best training methods & employ.	None.

ELEMENTS	RATIONALE	REQUIREMENTS	CURRENTLY IN PLACE
Academic Success Coaches (ASCs)	To guide students through clear educational pathways that include all competency units required for degree completion.	Assigned 70 students; advises students based on students' goals, develop an educational plan that includes all competency units required for completion; works closely with teaching faculty to assist students; intrusive advising; curates CBE degree content (assists faculty).	Elements of TRiO model.
<b>CBE Degree Selection and Development</b>			
Select CBE Degrees	To begin offering CBE degrees.	Faculty reviews data to select degrees based on input from B&I, & for projected growth, earnings, & credential requirements.	All information is available at the college.
Identify and Develop Competencies	To provide clear, measureable learning outcomes.	Identification of competencies required for each degree; develop competency modules to achieve learning outcomes; identify & develop rubrics, practice assessments, & assessments for all competency modules & competency units.	Competencies exist in career and technical education programs.

ELEMENTS	RATIONALE	REQUIREMENTS	CURRENTLY IN PLACE
Redesign curricula, with competencies mapped to learning outcomes	To closely tie competencies to learning outcomes, develop assessments to determine competence, and eliminate redundancy in degree programs.	Engage interdisciplinary curriculum committee, aided by instructional designers, to redesign degrees.	Curriculum committee structure; instructional designers.
Higher Learning Commission required for development of fully online CBE degrees	To comply with accreditation requirements & gain approval for use of direct assessment.	HLC representative completes & submits required forms; schedules discussion with HLC; manages process & awaits approval.	Regular academic program & Military Medic to Paramedic program accreditation.

## PROGRAM DESIGN

### Selective Admission

CBE can have tremendous benefits for some students, moving them to degree completion in less time, and at less cost, which may attract many students with a desire to earn a credential. The self-paced, independent study aspects of CBE, combined with an online delivery format will not be ideal for all students. Admission criteria will help identify those highly motivated, college-ready students that are likely to thrive in a CBE program.

### Prior Learning Assessment

The establishment of a Prior Learning Assessment (PLA) function will provide expertise and consistency of application in review of college-level experiential credit in recognizing and awarding college credit toward degree completion. The rate charge

should equate to the adjunct faculty pay rate, plus overhead, to promote affordability to students and cost recovery to the college.

### Direct Assessment

In addition to redesigning degree curricula, direct assessment is a critical component of CBE; it enables students to “test out” of modules or courses in which they have already achieved mastery. Faculty will establish limits for the number of times students can take an assessment. Practice assessments will be available to take as many times as students need. The result of direct assessment of mastery is to determine whether the student is deemed competent or not. Figure 2 demonstrates the assessment process used to determine competency mastery.



*Figure 2. Assessment to Mastery*

### Competency Units Earned in Credit Hour Format

To ensure continued access to Title IV federal financial aid, and ease of transfer to other higher education institutions, competency units will be translated into credit hours. For Title IV eligibility, satisfactory academic progress will be achieved if a student successfully masters 67% of competency units attempted (Porter, 2014). (This should not be confused with the standard of mastery of competency units—students will be

deemed competent by achieving 80% in a competency unit.) Completion of each competency unit requires mastery demonstrated by assessments established by faculty. Assessments can include projects, papers, tests, presentations, or other options determined by faculty.

Faculty will identify how many credit hour equivalents each competency unit represents.

#### Subscription Framework

CBE degrees will be offered for a flat rate of \$1,600 per three-month subscription period. Students will be allowed to take up to 16 credit hour-equivalents in competency-based units. Subscriptions are actually a purchase of time. Subscription periods will begin at the point at which students log into their Desire2Learn account.

#### Monthly Open-Entry Enrollment

Students may enroll in competency degree programs, or competency units monthly, supporting entry when it best suits their schedules. Each three-month subscription period will begin when a student enrolls in competency units, and logs into his/her student account. If a student completes competency units prior to the end of the subscription period, the next available enrollment period of that student will be three months after initial log in for the respective subscription period.

## Course Management System

Desire2Learn (D2L), the college's existing course management system, will be used to deliver CBE degrees. Faculty can upload course materials, provide links to education resources, track and monitor students' progress, provide prompt feedback, and communicate with students. Students can communicate with faculty, access course materials, and upload assignments. Secure online proctoring assessment tools will need to be acquired by the college to ensure the student enrolled is the same person taking any required online examinations (Book, 2014).

## Initial Enrollment

To manage performance, refine program elements, and make necessary adjustments, the initial enrollment year will be limited to 200 students. Ongoing evaluations of the new CBE program will be used to make adjustments and improvements, as needed, with a goal of bringing the program to scale to meet student demand.

## **PEOPLE INVOLVED**

### Project Management

The Executive Director for Enrollment Management and Program innovation will serve as the CBE program's project manager. This college-wide leadership role will engage and select CBE faculty; oversee the review, analysis and determination of CBE degree selection, including business and industry engagement; oversee development of CBE degrees, and all related requirements, i.e., competencies, modules, rubrics, learning

outcomes, and degrees; engage external consultants; identify professional development requirements and opportunities; oversee inclusion of competencies in transcription; oversee acquisition of online proctoring system; assist with recruitment and selection of academic success coaches; and oversee curation of learning materials.

## Faculty

Faculty of record will need to be available for each subscription term. Faculty of record will work very closely with newly created Academic Success Coaches (ASCs) to provide personalized learning plans, and assist students in areas needed. Feedback for students' assessments in competency modules and units will be prompt, occurring within 48 hours. Letters of Agreement may need to be developed with the faculty union. CBE degrees would no longer be taught in a traditional classroom setting, but would be online, which means faculty must be proficient in online education.

The faculty role is extremely important in the creation, launch and operation of a CBE program. As professionals responsible for curricular matters, faculty will be engaged in review and identification of degrees, and related competencies, rubrics, practice assessments, assessments, evaluations, and adjustments made over time. Faculty will identify the best learning materials for CBE degrees, including open educational resources, when possible. Specific responsibilities include:

- Redesign curricula based on competencies identified for selected CBE degrees;
- Map all competencies to learning outcomes;
- Determine competency modules;

- Develop all syllabi and rubrics for competency units;
- Determine credit hour equivalencies based on competencies and learning outcomes;
- Design or recommend practice assessments and assessments;
- Determine how many times students can take assessments;
- Provide prompt feedback to students on all competency module and competency unit assessments;
- Work closely with Academic Success Coaches in determining optimal approaches for assisting students; and
- Curate learning materials.

#### Professional Development

Interested faculty can receive CBE training, preferably offered by the Center for Teaching Excellence, but if not available, the college can bring in external CBE experts, or faculty can attend CBE training conferences or visit institutions with successful CBE programs.

#### Academic Success Coaches

Academic Success Coaches will assist the faculty of record and have the responsibility for significant contact with CBE program students, teaming with faculty members to support students when and where needed. Each student's education plan will identify all competency units the student must master for degree completion. ASCs will guide and assist students in using selected learning materials that best support students' needs and learning styles. ASCs, in conjunction with faculty, will organize and

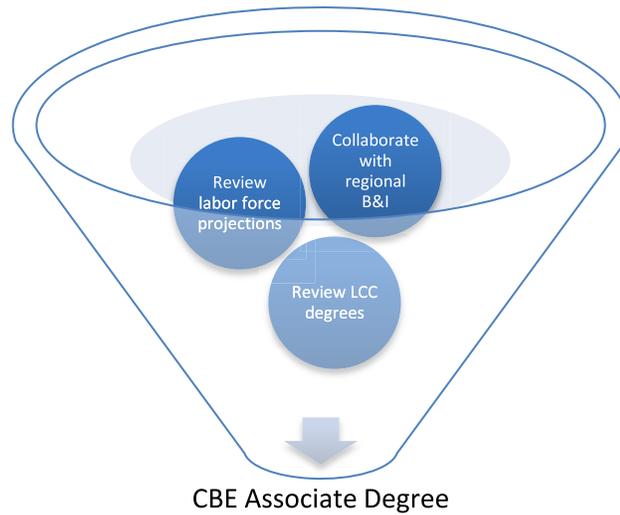
curate learning materials. ASCs will each be assigned 70 students with whom they will work through completion.

