knowledge *to* work

Lord Fairfax Community College

TAACCCT Grant
October 2016 through September 2017

Third Party Evaluation Report
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EXECUTIVE SUMMARY

Lord Fairfax Community College (LFCC) received a Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant from the U.S. Department of Labor (USDOL) in September 2014. This report is the third of four (three annual and one final) third-party evaluation reports required by USDOL. It describes the implementation of the grant during its third year, including an overview of LFCC's approach to documenting student outcomes through Competency-Based Education (CBE) techniques. Named "Knowledge to Work," this initiative initially employed direct assessment techniques and, later, classroom-based CBE in selected career and technical programs. Knowledge to Work also developed a web portal that links an expanding number of Open Education Resources (OER) for users and faculty to create personalized learning programs tied to competencies.

Knowledge to Work consists of complex but interrelated parts as expressed by its revised logic model (Appendix A). With the assistance of TAACCCT resources, the College has embarked on the runway to competency-based education that has become increasingly a focal point for American higher education. The third year of grant operation was marked by a shift from direct assessment to course-based CBE assessment. The reasons for this shift are captured by this report, as well as a preliminary analysis of the effectiveness of CBE delivery compared to traditional classroom delivery. This report further documents achievement of proposed activities and deliverables for year three drawn from onsite visits, including interviews with key personnel throughout the institution and off-site correspondence with the program director.

BACKGROUND

Lord Fairfax Community College (LFCC) received a Round Four Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant in September 2014 with a start date of October 1, 2014. TAACCCT grants are made available by the U.S. Department of Labor (DOL), Division of Employment and Training Administration (ETA). The TAACCCT program provides capacity-building grants intended to spur innovation and the development of model training programs at community colleges and universities. TAACCCT-funded programs intend to prepare participants for employment in high-wage, high-growth industries by using innovative and sophisticated strategies that address the unique needs of unemployed or under-employed adults. Round Four consisted of $450 million in awards.

LFCC's TAACCCT initiative was named "Knowledge to Work" (K2W). LFCC's award totaled $3.25 million for four years to create a local, regional, and national system for TAA-eligible workers, veterans, and other adults to document competencies through individualized learning plans, leverage free and low-cost electronic learning resources, and earn industry credentials that make them marketable in three high wage, high growth industry sectors. This amount includes $750K in funding above the $2.5M cap to create a new national competency framework and credential in the field of information technology in health information management. This funding above the cap is being used to further develop the portal with new features.

Located physically in the Northern Shenandoah Valley of Virginia, Lord Fairfax Community College's (LFCC) service region consists of the seven counties of Frederick, Fauquier, Page, Shenandoah, Clarke, Warren, and Rappahannock, and the city of Winchester. K2W intends to serve local and regional employers through CBE as well as create a national model that links Open Education Resources (OER), competencies, credentials, and certifications to jobs. It was thought that CBE could help LFCC serve new student markets, potentially resulting in expanded in enrollment, completion and revenue. Through pioneering direct assessment and other CBE approaches, LFCC set itself on a course to become a test bed from which other colleges and organizations can replicate strong practices.

LFCC qualified for its TAACCCT grant by meeting six core elements stated in the Solicitation for Grant Applications: (1) evidence-based design, (2) career pathways, especially competency-based approaches to speeding students through to program completions, (3) advanced online and technology-enabled learning, (4) strategic alignment with the workforce system and other stakeholders, (5) alignment with previously-funded TAACCCT projects, and (6) develop new and/or take to scale successful industry sector strategies. K2W created CBE pathways for four existing programs – information systems technology, administrative support technology, health information management, and manufacturing, with different exit points for students to earn the AAS degree, certificate, career studies certificate, and competency badges. The distinguishing feature of the LFCC proposal was its intention to measure learning by direct assessment.

