CBE and NCCCS:
The Potential for Competency-Based Education
In the North Carolina Community College System

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Executive Summary

Policy Question:

Should the North Carolina Community College System implement Competency-Based Education, and if so, how should the organization lay the groundwork for CBE implementation?

Background:

Community colleges face the challenges of ever-increasing demands on their services and declines in public funding. They are also recognizing a need to provide more effective signaling to employers related to the specific skills and capabilities students can be expected to have when completing programs. Colleges are seeking inventive and "disruptive" policy options in order to face these significant challenges. Competency-based education (CBE) is an innovative educational delivery model in the higher education context that offers one way of hypothetically substantially reducing costs per student. CBE also offers a way of assessing and reporting specific competencies that students have actively and individually demonstrated.

As with many community college systems, the North Carolina Community College System (NCCCS) strives to balance the priorities of increasing completion rates, maintaining open access to the wide array of potential students, and ensuring the quality of education at their institutions. The NCCCS office is considering the option of implementing a form of competency-based education in its community colleges. To inform its decision-making, NCCCS will need to understand key aspects of CBE and the factors that could most influence its own readiness for adopting CBE.

Competency-based education places its focus on directly assessing student learning to determine a student's ability to advance through an academic program, as opposed to student's "seat time," which focuses on a certain number of credit hours earned.   It exists in a variety of forms throughout the U.S.; this report focuses primarily on online, self-paced CBE programs that use direct assessments to evaluate student performance and determine advancement.

Research:

In order to provide broad background information for NCCCS, I conducted extensive document review of policy reports from research and advocacy organizations, media coverage, and publications from institutions with CBE in place. Several common themes emerged. CBE has the potential to reduce costs and increase flexibility for students and institutions. It measures learning instead of time and ensures individual student mastery. Some critics raise concerns related to quality of learning and integrity of credentials with CBE, while proponents suggest these concerns are misguided. A number of institutions and policymakers at the local, state, and national level are currently excited about the potential for CBE. Some advocates suggest that community colleges and CBE are a natural fit, as CBE works well with adult learners and vocational programs, among other reasons.

I then selected four higher education institutions and prepared mini-case studies on their CBE programs. The mini-case studies include the following programs: Southern New Hampshire University's College for America, the Western Governors University and Broward College partnership, Northern Arizona University's Personalized Learning program, and the

University of Wisconsin System's Flexible Option. I conducted in-depth interviews with leaders involved with CBE programs at these four institutions, including administrators and faculty members. The mini-case studies (found in Appendix C) focus on institutions' decision making, planning, and implementation processes related to CBE.

Findings:

The Analysis Section provides a synthesis of the motivations, reactions, and lessons learned from the four institutions. This first provides context on institutions' reasons for adopting CBE. Leaders then shared their take on the advantages of CBE as well as any initial concerns they might have had related to the model. Respondents also discussed strategies that worked in their favor, as well as the biggest challenges that they faced in the planning and implementation phases of CBE. I then include a section with advice from CBE institutions related to the planning and implementation phases. Highlights include:

- Create your CBE program apart from existing departments.
- Target certain student populations and course subject areas, at least initially.
- Hire a capable project manager, designate a creative team, and give them autonomy.
- Campus leaders must take initiative and support CBE.
- Faculty members' involvement, feedback, and support are key.
- CBE start-up costs are substantial; CBE should not be undertaken lightly.
- Federal financial aid eligibility and accreditation can significantly affect timelines; plan accordingly.
- Community colleges may require a special touch in CBE program design.

Recommendations:

- NCCCS should consider allowing 12-18 months to pass before taking major action in planning or implementation.   If existing programs are reporting positive outcomes at that point, NCCCS should begin to plan a CBE program for its schools.
- NCCCS schools planning for the model should focus on small-scale implementation in a field that involves licensure in an area identified as in high-demand by employers.
- NCCCS should develop proposals for CBE models and allow interested schools within the system to come forward. From there, NCCCS efforts could focus on "back of the house" operations methods, to be shared with all participating schools.
- Designate a full-time project manager to oversee and drive the planning and implementation phases.
- NCCCS school administrators should engage faculty members early in the process, once decisions have been reached and the project framework has been established.
- NCCCS schools should include substantial pre-screening efforts to ensure that students enrolling are best suited to benefit from the CBE model.
- Coordinate with the University of North Carolina system to ensure that CBE credits will transfer.
- To the extent possible, create a separate, more autonomous CBE program within a school. If feasible, hire faculty specifically to be engaged in the CBE program.

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Competency-Based Education Models

Policy Question:

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Background:

Community colleges face the challenges of ever-increasing demands on their services and declines in public funding. They are also recognizing a need to provide more effective signaling to employers related to the specific skills and capabilities students can be expected to have when completing programs. Colleges are seeking innovative and "disruptive" policy options in order to face these significant challenges. Competency-based education (CBE) is an innovative educational delivery model in the higher education context that offers one way of hypothetically substantially reducing costs per student. CBE also offers a way of assessing and reporting specific competencies that students have actively and individually demonstrated. The North Carolina Community College System (NCCCS) office is considering the option of implementing a form of competency-based education in its community colleges. To inform its decision-making, NCCCS will need to understand key aspects of CBE and the factors that could most influence its own readiness for adopting competency-based education.

As with many community college systems, the North Carolina Community College System strives to balance the priorities of increasing completion rates, maintaining open access to the wide array of potential students, and ensuring the quality of education at their institutions. This year, it has also set a goal of focusing on economic growth and providing targeted skills for job-ready graduates.

What is Competency-Based Education?

CBE places its focus on directly assessing student learning to determine a student's ability to advance through an academic program, as opposed to student's "seat time," which focuses on a certain number of credit hours earned. This student learning is measured through specially designed assessments to determine if students have mastered concepts. In a traditional credit-hour model, a student is only able to complete a course in the predetermined four-month duration, even if they could have mastered the materials and passed the exams in half that time. With CBE in place, these students could take the assessments as soon as they choose, and students who've mastered concepts could then move on. In traditional time-based formats, the time spent in a course is constant while the rate and amount of learning varies; with CBE, the time spent completing a course will vary while the learning will be held constant (Mendenhall 2012).

A number of reports and articles have attempted to define CBE, giving a broad history of the concept and its development in the field of American education. Reports trace the CBE movement to the 1960's, when a CBE model was piloted to train elementary school teachers. As increased numbers of adults were returning to college in the 1970's, CBE gained some momentum, as it fit the learning style and lifestyle of the adult learner (Klein-Collins 2012).

The exact definition of what constitutes CBE (versus other models), especially given the various permutations of CBE, can be difficult to pinpoint. CBE's main distinguishing characteristic is its reliance on completion of competency assessments to determine the timing of a student's progress towards a course or degree, as opposed to courses having a set period of completion. In 2002, the U.S. Department of Education's National Center for Education Statistics prepared a report as a guide for educational institutions with a potential interest in using competency-based education in postsecondary institutions. This report defines a competency as "a combination of skills, abilities, and knowledge needed to perform a specific task." (pg. vii) These skills, abilities, and knowledge have been bundled by integrated learned experiences and act as a unit of competency with "currency in relation to the task for which they are assembled" (Jones 2002).

CBE is extremely adaptable; it can and has been implemented in a number of institutions. Many students allow for "prior learning assessments" at the outset of a course or program. This allows a student to take an assessment and "test out of" some or all of a certain course and get credit for knowledge they have, regardless of where it came from. Based on his or her performance on the initial assessment, a student may begin a course one-third of the way through the standard course materials and can then advance at his or her own pace from there.

While many of the technological advances behind the increasing popularity of massive open online courses (MOOCs) have helped promote the growth in CBE, MOOCs and CBE are distinct approaches and serve two separate functions. MOOCs involve online platforms for making educational materials available to either the public at large, or, for some, a restricted pool of students. Although advances are being made in this area by some organizations, MOOC models typically do not involve awarding credit, which has limited their business model. Supporters of CBE suggest it offers more possibilities than MOOCs, in terms of quality assurance and creating viable business models. CBE is an educational approach that focuses on delivering educational material, sometimes even drawing from open source or MOOC materials. CBE then assesses learning and awards credit, certification, or degrees (Fain 2012).

Competency-Based Education in Practice

CBE, while in place in a relatively small number of schools, exists in a variety of forms at different types of institutions. The core common idea is that "all [CBE institutions] explicitly articulate what students must be able to know and do upon graduation—and assessments validate that learning throughout a student's experience in the program" (Baylor 2013). Public, private not-for-profit and for-profit institutions have all implemented models of CBE. These models vary in terms of their continuing ties to the credit hour, the learning activities that take place, the role of faculty, and the type of assessments involved (Baylor 2013).

CBE as the basis for course or degree progression

Some programs integrate competencies into more traditional credit hour based courses and degrees. These programs define competencies for students to achieve at the course or degree level but do not make the assessment of these competencies the basis for students' advancing through either. They may use the gathered information for the purposes of assessing student performance, course effectiveness, or other kinds of quality assurance.