## **COMPETENCY-BASED EDUCATION DEGREE SELECTION AND DEVELOPMENT**

### **Selection of Competency-Based Education Degrees**

A review and analysis of the labor market in the college's service area will be conducted to ascertain which degrees might produce the greatest benefit for students. Alignment with degrees currently offered at the college can leverage in-house expertise, allowing faster time to market. Economists at Georgetown University's Center on Education and Workforce analyzed the economic value of college majors (Carnevale et al., 2014), which will prove useful in the college's analysis of which CBE degrees should be developed. Additional data to consider for market-relevance may be data from the college's Burning Glass subscription, which provides information on jobs posted in the recent past. Information from CareerOneStop (2014), an electronic tool that contains data compiled from industry experts, the U.S. Bureau of Labor Statistics, and state labor agencies such as the Michigan Bureau of Labor Market Information, will prove useful in selecting competencies. The tool provides information that has been analyzed, sorted and categorized by field and market. Discussions with regional employers will also help form the basis for determining which CBE degrees to offer. Figure 3 identifies key ingredients that should be used for CBE initial degree selection.

### ***Initial Degree Selection***



*Figure 3. CBE Associate Degree Selection*

#### **An Example**

According to the report, *What's it Worth? The Economic Value of College Majors*, median earnings for those working full-time, full-year, with a Bachelor's degree in Human Resources and Personnel Management is \$55,000 (Carnevale et al., 2014, p. 76). A review of workforce, trend and earnings data from CareerOneStop (2014) provides information for a Human Resources Specialist in Mid-Michigan and is contained in Table 7.

Table 7. *Human Resources Specialist Trends and Wages*

TITLE	EDUCATION ATTAINMENT		ANNUAL EARNINGS IN MID-MICHIGAN (LANSING/ EAST LANSING)	OPENINGS ANNUALLY IN U.S.	PROJECTED GROWTH IN U.S.
Human Resources Specialist	High school diploma or equivalent:	12.3%	\$33,500 – Low <sup>a</sup> \$53,800 – Median <sup>b</sup> \$84,700 – High <sup>c</sup>	10,950	8%
	Some college, no degree:	21.1%			
	Associate’s degree:	9.3%			
	Bachelor’s degree:	40.7%			
	Master’s degree:	14.6%			
	Doctorate or Professional degree:	2.0%			

(Careeronestop, 2014)

*Note.* CareerOneStop compiles data from: National Data Source: Bureau of Labor Statistics, Occupational Employment Statistics Survey; State Data Source: Michigan Wage Information.

<sup>a</sup> 10% of workers earn less, and 90% earn more.

<sup>b</sup> 50% earn less, and 50% earn more.

<sup>c</sup> 90% earn less, and 10% earn more.

### Identification and Development of Degree Competencies

An essential element of CBE is determining which competencies employers require to fill their talent needs. Collaboration with regional job providers is imperative in developing a list of clear, measureable competencies. Tools such as CareerOneStop (Careeronestop, 2014), a source for identifying industry-specific competencies can help define competencies at a granular level. Faculty development of the right competencies is important to achieve desired learning outcomes, ensuring that upon mastery, LCC can certify what students know and can do. Figure 4 shows the recommended components of initial CBE degree design.

### Initial CBE Degree Design

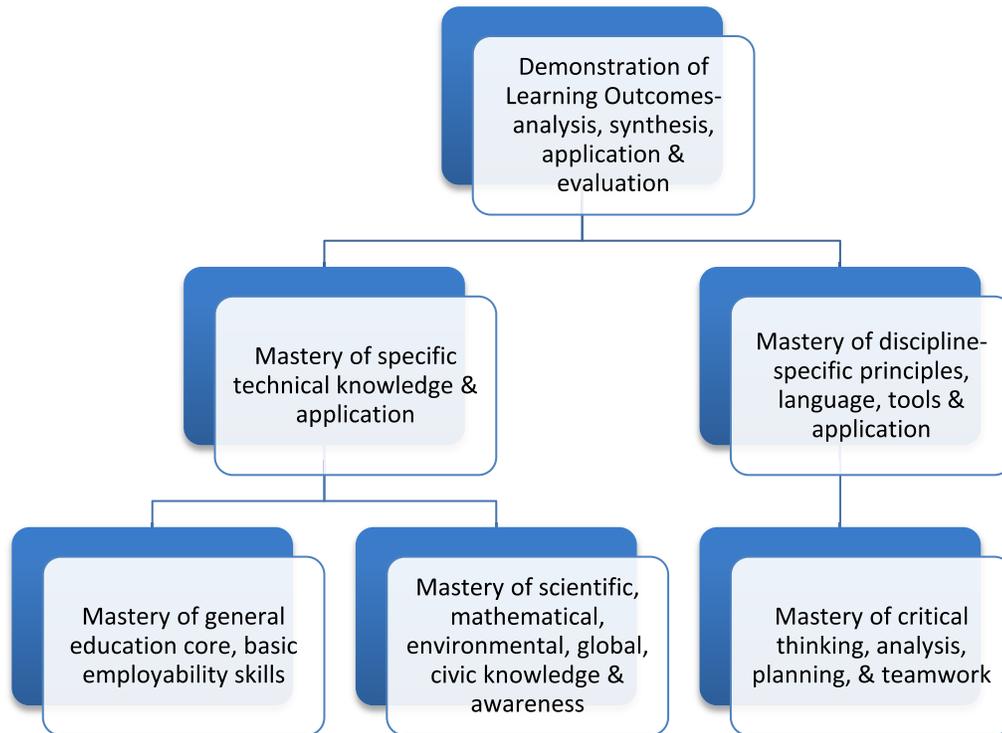
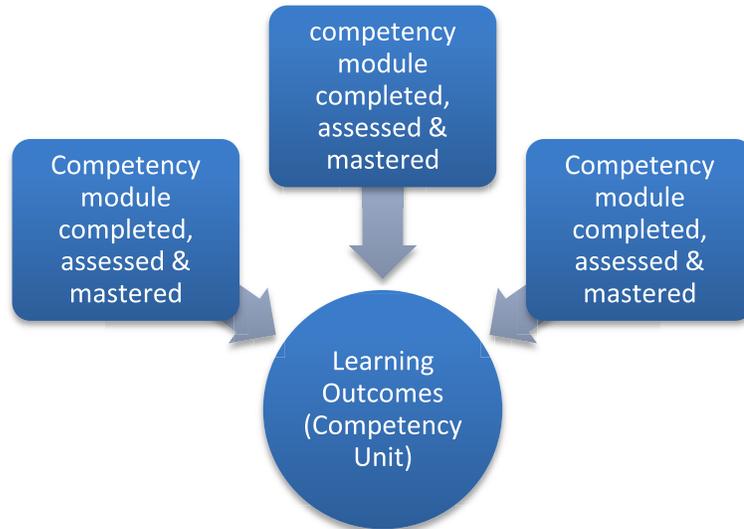


Figure 4. CBE Degree Design

Competencies must be clearly mapped to learning outcomes to ensure the inputs produce the desired outcomes (CAEL, 2013; Johnstone, 2014; Jones, 2002; C. Kazin, personal communication, 2014; Kelchen, 2015; Klein-Collins, 2013). Figure 5 illustrates competency modules that are linked directly to desired learning outcomes.



*Figure 5. From Competencies to Learning Outcomes for Competency Units*

Learning outcomes must be achieved in order to complete a competency unit (credit hour equivalent). Students take competency modules, which contain learning requirements, lists of suggested learning materials, and assessments (papers, projects, presentations, group work, tests, etc.), and receive feedback from faculty members within 48 hours of submission to enable students to focus on areas that need to be strengthened. Chickering's (1987) guidance for good practices in undergraduate education include faculty providing prompt, frequent feedback to students, which allows greater emphasis and attention to be devoted to areas of deficit in knowledge.