K2W is supported technologically by middleware developed by K2W staff that provides personalized learning plans, case management, and competency-based extended transcripts for its direct assessment CBE programs. This software and data structure were then used to build an online portal that became operational in the second grant year. That portal helps learners create personalized learning programs by finding and mastering program competencies through the use of OER. LFCC believes that the availability of the personalized learning software, OER, and an education search engine available at no cost speeds students' completion of credentials and their entry into labor markets that require specific and general competencies mapped to employer needs. A Spanish version of the portal was launched in 2017.

What is Competency-Based Education?

Competency-based education is generally distinguished from other educational approaches in several ways. First, competencies are precisely defined and measurable. Second, the student must demonstrate mastery of each competency at a predefined level before moving on to the next competency or set of competencies. CBE does not rely on the seat-time as a measure of learning attainment. Rather, competency-based models document what a student has learned by creating a set or system of competencies for which a student must demonstrate mastery. Third, CBE provides students a visible means to accelerate their progress through a chosen program. Although growing in both awareness and acceptance, CBE programs are the exception rather than the rule in community colleges. Still rarer are LFCC's initial

ambitions to identify and map program competencies that could be assessed directly, without a corresponding seat time measure.

What is Direct Assessment?

Direct assessment is defined by the federal government as "an instructional program that, in lieu of credit hours or clock hours as a measure of student learning, utilizes direct assessment of student learning, or recognizes the direct assessment of student learning by others."[1] Direct assessment programs, then, move beyond the time bounded by the traditional credit hour as the unit of instruction and toward the mastery of competencies. Students can progress at their own pace without the constraints of a traditional class schedule expressed in weeks, semesters, and/or years. Direct assessment transcripts document not only course completion and grades but also the specific competencies that the student has mastered. LFCC was the first institution in its regional accrediting agency region, the Southern Association of Colleges and Schools, to receive approval to offer direct assessment CBE programs.

What is Course-Based CBE?

As implied by its name, course-based CBE occurs during the timeframe of a traditional course. That is, instructional activity to deliver a measured unit of CBE begins at a fixed point and ends at a date corresponding to an institution's academic schedule. Classroom management for course-based CBE differs markedly from the traditional classroom since the focus is on clearly identifying and helping students master a pre-defined set of competencies mapped to the course objectives. Generally, this means moving away from lectures and passive instruction toward facilitating student mastery of those pre-defined set of competencies through one or more learning pathways. The process for demonstrating mastery of a given competency in a traditional classroom is similar, if not identical, to processes for direct assessment. Both require systematic and substantive interaction between faculty and students as part of the instructional process. Because the focus is upon groups of students and not necessarily individual students, course-based CBE may not provide a level of personalization that may be possible with more flexible direct assessment formats. Further, direct assessment can also create a framework under which students can save considerable time and associated costs by accelerating their mastery of competency sets within and across academic terms.

What is Personalized Learning?

According to Educause, personalized learning provides a unique, highly focused learning path for each student.[2] Personalized learning intends to use information technology systems and tools to tailor learning experiences based on student strengths, weaknesses, and pace of learning. These technologies include analytics, adaptive learning, digital courseware, and access to OER. A profile of each student's existing competencies is then built, and a personalized plan

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[1] Code of Federal Regulations. Title 34-Education. Retrieved at http://www.gpo.gov/fdsys/pkg/CFR-2011-title34-vol3/xml/CFR-2011-title34-vol3-sec668-10.xml

[2] Educause. 7 Things You Should Know About Personalized Learning. Retrieved at http://www.educause.edu/library/resources/7-things-you-should-know-about-personalized-learning

is developed to acquire the competencies needed for degree, certificate, or badge completion. Adjustments are made to each student's learning plan based on their performance. Personalized learning also helps instructors better target their teaching to individual students while helping students see where their own learning gaps occur.