Other CBE models base a student's ability to progress through a course or degree on that student's successful demonstration of competencies in direct assessments. These models step away from the traditional course structure, allowing students to advance through a course at their own pace (Klein-Collins 2012). While some of these programs have maintained ties to the credit hour, defining credit hour "equivalents" for competencies, others have broken from the notion of the credit hour entirely. Westminster College designed a program involving CBE projects that culminate in a business degree. Western Governors University has no required courses for their programs, only required competencies, and students are allowed to progress through demonstrating these. Excelsior College students are awarded credit largely based on specially designed exams, while their nursing program involves a component of hands-on clinical assessments in order to award associate degrees in nursing (Klein-Collins 2012).

For the purposes of this report, I will be focusing on schools that base a student's ability to advance through a course or a degree program on competency-based assessments. This time-flexibility is the aspect of CBE that most strongly distinguishes it from traditional educational models and that involves significant operational implications to consider.

Course delivery, Faculty Involvement, and Assessment Models

The methods of CBE course delivery, faculty involvement, and assessment also vary greatly by model. Some schools have redesigned their entire curricula to be structured around targeted competencies, while others rely on existing curricula with some defined competencies emphasized. CBE models incorporate varying levels of classroom and online learning. The amount of faculty interaction and the amount of course structure provided also fluctuates. Some classes are taught in person by professors; other programs offer structured computer-based models (Baylor 2013). In some models, students complete relatively independent studies. In these models, faculty may acts as guides or mentors for students or may provide feedback on specific assignments. There, professors act as the "guide on the side," instead of the "sage on the stage" (Mendenhall 2012). Assessment methods could involve specialized computer-based assessments or other exams, completion of some kind of project or paper, or assessment of a portfolio of a student's work. In this report, I am focusing on programs that deliver content primarily through online sources.

Why Competency-Based Education

The Credit Hour – "Not good enough"

Recently, the traditional measure of student learning, the credit hour, has come under fire. The credit hour determines a number of key administrative factors for colleges, including the

awarding of academic credit and degrees, scheduling, the assignment of workloads for faculty members, and the basis of funding for colleges. Critics of the credit hour have begun questioning its effectiveness in its many roles, however, suggesting that the credit hour is an insufficient and unreliable measure of learning for these purposes (Laitinen 2012).

The "credit hour," or "Carnegie Unit," was formalized in the late nineteenth century by the Carnegie Foundation for the Advancement for Teaching. At the time, neither the foundation nor the colleges intended to use the credit hour to measure learning or educational quality; it was explicitly meant to measure time spent, not learning (Laitinen 2012). The Carnegie Foundation itself called the credit hour "not good enough for American education today" in its 1938 study, and it announced in 2012 that it would be investigating its redesign (Laitinen 2012 pg 5, Fain 2013).

Critics of the time-based unit of measure see the credit hour as antiquated and an inadequate measure of student learning, citing difficulties in transferring credit between institutions as evidence of the unit's unreliability (Fain 2012). Credit hour courses impose a standard pace for students, a pace which rarely fits their varying individual needs. Employers have also expressed concerns regarding the current system and its ability to effectively measure a student's preparation level. In to a recent survey, one third of employers indicated that students were not "well prepared to succeed in entry-level positions at their companies" (Laitinen 2012). There is a growing desire for more accurate and consistent signaling in terms of what graduates can do. Facing this, in combination with the pressure of increasing constraints and growing demands, educators are recognizing the urgent need for substantial reform.

CBE: Measures learning instead of time, ensures individual mastery

CBE models offer one alternative to the credit hour. Many CBE models base a student's ability to advance towards a degree on a student's demonstration of selected key competencies through direct assessment, as opposed to a student's "seat time" in a three-hour course. These assessments are often computer-based and involve a variety of formats (including writing essays, solving math equations, submitting a prepared portfolio of work, or demonstrating a physical task). While some models continue to tie their competencies to credit hour equivalents, other models have broken from the credit hour completely.

Proponents of CBE claim that shifting to this direct assessment only makes sense; the credit hour acts only as a proxy for learning anyway, which makes the process of determining who advances through a course less direct and more subjective than CBE. They also claim CBE ensures *mastery* of the predetermined competencies, as opposed to the credit-based letter grade system which might allow students to "barely scrape by" with a low C grade (Baylor 2013). These direct assessments could also act as more explicit, transparent, and consistent signals to employers regarding what students with earned CBE credentials can do. Some models even include a student transcript with specific competencies listed for graduates in addition to course titles.

CBE: Reduces costs, provides flexibility

CBE, when used effectively, could provide an opportunity to dramatically reduce the cost of delivering education and make services available to students who were previously unable to access them (Soares 2012). The model could be "key to providing quality, postsecondary education to millions of Americans at a lower cost" (Soares 2012, 12). CBE offers a number of advantages to students and institutions and could potentially reduce costs for both groups. Once implemented, it has the potential to significantly reduce institutional costs of program delivery, particularly related to instructor costs (Bradley 2011). Given that students can advance as soon as they demonstrate competencies, many courses could be completed more quickly, freeing up some of the time burden of instruction for a course. In addition, many CBE models incorporate sophisticated, adaptive, personalized computer-based teaching components and assessments, reducing the need for instructors to present all aspects of the same material, semester after semester.

CBE also offers a number of scheduling and cost benefits for students. Without set course schedules or minimum durations, students have the flexibility to advance at their own rates. "Speedy" students could complete courses that may normally be a set eight-week period in four weeks. In addition, many models allow schools to grant students credit for previous knowledge or experiences they've gained prior to coming to their institutions, regardless of how students acquired that knowledge. If students demonstrate competencies from prior learning, then they could bypass course elements they would normally be required to sit through and could progress through course elements more quickly. With some students able to reduce their time in school, they could substantially reduce the financial burden of attending. In addition, since many CBE models involve some aspect of online learning and focus on assessment as opposed to merely "seat time" physically in the classroom, the model is especially friendly to adult learners, who are more likely to be balancing school with work, family, and other time commitments.

Several CBE models have completely reorganized the structure of requirements and syllabi. Many schools take existing syllabi and deconstruct them, identifying competencies involved in the original courses. They then reassemble these competencies into interdisciplinary programs, sometimes not involving separate courses at all. In some systems, stackable short "modules," as opposed to longer courses, can be more easily picked up (and put down) by adult learners who may only be able to devote time to education more intermittently (HCM 2012).

CBE: Concerns?

As could be expected, some have raised concerns related to the widespread use of CBE. Research indicates that some faculty members are concerned about the fate of "brick and mortar" institutions, consistency in the quality of student learning, and the potential impact on their own career paths. Some are concerned that CBE might not deliver high quality learning outcomes compared to credit-hour courses. They point to the possibility that the propagation of CBE could lead to a widening divide in the type and quality of higher education delivered to higher income versus lower income students. In their mind, lower income students may disproportionately experience CBE models and receive a lower quality product (Kamenetz 2013).

Proponents argue that CBE done well offers educational quality at least as high as traditional models. While transferring credits can also be an issue with certain models, one report suggests that CBE would eventually allow for a more meaningful method of transferring credit, since the credit hour's meaning varies by institution but competencies should be more

consistent (Klein-Collins 2012). This would rely on an eventual establishment of standard competencies that are consistent across institutions.

CBE External Players: Accreditation and Federal Financial Aid

All institutions must figure out how accreditation will work for them when implementing CBE. This will vary by accreditor; while a number of CBE institutions have been accredited as pilot programs with the Higher Learning Commission, NCCCS's accreditor, the Southern Association of Colleges and Schools (SACS), has less experience evaluating CBE programs. At a conference in late 2013, Belle Wheelan, the President of SACS, discussed her organization's thinking on CBE and accreditation. SACS has drafted a policy for institutions implementing CBE, which was presented to the board in December 2013. Wheelan emphasized that schools' approaches to using CBE models and developing competencies, curricula, and assessments will affect how SACS evaluates them. Speaking to schools considering granting credit for prior learning with CBE, she also emphasized the continuing requirement that at least 25% of courses/competencies in a degree program be provided by the degree-granting institution (Foundation 2013). Wheelan advised that schools ensure that quality instruction, learning, and comparable expectations are maintained in the CBE programs. She shared that SACS will factor who teaches courses, the qualifications of coaches, and the support services offered into their considerations.

Federal financial aid eligibility is another logistical hurdle that many institutions must clear in order to implement the CBE model. Existing regulations allow for the following two approaches for federal financial aid eligibility under Title IV when it comes to CBE programs:

1. A special regulation (§668.10   Direct assessment programs) allows eligibility for federal financial aid under Title IV HEA programs for certain programs using "direct assessment," as opposed to the credit hour system used by most programs. The process requires review and approval by the Education Secretary, is fairly untested as a process, and can still involve uncertain and lengthy timelines.

2. Some institutions have applied for and received federal financial aid eligibility as traditional title IV HEA programs, but this involves providing more evidence of credit hour equivalencies for competencies (Bergeron 2013, Education 2014).

A number of factors affect the decision of under which provision schools apply. These range from complexity of procedure, to encouragement from regulators unused to the direct assessment approach, to the unfamiliarity of students, employers, and other funders with the "direct assessment" provision (Lederman 2012). Although the 2005 rule was passed with WGU in mind, WGU ultimately opted to use the more traditional path for Title IV continued eligibility. In order to qualify for the second option listed, schools must be judged by the US Department of Education to maintain sufficient ties to the credit hour.