The literature reinforces the incorporation of the Essential Learning Outcomes developed by the American Association of Colleges & University's (AAC&U) Liberal Education and America's Promise (LEAP). Experts also agree with embedding the Degree Qualifications Profile (DQP), promulgated by the Lumina Foundation (AAC&U, 2011; CAEL, 2013; Klein-Collins, 2013; Lumina Foundation, 2012). The Essential Learning

Outcomes and DQP were developed to improve the quality of learning, and strengthen what a postsecondary credential represents. According to the Council for Adult & Experiential Learning (2012), the DQP is intended to foster broad “knowledge of science, cultures, and society; high-level intellectual and practical skills; an active commitment to personal and social responsibility and the demonstrated ability to apply learning to complex problems and challenges.” The DQP encompasses similar outcomes, but also includes “specialized knowledge in the field of discipline (terminology, tools and technologies, principal features, core theories and practices); intellectual skills, which include oral and written communications and quantitative applications; applied learning; civic learning.” Graduates should also have the ability to respond to social, environmental, and economic challenges at local, national, and global levels (Council for Adult & Experiential Learning, 2012). These learning outcomes should be integrated throughout the curriculum, increasing in difficulty and complexity as students make progress toward degree completion (AAC&U, 2011, p. 9). Taken from the Essential Learning Outcomes and DQP, the following competencies should be woven into CBE degrees.

#### From AAC&U’s Essential Learning Outcomes

AAC&U’s Essential Learning Outcomes were developed to ensure that students graduate with knowledge and competencies aligned with a liberal education. That is, students receive a well-rounded education in mathematics, science, communication and humanities. Students should learn to think critically, ponder complex issues, have

awareness of the world, one's place in it, and to contemplate how one's actions or inactions impact people and the environment. The Essential Learning Outcomes should ensure graduates have a foundation in the humanities in support of ethical, informed world citizenship (American Association of Colleges & Universities, 2012). The goal is to develop thinkers and doers, not just those who can follow directions.

The Essential Learning Outcomes require the following:

*Intellectual and Practical Skills*, including

- Inquiry and analysis
- Critical and creative thinking
- Written and oral communication
- Quantitative literacy
- Information literacy
- Teamwork and problem solving

*Personal and Social Responsibility*, including

- Civic knowledge and engagement – local and global
- Intercultural knowledge and competence
- Ethical reasoning and action
- Foundation and skills for lifelong learning

*Integrative and Applied Learning*, including

- Synthesis and advanced accomplishment across general and specialized studies

The Degree Qualifications Profile (DQP) was developed to ensure graduates received a rigorous higher education promoting intellectual abilities in mathematics,

science, communication and humanities, with additional focus on students' respective disciplines, and their ability to apply knowledge in relevant situations or settings (Lumina Foundation, 2011).

From the DQP:

- Specialized knowledge in the discipline or field
- Intellectual skills, including oral and written communication, and quantitative application
- Applied learning, being able to do something with what they have learned
- Civic learning, including understanding diverse perspectives, and understanding social, economic and environmental issues at the local and national levels

These competencies should be included in varying learning activities, competency modules, and assessments.

An Example: Human Resources Management Degree Model

Table 8 provides a sample CBE Human Resources Management degree model developed using the Essential Learning Outcomes and the DQP, along with current industry competency standards (Careeronestop, 2014).

Table 8. *Human Resources Competency Model*

HUMAN RESOURCES COMPETENCY MODEL				
Tier Name	Tier Block			
Tier 1 – Personal Effectiveness Competencies	Interpersonal Skills	Integrity	Professionalism	Initiative
	Dependability and Reliability		Adaptability and Flexibility	Lifelong Learning
<p><b>Interpersonal Skills:</b> Displaying the skills to work effectively with others from diverse backgrounds.</p> <p><i>Demonstrating insight into behavior</i></p> <ul style="list-style-type: none"> <li>Recognize and accurately interpret the communications of others as expressed through various formats (e.g., writing, speech, computers, etc.).</li> <li>Recognize when relationships with others are strained.</li> <li>Show understanding of others' behaviors and motives by demonstrating appropriate responses.</li> <li>Demonstrate flexibility for change based on the ideas and actions of others.</li> </ul> <p><i>Demonstrating sensitivity/empathy</i></p> <ul style="list-style-type: none"> <li>Show sincere interest in others and their concerns.</li> <li>Demonstrate sensitivity to the needs and feelings of others.</li> <li>Look for ways to help people and deliver assistance.</li> </ul> <p><i>Maintaining open relationships</i></p> <ul style="list-style-type: none"> <li>Maintain open lines of communication with others.</li> <li>Encourage others to share problems and successes.</li> <li>Establish a high degree of trust and credibility with others.</li> </ul> <p><i>Respecting diversity</i></p> <ul style="list-style-type: none"> <li>Interact respectfully and cooperatively with others who are of a different race, culture, or age, or have different abilities, gender, or sexual orientation.</li> <li>Demonstrate sensitivity, flexibility, and open-mindedness when dealing with different values, beliefs, perspectives, customs, or opinions.</li> <li>Value an environment that supports and accommodates a diversity of people and ideas.</li> </ul> <p><b>Integrity:</b> Displaying strong moral principles and work ethic.</p> <p><i>Acting fairly</i></p> <ul style="list-style-type: none"> <li>Treat others with honesty, fairness and respect.</li> <li>Make decisions that are objective and reflect the just treatment of others.</li> </ul>				

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 1 – cont.

#### *Behaving ethically*

- Abide by a strict code of ethics and behavior, even in the face of opposition.
- Encourage others to behave ethically.
- Understand that behaving ethically goes beyond what the law requires.
- Use company time and property responsibly.
- Perform work-related duties according to laws, regulations, contract provisions, and company policies.

#### *Taking responsibility*

- Take responsibility for accomplishing work goals within accepted timeframes.
- Accept responsibility for one's decisions and actions and for those of one's group, team, or department.

**Professionalism:** Maintaining a professional presence.

#### *Demonstrating self-control*

- Maintain composure and keep emotions in check.
- Deal calmly and effectively with stressful or difficult situations.
- Accept criticism tactfully and attempt to learn from it.

#### *Maintaining a positive attitude*

- Project a professional image of oneself and the organization.
- Demonstrate a positive attitude towards work.
- Take pride in one's work and the work of the organization.

#### *Professional appearance*

- Maintain a professional demeanor.
- Dress appropriately for occupational and worksite requirements.
- Maintain appropriate personal hygiene.

#### *Social responsibility*

- Refrain from lifestyle choices, which negatively impact the workplace and individual performance.
- Remain free from substance abuse.

**Initiative:** Demonstrating a commitment to effective job performance by taking action on one's own and following through to get the job done.

#### *Achievement motivation*

- Strive to exceed standards and expectations.
- Exhibit confidence in capabilities and an expectation to succeed in future activities.

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 1 – cont.

#### *Persisting*

- Pursue work with drive and a strong accomplishment orientation.
- Persist to accomplish a task despite difficult conditions, tight deadlines, or obstacles and setbacks.

#### *Setting challenging goals*

- Establish and maintain personally challenging but realistic work goals.
- Exert effort toward task mastery.
- Bring issues to closure by pushing forward until a resolution is achieved.

#### *Taking initiative*

- Go beyond the routine demands of the job to increase its variety and scope.
- Provide suggestions and/or take actions that result in improved work processes, communications, or task performance.
- Take initiative to seek out new work challenges, influence events, or originate action.

#### *Working independently*

- Develop own ways of working effectively and efficiently.
- Perform effectively even with minimal direction, support, or approval.
- Take responsibility for completing one's own work assignments.