LFCC's Direct Assessment CBE Programs

LFCC identified seven initial career and technical programs to create direct CBE direct assessment certificates and degrees. These programs were approved on July 1, 2015 by LFCC's regional accreditation agency, the Southern Association for Colleges and Schools Commission on Colleges (SACSCOC). They include:

Health Information Management (AAS Degree)
Information Systems Technology (AAS Degree)
Office Systems Assistant (Certificate)
Cybersecurity (Career Studies Certificate)
Hospital Facility Coding (Career Studies Certificate)
Information Processing Certificate (Career Studies Certificate)
Networking Specialist (Career Studies Certificate)

These College already offered these programs in the traditional credit hour, course-based delivery format. Conferred with SACS approval, LFCC began developing direct assessment versions of these programs in October 2014, and for reasons discussed below, the College decided to moved away from direct assessment toward offering courses in these programs in course-based CBE formats, which SACSCOC also approved. LFCC also decided to redesign its traditional course-based, Career Studies Certificate in Supervision during the third grant year to course-based CBE.

LFCC also provides CBE approaches to adult basic education (ABE) and the GED. LFCC oversees the Northern Shenandoah Valley Adult Education Center and created an ABE to HIM pathway to LFCC's GED programs. Individuals who complete the curriculum earn a GED certificate as well as a Career Studies Certificate in Medical Office Administration through LFCC. Another partnership with a regional detention facility provides incarcerated individuals with noncredit CBE programming to enter several different industries with programs in the trades leading to nationally-recognized credentials. Grant-funded staff also worked with veterans in the College's new veterans' center to provide personalized support to map military occupations to competencies and LFCC courses. K2W staff also began to leverage a new military education portal developed by the Virginia Community College System (VCCS).

Year Three Initiatives

Utilizing national competency frameworks, particularly those of the USDOL with the O*NET database of occupational data and the Competency Model Clearinghouse (https://www.careeronestop.org/competencymodel). This work included incorporation of

unique data structures to store information about competency frameworks to increase efficiency and decrease costs in cataloging OER according to competencies. A detailed review of data structures for storing competencies was accomplished. Plans were put in place to document taxonomies so that the relationships between competencies could be clear and used for multiple purposes in the portal. This included work with IMS Global staff about the Competencies and Academic Standards Exchange (CASE) tool (https://www.imsglobal.org/activity/case) and open source access to compare taxonomies.

Participation in TAACCCT Virtual Sustainability Institute and work with LFCC's USDOL-assigned Sustainability Coach, Maria Fieth, on avenues to ensure that the grant work, especially the portal, continues after year four.

K2W staff participated in **storytelling exercises** at the April 2017 OLC Innovate TAACCCT meeting within a meeting and at the May 2017 Competency-Based Education Network (C-BEN) convening in Nashville. These efforts were designed to help tell the story about LFCC's CBE to a larger audience, including employers and human resources professionals. The K2W director wrote a country western song called "A Robot Took My Job" to promote workforce competencies at community colleges. Dr. Milam performed this song at the C-BEN May meeting in May 2017, the TAACCCT Conference in September 2017, and the CB Exchange meeting in September 2017.

Staff performed an extensive **review of portal requirements, design of new features, and new wireframes to rebrand the portal with more focus on job seekers and employers**. This involved a conceptual shift from using the HigherEd.org domain, which was thought to be too aligned with higher education, to the Knowledgetowork.com domain which is intended to be more employer-focused. The knowledgetowork.com domain was being used to provide information about the grant generally and to support the direct assessment CBE programs and software. Rebranding and reworking of all pages and resources was a result of observations made by DOL staff and the sustainability coach. New features have since been put in place including job search and customized pages for employers, job seekers, and learners. Additional features and new requirements are intended to be developed as a result of braided funding arising from LFCC's participation in an America's Promise grant.

Braided funding will ensure the sustainability of the portal through December 2020 from a USDOL America's Promise grant entitled "Pathways to the American Dream" to the New River/Mount Rogers Workforce Investment Area Consortium Board (NR/MR WIACB) in Virginia. The portal will expand to include new programs within the same three industries served currently by K2W. The new, collaborative portal is intended to meet the needs of employers, with job roles and occupations tied to competency frameworks with available OER for training and hiring. Expansion means that job seekers can look for additional opportunities within these career pathways and make themselves more marketable by using OER to develop new skills and review previously attained competencies. The MOU for this collaboration provided braided funding to start October 1, 2017.