While schools have been reluctant to use the new "direct assessment" path for eligibility, the regulatory atmosphere appears to be thawing to the idea. The Department published a "Dear Colleague" letter in March 2013 inviting institutions to use the rule and providing instructions on how to do so. A small number of schools have since been approved under this provision, including SNHU and Cappella U. Northern Arizona applied under the direct assessment provision, but the department ultimately decided NAU's program had sufficient ties to the credit

hour and did not need the provision. The University of Wisconsin system has applied under this provision and is awaiting the department's decision. Policymakers seem interested in allowing more regulatory flexibility with the promising model but schools remain uncertain as to how agencies will handle more CBE applications in the future (Bergeron 2013).

CBE: Now –What's Happening with CBE Nationally?

CBE: Why now?

In the past five years, the higher education community, including institutions, think tanks, policy makers, and media sources, have demonstrated a surge of interest in the potential for CBE. The national crisis involving increasing tuition rates and burdensome student debt levels has highlighted the dramatic and urgent need for effective modes of reducing higher education costs. In combination with this, CBE pairs especially well with many aspects of computer-based learning. Technology advances facilitating the delivery and assessment of education and the increased use of courses that are at least partially online have also led to growing momentum for CBE. Innovation and development in education software now allows for a more effective and sophisticated assessment process. This could broaden the potential uses and increase the effectiveness of CBE delivery (Klein-Collins, personal interview, October 31, 2013).

Policy-makers on CBE

Policy-makers and education officials have praised existing CBE models and pointed to their potential to be a positive transformative force in the higher education landscape. U.S. Education Secretary Arne Duncan spoke highly of Western Governor's University's competency-based model, stating "While such programs are now the exception, I want them to be the norm" (Lewin 2011). As mentioned above, in 2013 the U.S. Department of Education issued a letter providing guidance to institutions on how to apply for federal financial aid eligibility with CBE programs (Bergeron 2013). Members of the U.S. House Committee on Education and the Workforce discussed the potential for CBE in their June 2013 Hearing, "Keeping College Within Reach: Discussing Program Quality Through Accreditation." Representative Virginia Foxx (R-NC), praised institutions that were "working diligently to innovate and serve the needs of today's students" and expressed concerns that they might be at a disadvantage given current accreditation processes. In his 2013 State of the Union speech, President Obama called for major changes in current accreditation practices (Foxx, 2013).

CBE is also a hot topic for discussion and experimentation in the K-12 education field. A number of nonprofits, organizations, and local governments have begun to investigate the model, and a number of schools have implemented it at the K-12 level. Leaders in Oregon and New Hampshire have made efforts to clear the policy paths to measure learning instead of merely time (Sturgis 2010).

Students on CBE

A joint report published by the Center for American Progress and the Center for Adult and Experiential Learning delved more deeply into the student perspective on CBE programs. After interviewing 13 students from 7 institutions, a number of common themes emerged. Students were impressed by the "rigor" of academic work and the flexible formats allowed by

many CBE programs. They also appreciated the opportunity to gain credit for prior learning as well as the relevance of their degree to their career advancement. Students also stressed the importance of supports in place in CBE programs. Students perceived that coaches and mentors were very helpful and played a large role in their persistence. Those in online programs without student peer interactions missed opportunities for peer support (Baylor 2013).

Networks of CBE Higher Education Institutions

In 2013, a number of formal and informal networks of schools working with CBE began to emerge. They are promoting efforts to define what is and is not CBE, promote regulatory reform to allow for experimentation with CBE, and share "best practices" with each other and those interested in CBE.

Institutions implementing CBE call for more regulatory flexibility to allow for experimentation with the model. A group of 16 institutions submitted a joint response to the Department of Education's Request for Information. In it, the authors outline how the current regulations continue to "tie direct-assessment provisions to time-based measures such as academic year, clock hours and the credit hour" (p. 5) (Education 2014) These regulations include federal "academic year" requirements, aid disbursements in academic year "payment periods," the requirement that CBE be expressed in credit hour equivalents, and the requirement that any program under the direct assessment permission be entirely so (no combinations of CBE and traditional credit hour programs are allowed).

The joint response suggests several policy adaptations that would allow for a number of experiments with CBE. This includes the following: a waiver for defining "attendance" as weekly substantive educational activities, redefining "satisfactory academic progress," eliminating the requirement that aid be distributed only after competencies have been demonstrated, distributing aid based on competencies demonstrated as opposed to payment periods based on the academic year, optionally distributing aid for direct costs only, and finally, allowing for a combination of CBE and traditional courses (Education 2014).

In late 2013, a network of 20 institutions that are offering or will soon offer a CBE option, the Competency-Based Education Network (CBEN), coalesced. The network was coordinated by the non-profit organization Public Agenda, and the venture was financially supported by the Lumina Foundation (Fain 2013). The organization serves as a forum for sharing "best practices," working towards accelerating the development of CBE models that are scalable, and addressing the common challenges to CBE implementation. Public Agenda will manage the research and development cycles for high-quality scalable models (Agenda 2013). The group will meet every quarter. The Bill and Melinda Gates Foundation is also funding the Next Generation Learning Challenges Breakthrough Models Incubator, which is calling for applications to create a network of schools in earlier stages of planning and implementing CBE (EDUCAUSE 2013).

Community Colleges and Competency-Based Education –A Natural Fit

In addition, in November 2013, the New America Foundation, ACE, AACC, and WGU co-sponsored the "Natural Fit-Community Colleges and Competency-Based Education" conference, which brought together national CBE leaders and researchers, as well as the

president of the Southern Association of Colleges and Schools (SACS - the accreditor of NCCCS schools). President Wheelan's input is listed in the federal financial aid section, above.

At the conference, Sally Johnstone, the Vice President for Academic Advancement at WGU, set forth five design principles including:

1. Degree reflects valid and robust competencies.

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

3. Effective learning resources have to be available at any time and are reusable.

4. The process for mapping competencies to courses and assessments is explicit.

5. The assessments are secure and reliable.

The Chancellor of the Kentucky Community and Technical College System (KCTCS), Dr. Jay Box, discussed the KCTCS *Learn on Demand* CBE model. He suggested that infrastructure-building startup costs were high, but delivery costs have since declined, and KCTCS is now able to at least "break even" on delivery. Kentucky's state council of postsecondary education granted their system a development loan to help cover the costs of course development. KCTCS's program features breaking courses into smaller, shorter modules to better accommodate adult learners whose participation may be more prone to interruption from other life commitments. KCTCS is also involved in the Automotive Manufacturing Technical Education Collaborative, in which curricula are being developed by faculty and reviewed by manufacturers.

Amy Laitinen, the Deputy Director for Higher Education at the New America Foundation, is very supportive of the implementation and scaling up of CBE but cautioned that we currently lack a great deal of data on quality and how valid the measured outcomes really are.

What we need to know: about CBE in general

As discussions involving advancing and scaling CBE programs become more common, demand is growing for more research and information in a number of areas. Educators need more answers regarding how to "develop and maintain effective assessment methods," what costs are involved when competency credits do not transfer to other institutions, and how to evaluate improvements in student performance (Klein-Collins 2012).   Stakeholders also need to collaborate to develop, find consensus on, and implement quality standards for the CBE field.

What we need to know: about CBE administrative and cost questions

The process of planning for the implementation of CBE would also be costly in terms of financial and administrative burden. At NCCCS, current systems and models for accreditation and funding may need to be adapted for the use of competency-based models, and NCCCS will need to consider the best way of doing this. Faculty workloads and scheduling are also dramatically different with competency-based models and will need to evolve with the education delivery model.

In addition, the design process for CBE itself would involve faculty and staff determining which competencies to prioritize, how to measure them, who will design and review assessments, who will develop course content, and how to evaluate the effectiveness of CBE

once in place. Schools then need to consider the data ramifications, with the validity and reliability of assessments being of central importance (Jones 2002).

Some Data – On Its Way

A number of studies are currently being conducted on CBE and its implementation. Each institution discussed below is currently collecting data related to institutional and student progress and outcomes. Thus, while performance data related to the model in this context is currently very limited, there should be a great deal of information available in the next five years. In addition, the Lumina Foundation is currently funding an effort with the University of Wisconsin to study its CBE implementation process and create a "blueprint" for other institutions hoping to learn more about how to plan and implement a model with CBE. The Next Generation Learning Challenge is also working to collect more information on best practice and program effectiveness.

Data and Methods

As the NCCCS's interest lies in the process of how institutions planned for and implemented CBE programs and what those programs look like once in place, qualitative research serves as the most effective tool to produce the most useful information. Little academic literature related to CBE currently exists. Since the implementation of CBE in determining course and degree completion in comparable institutions is so recent, data are largely not available regarding the effectiveness of those programs. Existing databases fail to include any information related to competency-based models, and quantitative evaluations of the model would not be feasible for the scope of this report.

In preparing this report, I conducted extensive document review of academic and newspaper articles related to CBE. I also reviewed reports from a number of policy and research-focused organizations that have published reports related to CBE. I compiled a spreadsheet with a representation of institutions with different forms of CBE in place. I also chose four institutions and went more in depth, preparing mini-case studies on their CBE programs. The case studies are on the following programs: Southern New Hampshire University's College for America, the Western Governors University and Broward College partnership, Northern Arizona University's Personalized Learning, and the University of Wisconsin's Flexible Option. I interviewed in depth leaders involved with CBE programs at these four institutions. This included speaking with administrators and a faculty member. A list of interviewees is found in Appendix B, while a more comprehensive description of my research and methods can be found in Appendix D.