**Dependability and Reliability:** Displaying responsible behaviors at work.

#### *Attendance and punctuality*

- Come to work on time and as scheduled.
- Arrive on time for meetings or appointments.
- Dial in to phone calls and web conferences on time.

#### *Attending to details*

- Diligently check work to ensure that all essential details have been considered.
- Notice errors or inconsistencies and take prompt, thorough action to correct them.

#### *Following directions*

- Follow directions as communicated in a variety of ways such as writing, speech, computers, or other formats.
- Comply with organizational rules, policies, and procedures.
- Ask appropriate questions to clarify any instructional ambiguities.

#### *Fulfilling obligations*

- Behave consistently and predictably.
- Is reliable, responsible, and dependable in fulfilling obligations.
- Diligently follow through on commitments and consistently complete assignments by deadlines.

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 1 – cont.

**Adaptability and Flexibility:** Displaying the capability to adapt to new, different or changing requirements.

#### *Dealing with change*

- Take proper and effective action when necessary without having all the necessary facts in hand.
- Easily adapt plans, goals, actions, or priorities in response to unpredictable or unexpected events, pressures, situations, and job demands.
- Effortlessly shift gears and change direction when working on multiple projects or issues.

#### *Entertaining new ideas*

- Is open to considering new ways of doing things.
- Actively seek out and carefully consider the merits of new approaches to work.
- Embrace new approaches when appropriate and discard approaches that are no longer working.

**Lifelong Learning:** Demonstrating a commitment to self-development and improvement of knowledge and skills.

#### *Demonstrating an interest in learning*

- Take actions showing an interest in personal and professional lifelong learning and development.
- Seek feedback from multiple sources about how to improve and develop.
- Modify behavior based on feedback or self-analysis of past mistakes.
- Learn and accept help from supervisors and co-workers.

#### *Identifying career interests*

- Take charge of personal career development by identifying occupational interests, strengths, options, and opportunities.
- Make insightful career planning decisions that integrate others' feedback.

#### *Integrating and applying learning*

- Integrate newly learned knowledge and skills with existing knowledge and skills.
- Use newly learned knowledge and skills to complete tasks, particularly in new or unfamiliar situations.

## HUMAN RESOURCES COMPETENCY MODEL

<b>Tier 1 – cont.</b>	<p><i>Participating in learning activities</i></p> <ul style="list-style-type: none"> <li>• Identify when it is necessary to acquire new knowledge and skills.</li> <li>• Take steps to develop and maintain knowledge, skills, and expertise necessary to perform one's role successfully by participating in relevant training and professional development programs.</li> <li>• Actively pursue opportunities to broaden knowledge and skills through seminars, conferences, professional groups, reading publications, job shadowing, and/or continuing education.</li> </ul> <p><i>Using change as a learning opportunity</i></p> <ul style="list-style-type: none"> <li>• Anticipate changes in work demands and search for and participate in assignments or training that address these changing demands.</li> <li>• Treat unexpected circumstances as opportunities to learn.</li> </ul>			
<b>Tier 2 – Academic Competencies</b>	<b>Reading</b>	<b>Writing</b>	<b>Mathematics</b>	<b>Science and Technology</b>
	<b>Communication</b>		<b>Critical and Analytic Thinking</b>	<b>Basic Computer Skills</b>
	<p><b>Reading:</b> Understanding written sentences, paragraphs, and figures in work-related documents on paper, on computers, or adaptive devices.</p> <p><i>Attention to detail</i></p> <ul style="list-style-type: none"> <li>• Note details and facts.</li> <li>• Detect inconsistencies.</li> <li>• Identify implied meaning and details.</li> <li>• Recognize missing information.</li> </ul> <p><i>Comprehension</i></p> <ul style="list-style-type: none"> <li>• Locate and understand written information in prose and in documents such as manuals, reports, memos, letters, forms, graphs, charts, tables, calendars, schedules, signs, notices, applications, contracts, regulations, and directions.</li> <li>• Understand the purpose of written materials.</li> <li>• Comprehend the author's meaning and identify the main ideas expressed in the written material.</li> </ul> <p><i>Information analysis</i></p> <ul style="list-style-type: none"> <li>• Critically evaluate and analyze information in written materials.</li> <li>• Review written information for completeness and relevance.</li> <li>• Distinguish fact from opinion.</li> <li>• Identify trends.</li> <li>• Synthesize information from multiple written materials.</li> </ul>			

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 2 – cont.

#### *Information integration*

- Integrate what is learned from written materials with prior knowledge.
- Use what is learned from written material to follow instructions and complete tasks.
- Apply what is learned from written material to new situations.

**Writing:** Using standard business English to compile information and prepare written documents on paper, on computers, or adaptive devices.

#### *Mechanics*

- Use standard syntax and sentence structure.
- Use correct spelling, punctuation, and capitalization.
- Use correct grammar (e.g., correct tense, subject-verb agreement, no missing words).
- Write legibly when using handwriting to communicate.

#### *Organization and development*

- Create documents such as letters, directions, manuals, reports, graphs, spreadsheets, and flow charts.
- Communicate thoughts, ideas, information, messages and other written information, which may contain technical material, in a logical, organized, and coherent manner.
- Present well-developed ideas supported by information and examples.
- Proofread finished documents for errors.
- Tailor content to appropriate audience and purpose.
- Distribute written materials appropriately for intended audiences and purposes.

#### *Tone*

- Use language appropriate for the target audience.
- Use a tone and word choice appropriate for the human resources field and organization (e.g., writing is professional and courteous).
- Show insight, perception, and depth in writing.

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 2 – cont.

**Mathematics:** Using principles of mathematics to express ideas and solve problems on paper, on computers, or adaptive devices.

#### *Application*

- Use appropriate mathematical formulas and techniques to solve problems.
- Translate practical problems into useful mathematical expressions.

#### *Computation*

- Add, subtract, multiply, and divide with whole numbers, fractions, decimals, and percentages.
- Calculate averages, ratios, proportions, and rates.
- Convert decimals to fractions and fractions to decimals.
- Convert fractions to percentages and percentages to fractions.
- Convert decimals to percentages and percentages to decimals.
- Understand relationships between numbers and identifies and understands patterns.

#### *Measurement and estimation*

- Take measurements of time, temperature, distances, length, width, height, perimeter, area, volume, weight, velocity, and speed.
- Use and report measurements correctly.
- Correctly convert from one measurement to another (e.g., from English to metric or International System of Units (SI), or Fahrenheit to Celsius).

**Science and Technology:** Using scientific rules and methods to express ideas and solve problems on paper, on computers, or adaptive devices.

*Application* Apply basic scientific principles and technology to complete tasks.

#### *Comprehension*

- Understand basic scientific principles and uses appropriate technology.
- Understand the scientific method (i.e., identify problems, collect information, form opinions and draw conclusions).
- Understand overall intent and proper procedures for set-up and operation of equipment.

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 2 – cont.

**Communication:** Listening, speaking, and signaling so others, can understand using a variety of methods, including hearing, speech, instant messaging, text-to-speech devices, etc.

#### *Communicating*

- Express relevant information appropriately to individuals or groups taking into account the audience and the nature of the information (e.g., technical or controversial).
- Convey information clearly, correctly, and succinctly.
- Use common English conventions including proper grammar, tone, and pace.
- Effectively establish interpersonal contact with one or more individuals using eye contact, body language and non-verbal expression as appropriate to the person's culture.

#### *Observing carefully*

- Notice nonverbal cues and respond appropriately.
- Attend to visual sources of information (e.g., video).
- Ascertain relevant visual information and use appropriately.

#### *Persuasion/Influence*

- Influence others.
- Persuasively present thoughts and ideas.
- Gain commitment and ensure support for proposed ideas.

#### *Receiving information*

- Attend to, understand, interpret, and respond to messages received in a variety of ways, including hearing, instant messaging, text-to-speech devices, and other methods.
- Comprehend complex instructions.
- Identify feelings and concerns communicated in various formats, such as writing, speech, computers, etc. and responds appropriately.
- Consider others' viewpoints and alter opinion when it is appropriate to do so.
- Apply active interpersonal communication skills using reflection, restatement, questioning, and clarification.
- Effectively answer questions of others or communicate an inability to do so and suggest other sources of answers.