The K2W director was invited to **participate in the national Skills2Impact group** that intends to increase the use of the USDOL SkillsCommons site and other TAACCCT products. Monthly meetings and multiple discussions centering on sustainability planning were held, resulting in proposals to CSU Merlot about partnership avenues with K2W. This proposal was tentatively approved for funding, but this has not yet been received as the SkillsCommons site addresses concerns about ADA, general usability, and UI interface. K2W has also convened discussions about leveraging USDOL national competency frameworks as well as promoting SkillsCommons and the Knowledgetowork.com sites. The K2W director also has convened meetings with Mary Beth Lakin of the **American Council on Education (ACE)** staff about promoting the portal alongside other national efforts for CBE generally. K2W subsequently participated in an ACE webinar, which in turn, led to interaction with VCCS staff in charge of Prior Learning Assessment (PLA) and a new portal for military mapping of job codes to VCCS courses.

K2W staff were **invited by USDOL to help prepare a case study** about the portal and K2W's work with AHIMA. https://www.careeronestop.org/CompetencyModel/Info_Documents/AHIMA-CaseSummary.pdf. This was followed by a second case study by USDOL (https://www.careeronestop.org/CompetencyModel/Info_Documents/LFCC-CaseSummary.pdf) and then publication of a testimonial about using the Clearinghouse. (https://www.careeronestop.org/CompetencyModel/ModelsinAction/Testimonials.aspx?pagesize=5&currentpage=1). These activities were part of ensuring that K2W is integrated into planning by USDOL for national portal efforts around competencies.

LFCC continued **work with AHIMA to finalize a new national competency framework and certification** exam for information technology in health care. During year three, AHIMA convened panels of experts and worked with consultants to document a curriculum and competency framework. A series of four job analyses were conducted. The competency framework was presented in August 2017 to AHIMA's Academy of Educators. The exam for the certification was piloted by AHIMA in fall 2017 and released in January 2018. The USDOL case study that explains this partnership with AHIMA is available at https://www.careeronestop.org/CompetencyModel/Info_Documents/AHIMA-CaseSummary.pdf.

LFCC developed a **CBE course in Information Technology (IT) in healthcare** as part of the new CBE curriculum for the AHIMA credential and competency map. The grant funded a full-time faculty member to develop this course and it was offered for the first time in year three. Additional courses are being redesigned in CBE format to support this new credential. It is expected that the new career studies certificate for IT in healthcare will be offered online starting in 2018. It is intended that this CBE course and other required CBE courses will prepare students for the corresponding national exam. LFCC has maintained its participation in State Reciprocity Authorization Agreements (SARA) to meet regulatory requirements and providing that students outside of Virginia can enroll.

A course-based **CBE career studies certificate program in supervision** was developed in 2016-17 and launched in summer 2017. This program is the College's first effort to address the manufacturing industry component of this grant. It involved a redesign of the traditional supervision program consisting now entirely of course-based CBE offerings. The non-CBE version is no longer offered. Approved by SACSCOC in 2017, this program was not one of the seven original direct assessment programs but emerged after K2W's intelligence gathering with area manufacturing environments. It is intended that this program will expand the College's outreach efforts to new partners such as the Navy Federal Credit Union. Enrollments have filled up for the new CBE version, and may serve as an example of how the entire college has benefited from lessons learned from direct assessment and faculty use of competencies and rubrics.

An **on-site monitoring visit** of the TAACCCT grant by the federal project officer Nicole Duchman was conducted in year three. Preparation for this visit and documentation about participants and finances/expenses helped to project management and planning. The report of this monitoring visit was released with no recommendations or findings.