Findings

Case Study Overviews:
(Full Case Studies Found in Appendix C)

SNHU – College for America

The University of Southern New Hampshire has served as a pioneer of CBE. In 2012, it established its College for America program, with funding from the Bill and Melinda Gates Foundation. SNHU is a not-for-profit university, and it was cited by NCCCS as an important analog. SNHU developed a self-paced online program, College for America, which steps away completely from the credit hour (unlike models that continue to tie their competencies to the credit hour). The College for America partners with employers, and students are able to enroll once their employer brings the program to their workforce. Students in this program are not enrolled in specific courses and do not have professors assigned by course. They demonstrate competencies through completing 20-50 projects that involve demonstrating various competencies. Professional educators then evaluate these projects and offer feedback. Learning Coaches from SNHU are also assigned to help support students progression through the program. In a historic move in spring 2013, the US Education Department approved federal financial aid eligibility under the direct assessment provision for the College for America program and its participants (Perry 2013).

WGU/Broward College – Partnership

Western Governor's University (WGU) was founded in 1997 by the Western Governor's Association (WGA), which is composed of 19 governors of the western states. WGU's courses are all competency-based, as they have been since WGU's inception. WGU now employs 900 full-time faculty members and enrolls more than 43,000 students across the country. While the age of enrolled students varies, the program serves primarily "post-traditional," or adult, students, with the average age of students being 37. They have an evolving program design, which includes input from councils they've brought together of employers and academics. WGU has had a very positive experience with CBE. Harris Polling conducted independent surveys of employers of WGU graduates, and 97% of those externally polled said graduates exceeded their expectations. WGU's programs have very high scores on traditional measures, including persistence and student satisfaction and engagement (Report 2013).

In 2013, WGU partnered with 11 community colleges to assist them with developing their own CBE programs. The U.S. Department of Labor (DOL) and the Gates Foundation have contributed money to some of these institutions in order to facilitate the development of the programs (Fain 2013). Through these partnerships, WGU has acted as a CBE "consultant." Broward College, a leading community college located in Florida, received a $3.2 million grant from DOL and partnered with WGU in order to implement a CBE program. They took an existing associate of science degree in information technology and adapted it to an online CBE program.

University of Wisconsin System – Flexible Option

Since 2012, the University of Wisconsin has been developing its Flexible Option, which provides competency-based options for earning liberal arts, general education, nursing, and technology-focused credits for associate's, bachelor's, and master's degrees. The University of Wisconsin is the first public system to adopt the CBE model on such a large scale. UW Colleges throughout the state, in addition to UW –Milwaukee, are implementing the Flexible Option. The

program targets students age 25 and older, with some college or professional experience. The program started classes in January 2014. In addition, The Lumina Foundation has just awarded a $1.2 million grant to the UW system to "create a blueprint" for the CBE approach in higher education (Kinderman 2013). This grant will help support the development of benchmarks and metrics for how the overall program is performing, in terms of return on investment and viability. While estimating funding can be difficult and enrollments may change, UW expects the program's revenue to be self-supporting in about five years.

NAU – Personalized Learning

Northern Arizona University (NAU) is the first public university to implement a CBE program. In its Personalized Learning program, students can place out of concepts they've mastered and progress at their own pace. Students pay a flat "subscription fee" for six months of unlimited access to content. At NAU, developing its "Personalized Learning" program involved a complete overhaul of curricula, with faculty members deconstructing credit-hour offerings and reassembling them as interdisciplinary CBE courses. Lead faculty members develop course content for the Personalized Learning program. Students are each assigned to a faculty mentor and also have access to course instructors. NAU has also published a sample transcript that describes its students' qualifications in both the traditional list of course offering equivalents and a list of specific competencies earned.

Analysis: Decision-making, Planning, and Implementation Processes

Reasons for adopting the CBE Model

Facing high costs of education and increasing pressure from competition, campus leaders were searching for innovative solutions for decreasing costs, increasing access, and ensuring quality of learning. School leaders, especially those at WGU and SNHU, were also concerned with high unemployment rates and sought a way to be more responsive to the economic needs. Administrators were interested in signaling quality of education to employers and increasing transparency in terms of what students could actually do. A number of leaders expressed an interest in "disruptive innovation," the idea that eventually a model would emerge that did the work of their organizations in a simpler and cheaper way. In addition, respondents noted that technological advancements in developing competencies, delivery, and assessment have made more sophisticated CBE models possible.

Several decision-makers also cited concerns related to U.S. competitiveness in the global sphere in postsecondary education and the encouragement they'd received from national, state, and local leaders. They were interested in increasing completion rates, especially for nontraditional students. Respondents also expressed a desire to honor and recognize the experience and previous learning that many adult learners bring to a program when starting a course. Leaders at NAU also wanted to encourage the joy of learning and minimize potential student frustration with a set pace of learning that didn't suit students' needs.

Advantages of Model

When asked about what they saw as the advantages of their CBE model, campus leaders mentioned individualized pacing, the ability to provide access to more adult learners, and lower costs for students and institutions alike. Respondents almost universally pointed to the advantages of personalized pacing that students are allowed when moving through courses with the model. This design gives students incentives to move through a course as quickly as they are comfortable doing so, reducing costs. Broward noted that CBE allowed them increased revenues while avoiding the resource cost of additional physical space. The CBE models above break down the various roles that faculty members serve in a traditional setting, including developing course content, delivering that content, mentoring students, and evaluating and credentialing student learning. They then use online resources and non-faculty employees to assist with some of those roles, while faculty still serve as subject-matter experts, course developers, and facilitate student learning. This specialization also serves to reduce costs.

Online CBE models increase access to postsecondary programs for large groups of students, especially adult or "post-traditional" learners. Older students with significant life commitments, including work and family, can access CBE remotely. Some CBE models include shorter modules, which allow adult students to gain credit for their learning, even if schedule changes intermittently interrupt their pursuit of a degree. CBE models also allow students with prior learning and meaningful experience to receive credit for that learning. This can reduce resource waste from redundant instruction of previously mastered material. Representatives from NAU highlighted that offering multiple modalities in their model that appealed to different learning styles allowed students to learn more effectively.

Leaders also mentioned buy-in for CBE from employers. They emphasized that employers understood the notion of competencies and how a competency-based transcript would help inform their hiring decisions. Students are also able to understand the usefulness and relevance of what they're learning in an interdisciplinary way in many models.

Initial Concerns

Maintaining the quality of learning and the integrity of credentials offered were the most prominent concerns for administrators and faculty alike, prior to implementing CBE. While many interviewees became more confident in the model in the process of implementing it, some at other institutions are waiting for more outcome data to make their final judgment on this front. A student's pacing, advancement, and completion of credentials relies, in many cases, exclusively on certain standard competency-assessments. The overall effectiveness of CBE relies on adeptly creating and implementing these competency-assessments. Leaders are very attuned to the difficulty of ensuring that the assessments and data are reliable and valid, and all schools involved were actively collecting data on programs in place. Quality and assessment standards will need to be developed and established in the future.

Many administrators expressed concerns related to faculty resistance to CBE. Several also expressed concerns that the world is still largely "credit-hour based," and they wanted to be confident that students would be able to transfer their CBE credits. Schools were also

apprehensive about developing effective communications about such a drastically different model to prospective students, faculty, and others. The UW system was also concerned about preserving the autonomy of the institutions within its system.

Biggest Challenges

- Faculty resistance was a challenge on most campuses, at least initially. While some faculty members were excited about engaging with a new model, others were concerned about student learning, the nature of their profession, and the viability of their positions.
- Many institutional adjustments are necessary when developing a CBE program at an existing school, as CBE touches almost every aspect of operations.
- The software and software systems aspects of CBE planning and implementation were especially hairy for several schools. Implementers have encountered a number of snags in the process of integrating the variety of networks and software in play, including PeopleSoft, registrar and admissions software, and learning management systems.
- Coordinating the "back of the house" operations, including creating and maintaining records and dealing with registration, financial aid, and admissions, has proved arduous.
- The process of figuring out how to build and scale assessments was especially challenging for one school.
- At Broward, managing faculty workloads has been a challenge. Some faculty members serve as mentors or "coaches" in the CBE program while maintaining several other responsibilities. The capacity strain created by this process has raised the possibility of hiring a designated coach.

Securing federal financial aid eligibility has been a difficult process for some, while others have had relatively quick and painless experiences. While the US Education Department originally instructed one institution to apply under the "direct assessment" provision, the department then changed their mind and claimed they had sufficient ties to the credit hour. While some schools feel this has been the most challenging aspect of implementing a CBE model, these schools do feel they will eventually be approved. They also anticipate that their experience should smooth the way for other schools applying for eligibility.

Accreditation has also been a mixed bag for the institutions interviewed. As noted above, for one institution, approval from an accreditor took eighteen months. Administrators feel that accreditors are becoming more aware of CBE and developing policies accordingly, however. Once the Higher Learning Commission had approved NAU's program, they were more receptive to Wisconsin's program, putting NAU, UW, and Cappella U in a pilot program in order to create a template to use with CBE programs. As discussed above, the SACS President presented a draft policy for CBE to the board in December 2013.

What They Did Right – Institutional characteristics or actions taken that gave them an edge

- Almost every school had senior leadership at the institution running or strongly supporting the CBE project, which each cited as crucial to its success.