**Critical and Analytic Thinking:** Using logical thought processes to analyze information and draw conclusions.

#### *Mental agility*

- Identify connections between issues.
- Quickly understand, orient to, and integrate new information.
- Inquiries, asking relevant questions to gather information for analysis.

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 2 – cont.

#### *Reasoning*

- Possess sufficient inductive and deductive reasoning ability to perform job successfully.
- Critically review, analyze, synthesize, compare, and interpret information.
- Draw conclusions from relevant and/or missing information.
- Understand the principles underlying the relationship among facts and apply this understanding when solving problems.
- Use logic and reasoning to identify strengths and weaknesses of alternative solutions or approaches to a problem

**Basic Computer Skills:** Using information technology and related applications, including adaptive devices and software, to convey and retrieve information.

#### *Computer basics*

- Understand the basic functions and terminology related to computer hardware, software, information systems, and communication devices.
- Use basic computer software, hardware, and communication devices to perform tasks.

#### *Ensuring computer security*

- Understand and comply with the organization's privacy policy and information security guidelines.
- Defend against potential abuses of private information.
- Recognize and respond appropriately to suspicious vulnerabilities and threats.
- Use the most recent security software, web browser, and operating system to protect against online threats.
- Utilize strong passwords, passphrases, and basic encryption.
- Recognize secure Web addresses.

#### *Using software*

- Use word processing software to compose, organize, edit, and print documents and other business communications.
- Use spreadsheet software to enter, manipulate, edit, and format text and numerical data.
- Use presentation software to create, manipulate, edit, and present digital representations of information to an audience.
- Use database software to manage data.
- Create and maintain a well-organized electronic file storage system.

HUMAN RESOURCES COMPETENCY MODEL			
<b>Tier 2 – cont.</b>	<p><i>Using the Internet and email</i></p> <ul style="list-style-type: none"> <li>• Use the Internet to search for online information and interact with Web sites.</li> <li>• Use the Internet and web-based tools to manage basic workplace tasks (e.g., calendar management, contacts management, and timekeeping).</li> <li>• Use electronic mail to communicate in the workplace.</li> <li>• Understand the different types of social media and their appropriate workplace and non-workplace uses, and the impact that various social media activities can have on one's personal and professional life.</li> <li>• Employ collaborative/groupware applications to facilitate group work.</li> </ul>		
<b>Tier 3 – Workplace Competencies</b>	<b>Personal and Social Responsibility</b>		
	<p><b>Personal and social responsibility:</b> Awareness of self and others, cognizant of one's impact on the environment, both work and external. Exercises good judgment at all times, and with consideration and good stewardship of resources.</p> <p><i>Good stewardship of resources</i></p> <ul style="list-style-type: none"> <li>• Civic knowledge and engagement-local and global</li> <li>• Intercultural knowledge and competence, respect for different perspectives</li> </ul> <p>Ethical reasoning, ability to discern right from wrong, exercising ethical judgment.</p>		
<b>Tier 4 – Human Resources Management Technical Competencies</b>	<b>Human Resources Principles &amp; Concepts</b>	<b>Human Resources Operations &amp; Service</b>	<b>Labor &amp; Employment Laws &amp; Regulations</b>
	<b>Health &amp; Safety</b>	<b>Customer Service</b>	<b>Quality Assurance/Quality Control</b>
	<p><b>Human Resources Principles &amp; Concepts:</b> Knowledge of the principles and concepts related to human resources.</p> <p><i>Human Resources Characteristics</i></p> <ul style="list-style-type: none"> <li>• Personnel and Human Resources - Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labor relations and negotiations, and personnel information systems.</li> <li>• Administration and Management - Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, service delivery methods, and coordination of people and resources.</li> </ul>		

## HUMAN RESOURCES COMPETENCY MODEL

### Tier 4 – cont.

*Human Resources* demonstrates awareness of emerging human resources concepts and principles; adapts current practices to incorporate advances in human resources management.

**Human Resources Operations:** Performs activities associated with setting up, monitoring, controlling and improving personnel processes to meet industry requirements; demonstrates understanding of the operations performed by entities within the field.

*Operation Procedures* Operates the recruitment, selection, hiring, organization development, compensation & benefits in a manner that benefits the organization; coordinates the operation to produce good service delivery; uses techniques and processes that include methods, tools and technologies to provide efficient, effective service to customers.

*Processing Procedures* Engages in the processing services; reads manuals or guidelines and/or other forms of information to determine service processes and service requirements; sets up and monitors performance of service processes.

**Labor & Employment Laws & Regulations:** Knowledge of local, state, and federal laws and regulations that impact the field.

*Legal Responsibilities* Understands the legal responsibilities of human resources organizations; maintains awareness of the implications of personnel actions; demonstrates knowledge of laws, legal codes, court procedures, and/or agency rules; performs duties in accordance with regulations, policies, laws and legislated rights of employees, customers and/or clients.

*Legal and Regulatory Compliance* Complies with relevant laws issued by federal and state agencies; follows standards produced by human resources organizations; identifies appropriate jurisdiction for local, state, and federal regulatory agencies as they pertain to human resource management; applies mandated standards for harassment, labor, and/or employment laws.

**Health & Safety:** Abides by the procedures necessary to ensure a safe and healthy work environment.

*Corrects Unsafe Situations* Identifies unsafe working conditions and provides prompt notification to those responsible for corrective action; stays alert to, and takes preventive action against hazards and threats; recommends measures to protect employees or workers from hazardous working conditions; follows protocol for reporting safety violations.

## HUMAN RESOURCES COMPETENCY MODEL

<b>Tier 4 – cont.</b>	<p><i>Safety Procedures</i> Demonstrates knowledge of relevant occupational safety and health laws and regulations; complies with safety codes, standards, and guidelines; adheres to workplace safety programs; understands emergency response plans.</p> <p><b>Customer Service:</b> Listens to customer needs and provides personalized assistance to meet those needs.</p> <p><i>Customer Assistance</i> Initiates customer contact; educates the customer regarding services through telephone, email and/or face-to-face interactions; responds to customer inquires; ensures that appropriate actions were taken to assist customer; resolves customer complaints; refers unresolved customer concerns to appropriate person for further action.</p> <p><i>Service Performance</i> Assesses customer needs in order to provide personalized customer care; executes customer service expectations and meets organizational standards for service.</p> <p><b>Quality Assurance/Quality Control:</b> Ensures materials, processes, services, and products meet quality specifications during and after service delivery or performance.</p> <p><i>Quality Assurance</i> Verifies to determine whether a service that is under development meets specified requirements; reviews services during development to catch problems before service is finalized; monitors quality throughout the process.</p> <p><i>Quality Control</i> Identifies quality standards for service; ensures that delivered services conform to an establish set of quality standards; determines if a service meets customer/client requirements; takes action to identify whether services conform to requirements or reveal defects; reports quality failures to appropriate individuals for corrective action.</p>
<b>Tier 5 – Industry-Sector Technical Competencies</b>	<b>Management</b>
	<p><b>Management:</b> Professionals in human resources management understand strategic workforce planning and management, including succession planning, executive recruitment, compensation and benefit structures, labor relations, and organizational development.</p>

HUMAN RESOURCES COMPETENCY MODEL	
<b>Tier 5 – cont.</b>	<p><b>Technical content areas</b></p> <p><i>Workforce management</i> Knowledge of the workforce continuum that enables strategic workforce planning.  Knowledge of compensation and benefit structures, opportunities and challenges</p> <p>Ability to understand and manage labor contracts, grievance procedures, and due process.</p> <p>Ability to analyze workforce strengths and weaknesses and develop strategies for strengthening.</p> <p>Understands the requirements of executive recruitment.</p> <p>Knowledge of organization development strategies.</p>

(Careeronestop, 2014)

Experts identify the establishment of clear, measureable competencies, mapped to learning outcomes, in conjunction with reliable, valid assessments as principles of good practice that will enable high quality learning (Johnstone & Soares, 2014; C. Kazin, personal communication, 2014; Kelchen, 2015; Klein-Collins, 2013). Frequent, smaller assessments that include timely feedback allow students to move through materials they have already mastered, and spend more focused learning time in areas of challenge. Learning becomes even more personalized as faculty guide students to learning materials that better suit their learning styles, enhancing their ability to understand materials (CAEL, 2013).