K2W continued to contribute to the **national dialogue about CBE**. The K2W director served on the board of C-BEN during the third year. He was also involved in a special project funded by the Lumina Foundation to develop a new national survey about postsecondary CBE. A national advisory group met in January 2017. The Lumina Foundation made CBE one of its top five strategic priorities and therefore decided to put much more resources and planning into this effort leading to a new national strategy for CBE research. During year three, Dr. Milam and staff made presentations nationally, including CB Exchange, CAEL, NCWE, OLC Innovate, the Saylor Academy conference, IMS Global LILI 2017, the SACSCOC annual meeting, and the TAACCCT Round 4 Convening. Statewide presentations include the VCCS Student Success conference, the New Horizons technology conference, and OpenHire.

To keep track of research and practice about CBE and direct assessment, K2W staff created and maintain an **online inventory of CBE links**. This is available at http://highered.org/cbe and features categories of articles and accompanying search engine as a service to the profession. This inventory is co-branded with C-BEN.

The Knowledge to work portal was selected as a **finalist for the IMS Global LILI Award**. Staff prepared a video to promote outreach and presented it nat this national conference. See http://www.imsglobal.org/winners-2017-learning-impact-awards for links to the paper (http://www.imsglobal.org/sites/default/files/LILI17/LIAAwards/LFCCK2W.pdf) and to the video (https://www.youtube.com/watch?v=9qdABx84B3k&feature=youtu.be).

Working to address persistent concerns about enrollment in its CBE programs, LFCC was approved for a grant budget modification to conduct **additional outreach** to promote CBE programs and the portal. LFCC staff who oversee outreach and marketing for the college were consulted to determine better use of social media. A contract was set up to work with the same vendor, High Rock, which assists the college with social media outreach but focusing on Knowledge to Work activities. LFCC's staff have monitored the success of these efforts by

assessing new profiles and users of the portal and have expanded this work with other efforts. Working with the LFCC Foundation, K2W staff qualified the college for $10,000 a month in free Google search engine advertising and this is being used, along with paid search engine optimization strategies with the Microsoft search engine Bing. Targeted emails and other efforts were put in place during year three. The portal programmer also leveraged users' IP addresses to document where portal searchers are located and to customize their welcome greeting on the site with the intent of increasing engagement.

Shift from Direct Assessment to Course-Based Assessment

Because of low enrollment in its direct assessment programs and the lengthy processes necessary to award Title IV student financial aid for direct assessment programs, LFCC formally notified SACSCOC in January 2017 that it was withdrawing its substantive change for direct assessment. The College's direct assessment programs enrolled students through the spring 2017 semester after which these programs were converted to course-based CBE delivery. All required courses in those approved programs were to be redesigned in CBE formats to be accompanied by a defined sequence of general education courses to meet College, state, and regional accreditation requirements.

The independence of direct assessment CBE from traditional time measures had become increasingly contentious among national and oversight agencies since LFCC received initial SACSCOC approval to offer seven direct assessment programs in 2015. During the intervening time, the atmosphere for innovative practice not linked to the traditional credit hours has become clouded. Regional accreditors are keenly aware of the U.S. Department of Education Solicitor General's report that Western Governors University should return $712 million of financial aid disbursed to students in its CBE programs because it did not require weekly regular and substantive interaction between faculty and students.[3] Anticipating this issue from the inception of this grant, and with the help of the third-party evaluator and C-BEN, opportunities for engagement and interaction were built into LFCC's direct assessment CBE programs. In the evaluator's opinion, it is ironic that on one hand, regional accreditors would first encourage non-time linked academic experiences while subsequently encourage the use of the very time-based measures that these programs were intended to eschew. It is clear that K2W was on the "bleeding edge" of a quick and unpredictable sea change.

LFCC may be the first community college in the country to obtain approval for and to actually offer direct assessment CBE. While this innovation in direct assessment was limited to a year and a half or four semesters between 2015 and 2017, it showed significant promise. That promise was ultimately constrained by low enrollment due in no insignificant part to not being able to award Title IV financial aid for enrollees. It also should be emphasized that SACSCOC did not unilaterally rescind approval for direct assessment CBE. Rather, LFCC acted on its own

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[3] See, for example: U.S. Department of Education, Office of the Inspector General (2017, September). *Western Governors University Was Not Eligible to Participate in the Title IV Programs.* Retrieved February 19, 2018 at https://www2.ed.gov/about/offices/list/oig/auditreports/fy2017/a05m0009.pdf

initiative to withdraw this substantive change request.