- Leaders from schools that implemented CBE by creating a new or separate initiative, program, department, or division seemed to run into fewer roadblocks than those converting existing academic programs to CBE.
- Schools with initial strong online education programs were more likely to adopt the model, and this often gave them an edge.
- The UW system benefited from having its UW Extension office; it served as a centralized entity to find solutions for operational issues and shared knowledge among schools.
- Several schools emphasized the importance of designating a project manager with CBE planning and implementation as their priority. These managers organized the project and its players and kept program development on schedule.
- A professor working on course development noted that allowing the project team the "space" and autonomy to imagine and execute the project was very effective.
- Respondents also felt that including some key specialists, for instance an assessment expert or an instructional design expert, improved their product.
- On a similar note, several schools mentioned the importance of contacting the accreditor at the very outset of the project and maintaining a contact there throughout.
- In addition, nearly every school mentioned that engaging the faculty early and throughout the process had been essential to moving forward.
- About half of the schools mentioned that they had hired new faculty to actually work within the CBE model, while most schools had existing faculty work with teams to develop the CBE content.
- Leaders from NAU felt that hiring a respected faculty member to work on the administration side of the CBE project informed their efforts and helped to create buy-in among the faculty.
- Multiple schools also solicited feedback, however negative, and incorporated changes throughout the process, which they found helpful.
- Several campuses provided information sessions communicating what CBE was and was not, and each school provided training on how to develop CBE courses.
- Maintaining transparency was key at all levels.

Outcomes – Data Largely Not Yet Available

Formal data evaluations for student outcomes are not yet available for these programs. A number of schools have reviewed informal data collected internally, however, the bulk of which has been quite positive. Although no formal reports had been prepared at NAU, respondents described current student qualitative feedback as "excellent;" students experienced good interactions with faculty and spoke very positively of the program generally. NAU students were also advancing through the CBE program at the expected rates in some cases. CBE has also prompted incredibly positive responses in focus groups with prospective students. WGU's annual report indicates high marks in student outcomes and satisfaction. In the 2013 Collegiate Learning Assessment, WGU's "value-added" score was in the 89th percentile. WGU seniors' overall scores were in the 80th percentile, and the school had a 79% one-year retention rate. In addition, 97% of students surveyed were satisfied with their experience at WGU (Report 2013).

Create Your CBE Program Apart from Existing Departments

Many CBE leaders emphasized that developing a CBE model within a new or separate entity or initiative created fewer logistical headaches than those who attempted to convert existing courses within an existing department. This enables schools to avoid many difficulties from working with existing faculty workloads and course and cost structures. SNHU created the College for America as part of its online division, a wholly separate entity that delivers the content of the courses from its brick and mortar institution. NAU developed its Personalized Learning program within its separate online division and hired almost exclusively new faculty members for the program. At UW, the UW Extension office, an entity separate from any particular campus, handled the majority of the logistics for the planning and implementation (including federal financial aid and accreditation).

Target Certain Student Populations and Course Subject Areas, At Least Initially

CBE programs work well when targeted towards non- or "post-traditional" students, over age 25 and living off-campus. The online delivery and remote support structures of CBE are conducive to many adult students' lifestyles, as these students are more likely to have other life commitments competing with school. Adult students with significant professional experience and/or some college completed also benefit from CBE, as many models allow them to gain credit for their prior learning.

Many leaders also mentioned that their CBE programs work best with independent, committed, self-motivated students. Accelerated learners moving through programs at above-average rates help realize some of the cost-saving potential for CBE. Students should also be sufficiently tech-savvy to use CBE and its resources. Schools should keep this specialized target population in mind when developing marketing or communications materials.

While many leaders suggested some academic subject areas were better suited to be effective in the CBE model, others disagreed. There was a consensus that some subject areas were at least more easily converted to the CBE model, including those that involve a licensure process and already have specific competencies articulated. Several programs included healthcare or general studies associate's degrees. Two programs emphasized identifying workforce needs to determine subject areas to build into the model. The CBE programs studied included degrees in healthcare management, nursing, radiology, communications, teaching education, business, IT, liberal arts, and general studies.

Hire a Project Manager, Designate a Creative Team, and Give them Autonomy

Respondents also emphasized that hiring a devoted, technology-savvy project manager to lead the project was imperative. A project manager would ideally have CBE planning and implementation as their primary responsibility, which would ensure that they have meaningful capacity to create a smart, strategic plan and keep the project on schedule and budget. Respondents encouraged schools to designate a team for the CBE project, preferably one that's

creative and mission-oriented and allow them the autonomy in their execution of the project. One respondent also stressed the importance of maintaining organized, searchable documentation of the process throughout the CBE planning and implementation phases.

Campus Leaders Must Take Initiative and Support CBE

Leadership commitment to and promotion of CBE is crucial. Most interviewees described campus leaders who served as champions of the CBE cause. The process of planning for and implementing a CBE model touches almost every aspect of an institution's operation. Leaders in CBE projects introduced the idea of CBE, ensured funding was available, recruited effective project team members, provided insight into how institutions worked, helped overcome institutional resistance and challenges, and maintained momentum through lengthy planning and implementation phases. Campus leaders also played a crucial role in communication. Several respondents stressed the importance of communicating clearly and regularly with all stakeholders, including administrators, accreditors, faculty leaders, board members, and any relevant political leaders.

Faculty Members' Involvement, Feedback, and Support are Key

Support from faculty members is essential for CBE implementation; they are involved in course and competency design as well as decision-making. All respondents discussed the importance of involving faculty feedback in the planning phases. Recognizing that resistance from at least some faculty members was inevitable, each institution approached faculty involvement strategically. Leaders suggested that gathering and using feedback in a meaningful way from faculty promoted faculty buy-in and also generated a number of useful improvements. One respondent focused on faculty leadership, suggesting that recruiting a respected faculty member to the planning process helped promote buy in from other faculty members. One respondent suggested schools put some structures in place before notifying faculty members of the CBE program. Other respondents strongly suggested involving faculty from the outset. In all cases, transparency in the planning and implementation processes was crucial.

CBE Start-Up Costs are Substantial; CBE Should Not Be Undertaken Lightly

Most leaders stressed the substantial financial and time commitment involved with CBE development and execution. Given the hefty initial costs, leaders encouraged institutions not to take on the task of developing a CBE program lightly, or as a "fad." The decision to adopt a CBE model should be well researched, and leaders should be committed. Sally Johnstone of WGU described WGU's community college partners that are implementing CBE with various levels of funding. Those schools with multi-million dollar grants were able to develop their programs relatively quickly. Those with very little funding took longer (over a year) to prepare for students to enroll, and their models were less sophisticated.

While costs vary with the scale of each project, CBE planning and implementation involves substantial costs up-front. The Department of Labor awarded $3.2 million to Broward College and funding to two other community colleges for their CBE development and implementation. Another school had invested over $3 million in their program, not including marketing expenses. Another respondent mentioned a $12 million price tag for their CBE program thus far. Cost savings are projected but often not yet realized, as many schools are only

in the early stages of implementation. SNHU approximates annual costs per FTE at $2,000-$3,500 (Challenges 2013), while NAU projects costs per FTE at $5,000 (Challenge 2013). Savings are projected to increase over time and will vary based on enrollments and a number of other factors. Advice on the ideal initial scale of a CBE program differs; one leader suggested that a program needed to be large in order to benefit from the investment and economies of scale involved. Another leader suggested that starting with a smaller program would be best, potentially focusing on vocational skills.

Federal Financial Aid and Accreditation Can Majorly Affect Timelines; Plan Accordingly

Once an institution has decided to adopt a CBE model, it should be sure to allow for flexibility in its planning and implementation timelines, particularly for the federal financial aid and accreditation pieces. When prompted for advice, multiple respondents encouraged leaders not to underestimate the potential for delays or issues with these aspects. The US Department of Education seems to not yet have a standard protocol for assessing CBE programs. SNHU received incredible support from the department, and their federal financial aid eligibility was approved under the "direct assessment" provision in 3-4 months. The US Department of Education initially informed NAU that their program would need to apply under the "direct assessment" provision, but the department later changed its mind, approving NAU's program with credit hour equivalents. UW has applied under the "direct assessment" provision and expects the application to be an iterative process. Leaders also advised that schools contact their accreditor at the very outset of the project and maintain regular communication with their office. Some leaders mentioned that their applications, along with the other early adopters, may smooth the way for future CBE programs.

Community Colleges May Require A Special Touch in CBE Program Design

Community colleges may work differently than some of the larger implementation projects discussed above. The very open-ended, flexible course/degree structure that several institutions have in place might serve as an advantage to some populations.   Broward College, however, made some adaptations to the model for its community college population. It opted to require a designated set of courses for students to follow, feeling their students may benefit from more structure. Broward also adapted the pacing of their CBE program to emphasize to students that the CBE program was intended for accelerated learning and completion. While they initially allowed self-pacing with a broad 16-week deadline to complete a course, they then abridged the requirement to completing a course within six-weeks. The respondent from Broward emphasized that a CBE was a specialized program and worked with a specialized pool of students; schools should market and recruit accordingly.

Recommendations*:*

NCCCS should consider allowing 12-18 months to pass before taking major action in planning or implementation for CBE. If existing programs are reporting positive outcomes at that point, NCCCS should begin to plan a CBE program for its schools.