Assessments must be tied directly to competencies (Voorhees, 2002). Types of assessments vary and include tests, projects, presentations, group assignments, relevant community engagements, papers, and observations. Rubrics identifying expectations and standards of performance should be shared with students, and used for consistency in assessments (Voorhees, 2002).

## **INITIAL RESOURCE REQUIREMENTS**

The CBE framework will require additional resources during the development and implementation phase. Internal sources can be utilized, but will need to be augmented by external resources. The resources and related budget are listed below.

- 25% of Executive Director of Enrollment Management's time
- 25% reassigned time for two faculty members
- 3 Academic Success Coaches at \$55,000 per year
- 1 course designer for 160 hours
- 1 staff member of the Registrar's office for 120 hours
- 2 Prior Learning Assessment staff (coordinator and support)
- 1 marketing coordinator for 80 hours
- 1 graphic designer for 40 hours
- 1 videographer consultant to produce 2 marketing videos, 30 seconds & 4 minutes
- Advertising

Using the resource list above, a budget has been developed and is included in Table 9.

Table 9. *Lansing Community College Competency-Based Education Proposed Budget*

DESCRIPTION	ADDITIONAL REVENUE/EXPENSE
Wages & Compensation & Benefits – additions to the college’s current complement of resources includes:	
Adjunct faculty replacements for reassigned time	(\$134,000)
Academic Success Coaches	(240,000)
Prior Learning Assessment staff	(113,000)
Advertising & External Video production	(35,000)
Electronic Proctoring	(100,000)
CBE Consultant	(50,000)
Professional Development	(20,000)
Enrollment Growth	1,280,000
Prior Learning Assessment (assumed 25% of students will pursue PLA)	11,250
Net Total	\$599,250

*Note.* Proposed budget is based on redesign of three degrees.

As designed, the new CBE program will leverage staffing resources already in place, requiring minimal additional human resources to backfill for faculty reassigned time, academic success coaches, and prior learning assessment staff. Consulting services should be required in the first year only, and the online proctoring technology will be available for online education college-wide. Professional development will be ongoing until the desired numbers of CBE degrees are established. This proposal should generate net positive revenue for the college.

## **ACCREDITATION**

The Higher Learning Commission (HLC, 2010) requires accredited higher education institutions provide notification, and/or secure approval for new degree programs that are offered more than 51% online, Policy F.20.040.

## **SUMMARY**

Students enrolled in a CBE degree program offered by Lansing Community College can leverage experiential and prior learning to reduce the time and cost to earn a market-relevant degree. The CBE framework is designed for adult learners in LCC's service area who have earned some college credit, but no degree. Offered in a subscription format, this flexible, personalized online learning program allows working adults to pursue their education at their own pace—as quickly or deliberately as one needs. Redesigned degrees focused on competencies identified by faculty, and business and industry will be constructed to produce affordable, high quality outcomes. This framework will help close the skills gap, while strengthening the college and regional economy.

## CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

### INTRODUCTION

Competency-based education holds significant promise for many Americans seeking a postsecondary credential that has market relevancy. Employers will value high quality CBE credentials because they will represent what a graduate knows and can do in a variety of real-world situations. As the quality of higher education credentials is being questioned, CBE presents one option for improving quality.

CBE, with all of its benefits, is not a panacea for the challenges facing the economy, labor force, colleges and students. CBE presents an opportunity to improve quality of learning outcomes and credentials. Any significant curricular change is complex, involves many stakeholders, and requires leadership, vision, communication, transparency, and evaluation. CBE challenges the fundamental underpinnings of traditional higher education by requiring demonstrated performance by students *and* institutions.

### LIMITATIONS AND ASSUMPTIONS

Competency-based education models have been tested and evaluated over many decades in career and technical programs, yet few programs exist in liberal arts, and with the general education core. Difficulty crafting high-quality competencies and

reliable, valid assessments is expected as this method of learning expands into the main stream of higher education. Higher education is steeped in traditions of how to teach; changing cultures to focus on how students learn, and whether or not learning should be tied so tightly to time and the credit hour, will evolve slowly.

The literature did not provide evidence of effectiveness beyond career and technical education programs, as most CBE initiatives are in infancy stages, and remain without solid feedback from students and employers on the quality of learning, translated into knowledge, skills, and abilities. Existing Title IV regulations inhibit institutions' abilities to take CBE programs to scale, and standards of good practice for CBE programs have yet to be widely discussed and agreed upon by the industry.

Lansing Community College has not yet identified resources to support full development of a CBE program, and in-house knowledge about what CBE is and how it should operate to help students is limited.

Competency-based education will impact methods and practices used in the industry, as institutions respond to external policy, financial, competitive, and accountability pressures. Production of graduates with abilities to put learning and knowledge into practice in multiple situations, and differing circumstances will begin to restore business executives' and students' confidence in what a college credential represents. Examination and discussion of what the credit hour and grades indicate relative to knowledge, skills and abilities will be contrasted against more effective methods of learning. An important question is how long will the evolution take? Similar changes occurred within the news industry within a decade—technology enabled the

delivery of news to more people, and from more sources, in vastly shorter time periods. Consumers select whether or not to have inky fingertips, or to use those fingertips to touch a screen to deliver the same content instantaneously, and from multiple perspectives. The method of delivery, and source of the knowledge are less relevant than being information literate, and employing cognitive skills to digest and synthesize the information. Higher education has exceptional value to individuals, society, and the economy; institutions will have to figure out how to engage and skill-up the millions of workers needed to power the knowledge economy. Given the attention and interest by policy makers and industry experts, coupled with the history and potential it holds, competency-based education will likely be one influential piece of the puzzle.

## **RECOMMENDATIONS**

The recent spotlight on CBE as a potential educational pathway to meet labor market demand by skilling-up the workforce, improving quality and affordability, while providing assurances of what graduates know and can do has garnered the attention of educators and policy makers alike. The nascent nature of contemporary CBE programs leaves the industry without best practices to employ as programs are developed. Education experts, Sally Johnstone, Vice President for Academic Advancement at Western Governors University, and Louis Soares, Vice President of Policy Research for the American Council on Education, authored *Principles for Developing Competency-Based Education Programs* (Johnstone & Soares, 2014). Table 10 contains the recommended principles.

Table 10. *Principles for Developing Competency-Based Education Programs*

## PRINCIPLES FOR DEVELOPING COMPETENCY-BASED EDUCATION PROGRAMS

### **1. The degree reflects robust and valid competencies.**

Competencies are the core of the CBE curriculum. In professional programs, they should align with both industry and academic expectations. The process by which they are developed should be explicit and transparent. Program-level competencies should reflect the skills and knowledge that students will need at the next stages of their development, whether it be further education or employment.

The process for developing program-level competency definitions should be iterative, evolving to incorporate marketplace demands, academic expectations, and student needs. The validity of program competencies should be determined by student and employer feedback to faculty and program designers.

At WGU, for example, program councils made up of academic and industry experts create high-level competencies that academic staff can use to design courses and learning objectives, as well as assessments. These program councils meet regularly to review the efficacy of their advice and continually update information on the field of practice for the academic staff. Several community-college partners have industry councils already in place and are using these to help guide the development of their CBE programs.