The issue of offering direct assessment CBE is national in scope and only seven institutions appear to have been approved by both regional accreditors and the Department of Education to become eligible to offer Title IV financial aid. Some of these institutions have, for the most part, relatively small enrollments in these programs. Others are for-profit and are able to engage in substantial, national marketing and promotion. Other national leaders such as Southern New Hampshire University (SNHU) do not recruit and serve individual students per se. Instead SNHU serves employees of large companies such as Anthem. These companies contract with SNHU to pay the University directly for their students to enroll in direct assessment programs.

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CHALLENGES AND OPPORTUNITIES

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The College's intentions represent new ground for higher education. Many of these challenges were identified in LFCC's original proposal, while additional challenges surfaced after receipt of the grant. Small scale challenges have been addressed during the first three years of grant operation while a handful of larger-scale challenges remain. This section reviews ongoing challenges and opportunities.

Participant Streams

Enrollment in direct assessment programs fell short of the expectations established in the TAACCCT proposal. USDOL expressed concerns about low enrollment and required the College to update projections of participants quarterly. Ten total students were served across the defunct seven CBE instructional programs offered by direct assessment. There were nine total completers, four in the ABE to HIM programs and five in the Administrative Support Technology program. The subsequent shift to course-based CBE has generated a large increase in participant numbers (Table 1).

Regardless of CBE delivery mode, the K2W director believes several factors account for less than expected enrollment throughout the second and third years. Project staff report that employer partners in the vicinity continue to express interest in CBE approaches although this interest has not resulted in actual enrollment, suggesting that increased education of employers about the benefits of CBE for employers and employees alike may be beneficial. Valley Health, a large regional healthcare provider, for example, continues to be involved in the program and its director of health information management has participated in grant activities with AHIMA to develop the new national competency framework and certification exam discussed above. LFCC has developed multiple pathways and participant streams for its CBE efforts. A total of 1,346 unduplicated students were served during the last three years. Table 1 below captures all participant streams during this time.

Table 1 D2W Participant Streams Year One through Year Three			
Stream	Year One	Year Two	Year Three
Adult Basic Education	6	4	11
Adult Detention Center		20	53
Course-Based CBE		128	680
Direct Assessment CBE	6	4	
General Education Development (GED)	27	58	73
Online Portal	2	72	178
Plugged In Virginia		6	9
Trade Adjustment Assistance		51	
Veterans			53
Total	39	311	1,024
*GED, ABE, Adult Detention Center, and veteran enrollments subject to minor duplication Source: LFCC, November 2017			

The participants in these streams are working in a pathway towards credentials in the industries and programs targeted by the grant. Students enrolled in these courses are counted as grant participants because they meet these criteria identified by TAACCCT:[4]

- **Adult Basic Education (ABE)** participants lacking readiness for higher education and requiring adult basic education skills. K2W is designed to serve the continuum of student needs from ABE and developmental education to certificates and degrees. The grant-funded instructor leverages competencies and is trained in CBE approaches.

- **Adult Detention Center** participants are incarcerated in a regional corrections facility that is served with ABE and CBE trade services instruction. CBE-based training in manufacturing has also been introduced through workforce services. OER have been made available despite the lock down of Internet in these facilities for security purposes.

- **Course-Based CBE** participants enrolled in courses that faculty have redesigned in a CBE delivery format.

- **Direct Assessment CBE** participants were enrolled in one of the seven direct assessment CBE programs identified in the grant, including degree, certificate, and career studies

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[4] See Performance Reporting Technical Assistance Resource #2. Retrieved at https://taaccct.workforcegps.org/resources/2017/01/04/14/56/TAACCCT_Performance_Reporting_TA_Resource_-2-_Who_Counts_as_a_Participant

certificate programs in the areas of health information management, information technology, and administrative support technology.