Most institutions discussed in the case studies above have only begun to enroll students in their CBE programs in the past year or so. While they are collecting data related to overall

program performance and student outcomes, it will take some time for enough to be available to analyze, evaluate, and create reports. As described above, CBE involves substantial resource and financial costs up front. While we have information on practices, we lack context that would allow anyone to deem them "best practices." This time interval will allow for the accumulation of crucial data related to best practices and student outcomes that can be used in decision-making related to planning and implementing.

Also, as discussed above, foundations and other groups are encouraging collaboration and knowledge-sharing among the several schools working with CBE models. The Competency-Based Education Network, Next Generation Learning Challenge program, and others are all working to gather data on student outcomes and document effective practices. This interlude would allow the system to benefit from the information from those collaborations.   In addition, regulating agencies, policy makers, and accreditors are all making efforts to define policies related to CBE. The US Department of Education is in the process of creating experimental sites looking to adapt federal financial aid regulations, and SACS drafted a policy related to CBE in December 2013. Processes with these external stakeholders may well adapt to be CBE-friendlier, or at least to help create clearer expectations, in the near future.

NCCCS schools planning for the model should focus on small-scale implementation in a field that involves licensure in an area identified as in high-demand by employers.

CBE allows for closer collaboration with employers in planning for the program, as they could be involved in defining some competencies that would eventually be applied in their workforce. NCCCS could survey employers to discover an area in high demand from employers and gear CBE course development towards those subjects. CBE could begin to be implemented in professional training or certificate settings.

NCCCS should develop proposals for CBE models and allow interested schools within the system to come forward. From there, NCCCS efforts could focus on "back of the house" operations methods, to be shared with all participating schools.

This would allow schools to maintain their autonomy and ensure that only campuses that are truly interested in and committed to a CBE model begin to invest in the high up-front costs described above.   If a sufficiently large number of schools comes forward, NCCCS could select from that pool, focusing on institutions that have existing online programs, strong leadership support of CBE, and serve a segment of primarily nontraditional students. NCCCS could serve as a central hub for amassing and sharing information with schools on course design and the accreditation, federal financial aid, records, and registrar pieces, which could eliminate duplication of efforts by individual schools. The office should advise schools to be sure to contact SACS as soon as the project is launched. If schools involved elected to share their developed coursework, the system office could also help schools negotiate the development processes, the potential for a common platform for the system, and a way of revenue sharing that provides equitable returns and incentives for contributing schools.

Designate a full-time project manager to oversee and drive the planning and implementation phases.

A centralized project manager within NCCCS could coordinate planning and implementation at the system level, which would allow for reduced duplicative efforts and effective knowledge sharing. Having a designated individual with the capacity to drive this project is essential. This project manager should have full and visible support from the leaders driving CBE change.

Administrators should engage faculty members early in the process, once decisions have been reached and the project framework has been established. Administrators should focus on conveying transparency and a establishing a process where constructive feedback is listened to and incorporated.

It would be helpful to recruit a respected faculty member to join the planning effort in a formal capacity. From there, creating an open process that takes criticism seriously and makes changes based on that feedback will likely enhance the effectiveness of the program and help garner support among faculty members.

Include substantial pre-screening efforts to ensure that students are best suited to benefit from the CBE model. Include use of the CBE interface in orientation or offer one credit at no cost to allow students to understand CBE well before committing significant resources to it.

As described above, CBE programs do not work best for each student. Students need self-motivation, discipline, and technological savvy in order to take best advantage of CBE.

Coordinate with the University of North Carolina system to ensure that CBE credits will transfer.

NCCCS could work on developing general studies programs that could transfer to a UNC program for students to pursue a bachelor's degree.

To the extent possible, create a separate, more autonomous CBE program within a school. If feasible, hire faculty specifically to be engaged in the CBE program.

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Appendix A: Interview Instrument

Competency-Based Education
Draft of Interview Instrument*
*(*this instrument was used as a basis for my interviews, but I often added probes and adapted my questions based on responses, time constraints for respondents, and research interest.)*

Introduction:

Thank you for taking the time to speak with me today. I am a Master's of Public Policy student at the Duke Sanford School, and I am interviewing you as part of my year-long master's project. For the project, I am working with the North Carolina Community College System and hoping to learn about the process of planning for and implementing a competency-based education model, which I will be referring to as "CBE," from programs that have it in place.

Our discussion will last about 30-45 minutes. I would like to include information from this interview in my report. If you would like for any part of our interview to be on background (without using your name) or off the record, please let me know. I'm taping the interview, but if you would like me to turn off the tape recorder at any time, just let me know. Do you have any questions? Okay, let's begin.

For Representatives of CBE Institutions:

Domain 1: Decision to Adopt CBE
First, I'd like to find out more about how your institution went about deciding to adopt a CBE model.
Overview: In order to best inform NCCCS in their decision-making process, I'm trying to understand what factors led these institutions to choose CBE. I would also like to get any insight into whether these administrators' perceptions of advantages and concerns might be relevant to NCCCS.

1. Why did you decide to implement the CBE model?
   Probe:
   Intent: Warm-up/To get a sense of general reasons for implementing, understanding what their motivations were in order to best inform NCCCS' decisions.

2. What do you see as the strongest advantages to CBE?
   Probe: Why?
   Intent: To learn what possible advantages for CBE exist and also if those advantages might be important to NCCCS.

3. What were your primary concerns regarding CBE prior to planning and implementing the model?
   Probe: Why?
   Intent: To learn what possible weaknesses or disadvantages might need to be considered by NCCCS and more about them in order to see if they're relevant.

Domain 2: Planning for CBE

Thank you for your great answers. Now I'd like to move on to discussing the actual planning stages for the implementation of your CBE model.

Overview: I would like to understand from each institution the process of planning for CBE at its institution. I would like to inform NCCCS's decisions on which model to choose and learn from the experience of other schools that have undergone the planning process. I would like to understand the preparations related to faculty in particular.

4. What about the specific CBE model that you're adopting led you to choose it?
        Probe: Why?
        Intent: To understand what possible strengths and weaknesses of CBE models might be and be able to make that relevant to NCCCS

5. How would you describe the reaction of the faculty and staff members to the introduction of CBE?
        Probes: If applicable: What were their main concerns? Did you take any steps to address them?
        Intent: To gauge the reaction of key stakeholders to CBE (monitoring especially for a negative reaction). To gain insight in how engaging the faculty and staff in this process might be helpful.

6. Could you describe the process of how you introduced the idea of implementing the CBE model to your faculty members?
        Probes: If applicable: What were your main concerns?
        Intent: To learn about how and why any institutions provided programming to engage and inform faculty members about the model.

7. What major challenges did you face in the planning process?
        Probe: Why?
        Intent: To understand the major difficulties experienced by other institutions and why in order to see what would be most useful to NCCCS.

Domain 3: Implementation of CBE

Thank you again for your answers. We're about halfway done. I'd now like to move on to discuss the process of actually putting the CBE model into place at your school.

Overview: This domain attempts to capture how each institution went about the process of implementing CBE, any challenges faced, and what kinds of institutional characteristics may help or hinder the process.

8. How do you think the process of CBE implementation went at your institution?
        Intent: To get R thinking about the implementation process and see what sticks out in their memory regarding their general feeling about the process.

9. What aspects of the roll-out do you think went smoothly?
   Intent: To understand strategies/aspects that might be most helpful.

10. What aspects of the roll-out do you think were most challenging?
    Intent: To understand the most difficult aspects of the implementation.

11. What about your institution's structure do you think facilitated the implementation of CBE?
    Probe: Why?
    Intent: To understand what aspects of institutional structure impact the implementation of CBE and how that might be involved in NCCCS's potential implementation process.

Domain 4: Feelings about CBE
Thanks again for your insight. We have one last section where I'd like to ask you about your perspective on CBE.
Overview: This section is attempting to get at how the school feels the CBE model is doing now that it has been implemented. I'd like to capture any thoughts administrators have on student outcomes and metrics used to measure student outcomes and cost savings as well.

12. Now that CBE is in place, how do things seem to be going overall?
    Intent: To gain a sense of the institution's general feelings on CBE and any reactions to their choice to adopt it.

13. Some have expressed concerns regarding maintaining the quality of education with the CBE model. How do you think student-learning outcomes for CBE compare with the credit-hour models?
    Intent: To gain insight on whether administrators think this model is as effective in terms of student outcomes and any support they have to offer of their perspective.

14. If you have any metrics in place to measure how things are going, how do you think they are doing in terms of capturing any impact from the CBE model?
    Probe: Can you think of any changes you would make to how they're in place?
    Intent: To learn of metrics in place and administrators' thoughts on if they are capturing the intended information.

Cool-Down Question:

15. Do you have any advice for a system considering implementing a CBE model?
    Intent: Cool Down/To gain any extra benefit/advice for NCCCS that wasn't covered by the previous domains.