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### **2. Students are able to learn at a variable pace and are supported in their learning.**

One of the valuable aspects of the CBE model is its ability to accommodate the realities that people master subjects at different rates and bring diverse levels of prior experience and knowledge to that mastery. A CBE program should allow students to progress through the curriculum at an individualized pace, which means that just-in-time academic assistance and other support must be provided to keep them motivated and academically on track.

This gives rise to a number of challenges within a more traditionally organized learning environment based on holding time (semesters or quarters) constant and allowing the level of mastery (as reflected in grades) to vary.

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### **3. Effective learning resources are available anytime and are reusable.**

Students' need to work through the learning resources (developed locally, licensed from commercial vendors, or adapted from open educational resources) at their own pace means that the materials must be available when needed. The materials must be of high quality: accurate, engaging, at the appropriate level of difficulty, well matched to the learning objectives defined for the course, and compatible with the institution's technology platform.

## PRINCIPLES FOR DEVELOPING COMPETENCY-BASED EDUCATION PROGRAMS

In order for these learning resources to be continuously available for students working within and between traditional terms, they should not be designed and developed for use only in a single term.

Once the learning resources (e.g., e-texts, recorded lectures, simulations) are launched and students begin using them, it is critical to ensure that they are helping students master the required competencies by tracking how well those students are doing on the assessments. If they are not being as successful as expected, the resources should be re-evaluated and adjusted. However, when first starting a program with new learning resources and new assessments, it is important to determine through expert review of both whether the problems are in the learning resources or the assessments.

At both Austin and Sinclair Community Colleges, academic staff members (faculty and instructional designers) use the courses' objectives to conduct a search for learning resources. They look to commercial and non-commercial publishers, software companies, colleagues within and outside their institutions, or professional societies for high-quality learning resources. Where there are gaps in what the best resources cover and the course's learning objectives, the academic staff members create short videos, simulations, or problem sets to bridge those gaps.

Once learning resources are identified, WGU staff members conduct an analysis to be sure the costs are appropriate, the materials integrate well with the institution's learning platform, and the resources are available whenever students need them. The same process is used to modify or update the learning resources, which are reviewed and refreshed on a regular schedule to stay current with academic trends, industry demands, and real-world needs, as well as to take advantage of new resources and respond to the feedback of current or former students.

WGU has discovered that when working with commercial publishers, the institution, not individual faculty members, should mediate the transaction. Institutions have big numbers on their side, which gives them considerable leverage in negotiations with vendors. And as the institution collects information on the efficacy of the learning resources, it can share its analysis with the vendors to help improve the quality of their resources.

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#### **4. The process for mapping competencies to courses, learning outcomes, and assessments is explicit.**

Once competencies are established at the program level, academic teams need to translate them into topics that can be formulated into courses of the appropriate length and complexity. The learning objectives of the course then drive the selection of learning resources and assessments.

## PRINCIPLES FOR DEVELOPING COMPETENCY-BASED EDUCATION PROGRAMS

It is critical to have a well-defined process in place early in the development of the CBE program, with identified individuals responsible for each stage. Making clear who needs to be informed when any changes take place will allow the people in charge of each stage to adjust to those changes.

If a learning objective changes, for instance, the person responsible for the learning resources and the one responsible for the assessments need to know right away in order to initiate appropriate changes to their parts of the program. This protects the students in the program from using materials that teach skills and knowledge that are not integrated into assessments.

There should also be an independent check in place to be sure the competencies are fully reflected in the course-level learning objectives and matched to the assessments. When different people are responsible for different parts of the process, someone needs to check that all the pieces match.

At Broward College, the department faculty form teams of three for each course within their CBE program. The team members define the measurable learning outcomes for the course. Then two team members identify, find, or create the learning resources, while the third works independently to create assessments mapped to the learning objectives. A fourth member of the faculty reviews the alignment between the learning resources and the assessments. This approach enables a precise identification of the points where adjustments may need to occur.

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### **5. Assessments are secure and reliable.**

Assessments are built using the expertise of industry and academic subject-matter experts, thus ensuring content validity. After the assessments are created, they should go through some pilot testing with a small group of students to reveal any problems that may exist. The pilot can ensure that the assessments use clear language and that the evaluation rubrics work.

At WGU, the assessment developers receive a blueprint from the program developers to guide their work. The assessment-development team works with writers (faculty and other subject-matter experts) to ensure quality and the alignment with objectives and competencies. All assessments are reviewed a number of times during the development process, and modifications and revisions are made as needed.

Assessments can take many forms, from demonstrations to research papers to machine-scored objective tests. Tests should be delivered in a face-to-face or online proctored environment that uses technology allowing for remote student-identity verification. Several of the colleges offering their first CBE programs are attracting students from their local communities, so they require students to come to campus for proctored testing or demonstration sessions.

## PRINCIPLES FOR DEVELOPING COMPETENCY-BASED EDUCATION PROGRAMS

For students who cannot come to a proctored setting, there are several companies (e.g., Kryterion, ProctorU) that provide student-identity verification and electronic proctoring of assessments. These services monitor a student's activities while testing via webcams and keystroke analytics. The service can shut down a testing session if necessary.

To increase the security of objective tests, services such as Caveon provide Web crawlers to identify any material that was inappropriately posted to the Web. Student-generated artifacts can be submitted to sites such as Turnitin.com, which provide feedback regarding the originality of the work.

Multiple-choice assessments are scored automatically, and the student receives immediate feedback. For student projects and papers, a mature CBE program uses well-trained evaluators working with a scoring rubric, created when the assessment is developed, to evaluate student submissions and provide feedback to the student and the faculty member about the quality of the submission. These scoring rubrics represent students' and evaluators' shared understanding of the courses' aims and also contribute to the reliability of the assessments.”

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(Johnstone & Soares, 2014)

WICHE Cooperative for Educational Technologies Fellow Patricia A. Book (2014)

compiled a list of 10 lessons learned from institutions and professionals that have launched CBE degrees, in the 2014 report *All Hands on Deck: Ten Lessons from Early Adopters of Competency-Based Education*. The lessons, each accompanied by their rationale, are listed below in Table 11 to provide additional guidance for institutions contemplating the development of CBE programs.

Table 11. *Ten Lessons from Early Adopters of CBE*

LESSON	RATIONALE
1. Ensure steady support from the top	Stable institutional leadership is a critical success factor in launching an initiative of this kind. This would include an initial assessment of institutional readiness. If members of the faculty and staff have a voice in deciding upon developing a CBE model, that will mitigate internal resistance.
2. Engage faculty	Faculty resistance can be anticipated, particularly given the nature of CBE and its disaggregation of faculty roles. Most initiatives have been very attentive to faculty concerns, if not initially, certainly as faculty raise issues. Earlier involvement of faculty is better than later. For those hiring faculty within an independent unit, their workload expectations have been defined differently than the tri-partite expectations of tenure-track faculty. Their focus is on engaged scholarship and application of theory and methods to practice. There are arguments that this may be harmful to the faculty member's long-term career, but program leaders disagree as these faculty are on a different career path. Nonetheless, existing faculty have been helpful in building assessments, course content, and pedagogy even though in some cases they cannot devote full-time to the competency-based initiative.
3. Decide early about employing existing or new faculty	Related to lesson 2, how these programs are staffed is a critical issue to be addressed upfront and should be based on the approach taken. Programs may rely on existing faculty or turn primarily to adjunct or non-tenure track faculty for curricular and assessment roles.
4. Build supportive data systems	A CBE model is based on assessment not only of learning but mastery. Those who are working with students need to have accessible data systems on students who are proceeding in a self-paced manner in order to advise them properly and guide them. Students need to be supported to progress at a reasonable rate. Advisors need information to identify when a student is struggling and needs help. Faculty need to know how well each process and all learning resources are working.