Appendix B: Interviewees

List of Interviewees:

Southern New Hampshire University

- Kristine (Kris) Clerkin, Executive Director, College for America

- Cathrael (Kate) Kazin, Chief Academic Officer, College for America

Western Governor's University

- Sally M. Johnstone, Vice President for Academic Advancement

Broward College

- Anne Myers, District Director TAACCCT

University of Wisconsin System

- Mark Nook, Senior Vice President for Academic and Student Affairs

- David Schejbal, Dean of Continuing Education, Outreach, and E-Learning (at Extension)

Northern Arizona University

- Alison Brown, Associate Vice President Extended Campus, Academic Affairs

- Corrine Gordon, Assistant Clinical Professor of Liberal Arts, Personalized Learning

- Frederick Hurst, Senior Vice President for Extended Campuses

Appendix C: Mini-Case Studies

SNHU – College for America

Paul LeBlanc, SNHU's President, felt there were pressing issues facing the field of higher education related to cost and lack of transparency around student capabilities, and he sought "disruptive" innovation in order to address them. SNHU established an "innovation lab" to consider these problems. They received funding for the project through the Gates Foundation Next Generation Learning Challenge. SNHU then developed the College for America, which is an online program that is flexible, self-paced, and competency-based.

SNHU was already a leader in online learning. Its Online Division is a completely separate entity and brings the work of faculty on their brick and mortar campus to the online community. The College for America program was built in less than six months. SNHU ran a pilot program from January to August in 2013. It was free of charge for students, and close to 400 students enrolled. SNHU then developed a new learning management system and relaunched the College for America in October 2013.

Students pay a flat rate of $1,250 for a six month period and can then enroll in as many competency-based projects as they'd like in that time. The average age of students in the program is around 40 years old. Every student has an SNHU Learning Coach, who is tasked with mentoring, understanding student needs, and assisting with learning styles and motivation. Students' competencies are determined by evaluating deliverables, including presentations, essays, and spreadsheets, and not using direct testing.

The program offers an associate's degree in general studies, and SNHU is developing a bachelor of arts degree in healthcare management and communications. As part of the associate's degree, students demonstrate 120 competencies, grouped into nine major categories, including: communication, critical and creative thinking, quantitative skills, digital fluency and information literacy, personal effectiveness, ethics and social responsibility, teamwork and collaboration, business essentials, and science society, and culture (America 2014). At the end of their program, students receive two transcripts, including one listing mastered competencies.

In developing competencies, SNHU started with competency frameworks, including Lumina's Degree Qualifications Profile and general education requirements. They then decided that they needed to add elements of foundational skills, content knowledge, and personal and social skills. They took existing syllabi and broke them down into individual components, phrasing competencies as "can do" statements. Those developing competencies used "backwards design," by starting with a desired outcome, for instance "the student can write a professional-level memorandum." They then determined what type of evidence would be needed to demonstrate that outcome and moved to the tasks that would elicit that evidence. They then designed projects that involved those tasks.

In designing courses, leaders' focus was on accountability and explicitness about what students should be able to do. They are also dedicated to gauging and responding to economic needs. In choosing program or degree subject areas, SNHU's focus has been on working with employers to meet workforce needs. They work with workforce development consultants to use

labor market tools and find areas with high growth. Their current focus is health care services. In April 2014, SNHU, in combination with Partners HealthCare, launched a project to develop a Certificate in Nonclinical Healthcare after receiving funding from the State of Massachusetts (Release 2014).

For quality assurance and data reliability, SNHU provides extensive guidance and a clear rubric to all evaluators of projects. They then look at the work of different evaluators to see if evaluators are giving similar feedback for similar work. The process of ensuring data validity, or whether they are measuring what they intend to be measuring, is more intricate and will be a longer-term project. Expert judges from each subject area were involved in the design process for courses. The program is collecting a great deal of data on student progress and outcomes and is waiting for larger numbers to conduct analysis. SNHU also hopes to use data in the future to ensure that CBE education leads to professional capabilities.

SNHU's experience with CBE has been very positive. Their process of applying for federal financial aid was not particularly painful. Representatives felt supported and encouraged by the Department of Education, which seemed open to trying new ideas for this model. SNHU submitted this application in January 2013 and received the approval in April 2013, the first to be approved under the "direct assessment" provision described above.

WGU/Broward College – Partnership
The WGA, the founder of WGU, was looking for a modern higher education institution that would increase access, lower cost, and be responsive to the economic needs of their states. One governor had had a very positive experience with CBE as a pilot and promoted its use in this setting. WGU has used CBE from the outset and was an early adopter of the online CBE model.

WGU has partnered with 11 community colleges and acted as a consultant in their preparations for implementing a CBE model of their own. It shared its model, having professionals in key areas (including members of enrollment management, faculty, the registrar's office, and financial aid) from WGU meet with their counterparts at the community colleges. WGU's representatives shared their experiences in developing courses' structure, the online content for these courses, and the assessments to be used. They also gave advice on how they managed the changing roles of faculty members as well as the accreditation and financial aid processes.

Of the 11 colleges, ten had enrolled students in their CBE programs as of March 2014. Three partner colleges received substantial (multi-million dollar) Department of Labor funding, allowing them to hire a full-time project director and compensate faculty members for extra development responsibilities. This funding substantially accelerated the planning and implementation processes, with one institution starting planning in January 2013 and enrolling students in August 2013. Another school had very few funds available for CBE, and it has taken them a full year to go from the planning stages to enrolling students. Programs with lower CBE funding levels typically also involve less sophisticated models. Multiple colleges have reported student interest and enrollment exceeding their expectations. Bellevue College anticipated 50 students, but 130 students have since enrolled. At Austin Community College, students in CBE took twice as many courses during the fall 2013 semester as other students.

All of the colleges have instituted some kind of CBE-specific orientation program, and many require multiple interviews before a student can join their programs. Leaders have suggested that the CBE model works best for students with certain characteristics. Institutions have made every attempt to ensure that students understand the model and have the technological savvy, motivation, and skills that will lead to the greatest chances for success in the CBE programs.

Broward College, a community college in Florida, was one of WGU's community college partners. It received a $3.2 million Department of Labor (DOL) grant, which focused its efforts on CBE and streamlining the process of allowing students to earn certifications and enter jobs more quickly. Broward received the DOL grant in October 2012 and began meeting in teams to plan for CBE in February 2013. They then began actively developing the program in the summer of 2013 and enrolled students at the end of August.

Broward took an existing associate of science degree in information technology and adapted it for an online CBE program. They felt their learners needed more structure than WGU's program involved, so they created a designated sequence of courses students are required to follow. Broward's existing payment structure didn't allow for the flat fee per semester, which encouraged students at other schools to move through the program as quickly as possible in order to minimize costs. In an attempt to maintain these incentives, Broward offered special scholarships for courses taken beyond the traditional four courses per term. They also initially allowed students sixteen weeks to complete a course but then changed the maximum to six weeks in order to emphasize that theirs was intended to be an accelerated program.

While some Broward faculty members were excited about the new model, others were concerned that CBE would not be effective in their fields (generally English literature, mathematics, psychology, and other liberal arts/traditional courses). WGU provided some presentations and demonstrations, which helped educate faculty members about CBE and reduce their concerns. Broward also held training sessions on how to develop CBE courses.

When developing their courses, Broward hired an expert instructional designer, who ensured the courses had a uniform feel. Broward's faculty used half of their summer break, generally a non-work period, to develop courses and were compensated with fees taken from the DOL grant. Experts collaborated and created their own resources, including videos, and incorporated some open sources materials. In the program, every student is assigned a mentor, with whom they meet once a week. This mentor guides then through the program and controls their course registration. Each course also has a separate instructor; students access course content online, and this instructor acts as a course facilitator, whom students may contact by email or phone.

Federal financial aid and accreditation did not raise significant issues for Broward, as they are participating in the DOL pilot program with their grant. The contact at Broward said she would be very comfortable with the programs in place when they do need to go through the accreditation process. Broward did have to maneuver a bit with regards to their federal financial aid eligibility. While some schools experienced friction with their internal financial aid and registration offices in this process, Broward's offices collaborated closely with the CBE program and were instrumental in making aid eligibility work. Students need to be enrolled in at least six credit hours at any particular time to be eligible for financial aid. As noted above however,

Broward's CBE program only allows a student to take one course at a time, falling short of this six-hour minimum. In order to maneuver around this requirement, Broward has now laid out their program in "out-of-sync" sessions, not regular semesters. This allows a semester to be composed of a combination of out-of-sync sessions, meaning that students don't necessarily need to be enrolled in six hours at any particular time to be eligible for federal financial aid.

University of Wisconsin System – Flexible Option

The UW System partnered with the UW Extension Continuing Education Outreach and New Learning Division in order to develop its CBE model. UW Extension works with all campuses in the UW system and connects them to county offices and other public entities. UW Extension's mission is to extend the boundaries for universities throughout the state. The Extension office first originated and promoted the idea of using CBE, and they also managed the "back of the house" operations, including records, registration, financial aid, and admissions processes. A large group of UW Extension staff members were involved in the development phase of the CBE program, and Wisconsin added a designated CBE project manager. This centralized approach allowed each institution to avoid developing its own solutions and duplicating efforts. Those campuses participating in CBE in Wisconsin opted in after the provost spoke at each campus regarding CBE.

The UW System was also concerned about a mixed faculty reaction to the idea of CBE. They made efforts to engage the faculty and incorporate their input when shaping the program. Wisconsin appointed members to three committees in developing the program, including faculty advisory, administrative oversight, and "back of the house" committees. This allowed coordination and collaboration and extended "buy-in" among the faculty and campus leadership. Wisconsin's model maintains ties to the credit hour.

Accreditation was not a problem for Wisconsin, which they attribute to working closely with the Higher Learning Commission, which had already accredited Northern Arizona University's program. Federal financial aid eligibility has presented challenges and delays. While they were still waiting for approval from the Department of Education for their program, they anticipated an iterative process and positive outcome.

Since leaders believe FlexOption works best with particular types of learning styles and students, Wisconsin uses a Flexfit program to evaluate students and assess a match prior to enrolling. In the model, faculty members establish competencies and assessment standards. Students then have access to tutors coaches/mentors live, as well as an assistant to help them navigate the system. Students also have the ability access the faculty members themselves. Students can complete associate's degrees and certificates; they also have the option to complete general education requirements through junior colleges and go on to complete bachelor's degrees at the UW-Milwaukee campus.

NAU – Personalized Learning

Prior to CBE, NAU had a long history of serving adult learners and remote students, with one-third of their students taking courses remotely. NAU had gradually encouraged curricular autonomy for off-campus students, and 100 faculty members serve those students in the extended campus division. NAU decided to implement CBE as part of a newly developed program, as opposed to converting existing programs or courses incrementally. They felt that developing a new unit is easier than gradually converting an existing academic program from the curriculum,

pedagogy, business, and student operations angles. The college president and senior vice president for extended campuses took lead roles in introducing the idea of CBE and leading its planning and implementation phases. Leaders have been involved in the program and committed to doing it well at the outset; NAU has invested substantial financial resources in the CBE program.

Many faculty members initially expressed concerns regarding the quality of learning and preserving the integrity of all NAU degrees. Anticipating some unease in the faculty related to the CBE model, leaders introduced the idea in a number of committee and council meetings. They then recruited a respected NAU faculty member to work on the CBE project and encourage support among the other members of the faculty. Where faculty members expressed concerns regarding student outcomes and an untested model, CBE project leaders worked with them extensively and incorporated a number of suggestions into the model. Leaders have stressed the need for transparency and faculty involvement in the development of new programs. The result of these collaborations has been strong relationships between faculty in and out of the program and broader acceptance of CBE in practice.

Almost all faculty members working within the Personalized Learning program were recruited specifically to be there. Those working on the project were creative thinkers and undaunted by innovation, experimentation, and the occasional bump in the road. Successful team members were creative, collaborative, and genuinely valued the student experience and student learning. Personalized Learning faculty members are motivated by the idea of promoting student success and bringing the college experience to those who normally would not have access to it.

In order to develop courses, faculty members deconstructed courses, isolated the lessons, and then re-combined them into interdisciplinary modalities. With Personalized Learning in place, instructional materials are online, and faculty members play more specialized roles than in traditional environments. Lead faculty members oversee the development and enhancement of curricula, and they also act as a kind of "department chair." Working with the lead, some faculty serve as advisors who interact with students and provide tutoring; designated "graders" evaluate materials; and some faculty serve as subject-matter experts, supplementing and updating instructional materials.

NAU also invested significant resources into the technological side of CBE. Engineers developed a learning management interface with 60,000 lines of code. The process of integrating several different software systems, including the CBE Pearson software, the Peoplesoft NAU system, the registrar's software, and others, has been challenging. The IT department developed a dashboard system that allows students to have a single point of entry for their CBE experience. At that interface, students can be assessed and admitted, can apply for federal financial aid, and can receive a transcript of their learning.

The process of accreditation for the program was lengthy, with a lag of 18 months between the initial conversations and approval from the accreditor (Higher Learning Commission). While the program was developed in six months, the rollout was pushed back by four months due to accreditation. When NAU first applied for federal financial aid eligibility, the Department of Education indicated they were "direct assessment" and needed separate

approval, but the Department has since decided that NAU's program is sufficiently tied to the credit hour and does not require approval under the "direct assessment" provision.

By February 2014, more than 100 students had enrolled in NAU's Personalized Learning program. They expect this number to increase to 500 by June of 2014 and 8,000 in 2019. NAU expects for students to complete their degrees in an average of 30 months. NAU currently offers bachelor of arts degrees in computer information technology, liberal arts, and small business administration. Marketing focus groups have suggested that students have an incredibly favorable response to the idea of CBE. NAU collects data related to student performance and adjusts the programs based on that feedback. Qualitative feedback is extremely positive, from students and outside faculty. While NAU did not yet have quantitative student outcome data available for reports, the raw data is uniformly positive. NAU looks forward to collecting and analyzing harder quantitative data to take a critical look at how the program is going so far.

Appendix D: Data and Methods

Broad CBE Data

To gain and provide a broad understanding of CBE, various permutations of the model, and the national conversation related to CBE, I conducted an extensive literature review, synthesizing news articles, reports, and other papers related to the model. Most published material related to the issue comes from think tanks and other non-profit and advocacy organizations [including the Center for American Progress, the Center for Adult and Experiential Learning (CAEL), and the New America Foundation]. I also followed developments in current events, including articles published in higher education publications and statements from policy-makers.

CBE Institutions: Overview

To provide NCCCS with a broad view of the existing types of CBE models, I compiled a spreadsheet of current institutions using CBE and briefly documented key aspects of the schools and their programs (See Appendix F). This is a partial list, including a number of different types of programs, but not a comprehensive list of all CBE in higher education. This includes institution name and type, CBE program name, information on course and program development, a short overview of how the implemented program works, information on the type of CBE implemented and any ties to the credit hour, and any subject areas highlighted as being included in CBE offerings. This chart acts as a quick view of different models for implementing CBE and an idea of where to go for more information on each type.

CBE Institutions: Mini-Case Studies

I also conducted mini-case studies to provide a more in-depth view regarding the process of planning for and implementing CBE at four institutions: Southern New Hampshire University's (SNHU's) College for America program, the University of Wisconsin's Flexible Option, Northern Arizona University's (NAU's) Personalized Learning program, and Western Governors University (WGU's) partnership with community colleges, including Broward College. The institutions were selected because they have key characteristics that are comparable to NCCCS and are in different stages of CBE implementation.

I first developed an instrument in order to conduct in-depth interviews with key stakeholders at each institution, including administrative officials involved in the planning and implementation stages of CBE (See Appendix A). From this, I hoped to glean information on how institutions went about implementing CBE, how stakeholders generally felt about CBE and its effectiveness, how leaders met key challenges that they have faced in implementing CBE, and how institutional characteristics have either helped or hindered their adopting the CBE model. I focused many questions on the operational changes that took place, including how each institution has altered its funding, accreditation, federal financial aid, and faculty processes related to CBE. I also included questions related to how competencies, metrics, and assessments were defined and determined and by whom. I concluded each interview by asking what advice each stakeholder had for a community college system considering implementing the CBE model.

I spoke with two CBE program administrators from each institution/partnership. In addition, as faculty concerns and involvement became a recurring theme in my conversations, I interviewed a faculty member at NAU to focus on faculty-specific issues. In order to include a broad and research-driven perspective, I also spoke with a prominent researcher on CBE in higher education, Rebecca Klein-Collins from the Center for Adult and Experiential Learning (CAEL), and I have included some of her points in this report as well.

For the four programs mentioned above, I reviewed documentation from their program websites, as well as publications (reports, news articles, etc.) related to their program, in order to learn as much as possible from information available to the public. I then conducted and audio-recorded the ten interviews described above with school administrators, program managers, and other key players in CBE processes. (See Appendix B for the list of individuals interviewed.)

I reviewed and analyzed notes and recordings of those interviews, identifying and prioritizing themes. I first present case-study summaries of the CBE decision-making, planning, and implementation processes by institution. This attempts to get at how a school's particular model works, how it developed and implemented that model, and how its CBE program seems to be going so far. I then provide a comprehensive analysis of feedback from institutions related to challenges, successes, and lessons learned. (See Appendix E for highlights listed by institution). I then conclude with recommendations for NCCCS's adoption of the CBE model.

Limits on Available Examples

As some schools' fixed characteristics will significantly impact CBE implementation logistics, these factors should be as similar as possible to NCCCS, in order to make case studies most informative. Existing not-for-profit institutions have begun to experiment with the model only recently, and only a small number are using CBE. Given this pool, I've made efforts to select schools with key characteristics in common with NCCCS. I have listed these factors below. As mentioned above, there is a very limited pool of higher education institutions with CBE in place, so the degree to which I could use these criteria was quite limited. These factors also represent criteria I would use more precisely, given a larger pool.

Institutional factors to consider in selecting examples

CBE – Type implemented/Existing ties to the credit hour: NCCCS has indicated that they are interested in models in which assessments determine if a student may advance in a course or degree program, so I will be considering only these types of programs.

Type of institution: As discussed above, NCCCS will need to consider a wide range of issues related to: accreditation, funding, faculty workload, and federal financial aid eligibility. NCCCS is a public system at the community college level and is interested in considering CBE. As funding and governance issues would be impacted by the type of institution, I have selected institutions that are public when possible or not-for-profit.

Stage in the CBE process: In order to capture the wisdom of experience and the most up-to-date information related to CBE planning, I have sought out schools that are at different stages of the CBE process, ranging from having the program fully implemented to being in the advanced planning stages.

Availability of Data: I have also selected programs based on the amount of information that seems likely to be available for each school. Each of my selected schools has received some publicity related to its CBE program, including coverage in higher education media and reports from policy think tanks.

Appendix E: Highlights from Mini-Case Studies (Attached in separate PDF file, p 38)

Appendix F: Partial List of Institutions with CBE Models in Place (Attached in separate PDF file, p 41)