LESSON	RATIONALE
5. Decide whether there will be credit equivalencies	Western Governors University learned early on that students will want to change their pathway and will need to have a way to transfer from a CBE program to another degree pathway. This is a major factor in those institutions pursuing the course-based model with credit equivalencies. WGU, for example, has a formula that they use to determine credit equivalencies for their courses. Their CBE assessments allow the student to demonstrate the competencies and mastery of the same material that would be covered in a course.
6. Engage student support services early	While designers were attentive to faculty input and ideas, often the student services personnel were late to the design table. The questions for student services personnel regarding support for student advising, financial aid, and transcribing of learning achieved are not trivial tasks.
7. Articulate CBE and traditional data systems	Lesson 6 ties directly to student information systems and the challenges inherent in introducing a self-paced, non-semester-based, non-grade based model in a technology environment often hardwired for something quite different. Integration with existing student information systems is a critical success factor to scale CBE programs. Presently, there are no off-the-shelf tools to technologically support CBE programs. Institutions will need to be able to gauge how successful their programs are so they need to agree on metrics for measuring success upfront. The more tied to existing institutional metrics from their student information or learning system, the easier this will be. This information will be critical to both academic and non-academic staff so they know whether or not their learner support and assessment strategies are working.
8. Choose vendors carefully	Those designing CBE programs confronted a wide number of vendors offering services to support various aspects of the CBE model, including learner support and data systems. Designers indicated that the learning curve in assessing external service providers was steep and time-consuming. The best advice is to press vendors on issues of integration and to include IT staff in the process to ask the right questions about integration with institutional enterprise systems. This due diligence would

LESSON	RATIONALE
	include asking for examples of integration and references that can be consulted on their experience with the vendor. As another example, WGU discovered that the institution, not individual faculty members, should mediate negotiations with commercial publishers (Johnstone and Soares 2014).
9. Create pricing model to meet financial and programmatic goals	Designers have developed pricing models for these new initiatives but financial models for their sustainability remains a challenge. The goal in some cases, for example the University of Wisconsin system, is to return net revenue to the participating system colleges and to operate on a self-sustaining basis. Yet the program required a large start-up investment and the lack of off-the-shelf technology solutions to support the CBE initiative necessarily limited initial cohort enrollments. Achieving scale will be important to achieving the business model.
10. Consider stand-alone operations	To date, the administrative structure for CBE models seem to thrive in some institutions in separate and independent structures, rather than integrated into academic program structures. This model enabled CBE programs to launch quickly. Ensuring the necessary relationships with institutional faculty will be key to long-term sustainability. Centralizing advising and administrative support systems seems to be emerging as an efficiency factor to support CBE given that virtually everything needs to be reconsidered and redesigned. Also, if learning objectives change, instructional designers need to know to adapt the learning resources to support the objectives. Evaluators also need to know who are responsible for the assessments (Johnstone & Soares, 2014). So, whether a stand-alone operation is necessary or not, centralizing or superbly coordinating these inter-related processes is key to success.”

(Book, 2014)

With consideration of the principles for developing CBE programs (Johnstone & Soares, 2014), and lessons identified by Book (2014), Lansing Community College should

assess its readiness for development and implementation of a CBE program. Actions include:

- Secure support of the President and Board of Trustees for development of a CBE program;
- Establish a bold, compelling vision for competency-based education at LCC;
- Charter a team, led by the Executive Director of Enrollment Management and Program Innovation, to drive the project;
- Develop a white paper on how LCC would develop and implement CBE;
- Identify resources required to develop and implement CBE, including staffing, technology, professional development, marketing support, recruitment, and accreditation approvals;;
- Engage the Academic Senate via a subcommittee to assess establishing CBE at the college, gauging faculty interest in CBE;
- Conduct market research to ascertain the prospective students' interest in a CBE program;
- Engage Ferris State University, an LCC University Center partner, in discussions to determine its interests in partnering to create a CBE Bachelor's degree to replace or complement the Business Administration, Criminal Justice and Information Security degrees currently offered at the University Center;
- Engage all University Center partners to explore their interests in developing CBE Bachelor's degrees that align with LCC's CBE Associate's degrees;
- Engage regional employers to determine greatest skills gaps;
- Assess institutional readiness to begin a pilot CBE program, examine resource requirements and availability, and make a go/no go decision.

## **DEGREES FOR CONSIDERATION**

Data available via CareerOneStop (2014) have been reviewed and were used to develop a list of proposed CBE degrees, which are shown in Table 12.

Table 12. 2012-2022 Earnings & Growth Projections for Selected Occupations:  
Recommended CBE Degrees

TITLE	EDUCATION ATTAINMENT	ANNUAL EARNINGS IN MID-MICHIGAN (LANSING/ EAST LANSING)	OPENINGS IN U.S.	PROJECTED GROWTH IN U.S.
Accountants & Auditors	N/A	\$19,200 – Low <sup>a</sup> \$61,900 – Median <sup>b</sup> \$87,900 – High <sup>c</sup>	54,420	13%
Bookkeeping, Auditing & Accounting Clerks	High school diploma or equivalent: 38% Some college, no degree: 27% Bachelor’s degree: 18%	\$22,900 – Low <sup>a</sup> \$39,000 – Median <sup>b</sup> \$54,700 – High <sup>c</sup>	37,000	11%
Computer User Support Specialists	Some college, no degree: 18% Associate’s degree: 22% Bachelor’s degree: 29%	\$26,600 – Low <sup>a</sup> \$41,200 – Median <sup>b</sup> \$63,500 – High <sup>c</sup>	19,690	29%
General & Operations Managers	Some college, no degree: 11% Associate’s degree: 32% Bachelor’s degree: 27%	\$41,900 – Low <sup>a</sup> \$92,100 – Median <sup>b</sup> \$172,900 – High <sup>c</sup>	61,310	12%
Human Resources Specialists	High school diploma or equivalent: 12.3% Some college, no degree: 21.1% Associate’s degree: 9.3% Bachelor’s degree: 40.7% Master’s degree: 14.6% Doctorate or Professional degree: 2%	\$37,200 - Low <sup>a</sup> \$57,600 - Median <sup>b</sup> \$77,700 - High <sup>c</sup>	10,950	8%
Nuclear Monitoring Technicians	Associate’s degree: 27% Bachelor’s degree: 17% Master’s degree: 29%	\$61,800 – Low <sup>a</sup> \$76,500 – Median <sup>b</sup> \$99,500 – High <sup>c</sup>	410	15%

TITLE	EDUCATION ATTAINMENT	ANNUAL EARNINGS IN MID-MICHIGAN (LANSING/ EAST LANSING)	OPENINGS IN U.S.	PROJECTED GROWTH IN U.S.	
Paralegals & Legal Assistants	Some college, no degree:	12%	\$31,400 – Low <sup>a</sup> \$43,400 Median <sup>b</sup> \$70,100 High <sup>c</sup>	9,120	17%
	Associate’s degree:	30%			
	Bachelor’s degree:	44%			
Veterinarian Technologists or Technicians	High school diploma or equivalent:	12%	\$25,800 - Low <sup>a</sup> \$41,800 – Median <sup>b</sup> \$55,800 High <sup>c</sup>	3,340	30%
	Some college, no degree:	11%			
	Associate’s degree:	68%			

(Careeronestop, 2014)

*Note.* National Data Source: Bureau of Labor Statistics, Occupational Employment Statistics and Employment Projections. State Data Source: Michigan Department of Labor & Economic Growth, Bureau of Labor Market Information & Strategic Initiatives.

<sup>a</sup> 10% of workers earn less, and 90% earn more.

<sup>b</sup> 50% earn less, and 50% earn more.

<sup>c</sup> 90% earn less, and 10% earn more.

## CONCLUSION

Lansing Community College has a tremendous opportunity to transform learning within its community by offering students college credit for college-level prior learning, not requiring students to work through materials, which they’ve already mastered. A self-paced, flexible and personalized learning experience can help students obtain the credentials they desire, and begin to close the skills gap in Mid-Michigan at the same time.

Competency-based education holds significant promise for many students; LCC should leverage its proud CBE legacy by extending it beyond its traditional career and

technical programs. LCC graduates should be highly sought after by regional and national employers because of their ability to put what they have learned into practice.

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