- **General Education Development (GED)** participants lack a secondary diploma or equivalency and require help in obtaining a GED. It is intended that these participants will be placed in a pathway to a course-based CBE program. Instruction is provided by grant-funded staff (same as ABE instructor) with emphasis and training in CBE. This component has involved administration of special assessment instruments to determine college readiness.

- **Portal** participants include those individuals using the online portal at http://knowledgetowork.com who enroll by creating a learner profile on the site, developing a personalized learning plan, and using OER to review previously attained competencies or to trigger new learning via CBE to attain a nationally recognized credential.

- **PluggedInVA (PIVA)** participants enroll through the LFCC's Northern Shenandoah Valley Adult Education Center to earn a GED and pursue Certified Medical Administrative Assistant (CMAA) certification. PIVA is part of the continuum of CBE learning provided by the College. CBE approaches and methodologies used in the GED component of the PIVA program are key components of the stacked and latticed credentials under HIM.

- **Trade Adjustment Act (TAA)** participants are displaced matched to learning opportunities customized to their individual needs.

- **Veterans** include students with veteran status who are served by a grant-funded workforce navigator and other veterans' center staff. Staff assess their readiness for PLA mapping military job codes to LFCC courses and other CBE programs that meet their needs.

Table 1 above shows that the largest growth area is within a participant stream not initially conceived when the grant was implemented, course-based CBE. The enrollments for course-based CBE, coupled with other participant streams, result in KW2 exceeding its target for participants in year three. See Appendix B for outcome trends across the first three years of the grant. The online portal was second in overall growth in the third year.

These data indicate that redesigning of traditional courses as competency-based offerings may increase future enrollments. Because they start and end on the same calendar as regular classes, they may be more in line with students' experiences and comfort with the traditional academic calendar. Enrollment in course-based CBE also can provide students with experience in competency-based methodology which, in turn, may allay concerns students may have about their CBE.

Another potential avenue for increasing CBE enrollment lies in verification of previously attained competencies for prior learning assessment and/or credit for prior learning. Program faculty have mapped competencies to courses identified as CBE and, where competencies have been met, the college is documenting course credit equivalencies as transfer credit. The College's Prior Learning Assessment process and procedures are now being reviewed to improve the documentation of competencies as a way to earn credit for prior learning.[5] The K2W director has recently been assigned by LFCC's administration the task of reviewing and facilitating the expansion of PLA policies and procedures, an opportunity brought about by K2W grant and the visibility created college-wide for CBE and personalized learning approaches.

National Competency Frameworks

Competency frameworks provide a mechanism for students to be assessed at their current level of attainment and to see, unambiguously, which competencies remain to be mastered to move up in a given career and to have their skills and learning recognized as the basis for lateral movement. It is one thing for a higher education institution to create a competency-based framework and another to rely on a well-researched national framework that meets concerns about the validity and reliability of competencies. National competency frameworks carry immediate advantages for students and employers, especially when programs are developed with the competencies within national frameworks. LFCC's direct assessment programs were aligned with, adopted, and/or were informed by these national frameworks:

> *Health Information Management*. American Health Information Management Association (AHIMA) and the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) [6]

> *Information Systems Technology*. Association for Computing Machinery- Committee for Computing Education in Community Colleges[7]

> *Administrative Support Technology*. International Association of Administrative Professionals[8]

A significant part of the grant has been efforts by K2W's Digital Librarian to locate, catalog, and curate open educational resources (OER) matched to the competencies in these national competency frameworks for AHIMA, ACM, and IAAP.   Due to staff turnover and low enrollment, the competency framework of NCCES for the trades was not utilized in the portal. LFCC staff have worked to identify other sources of national competency frameworks.

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[5] The PLA process for these specific courses is grant-funded, included in programs leading to industry-recognized credentials, required for the program completion, and in programs that are part of the statement of work.
[6] See, for example: http://wwwahimafoundationorg/education/curriculaaspx
[7] See, for example: http://www.acm.org/education
[8] See, for example: http://www.iaap-hq.org/home

Portal Development

A key activity continues to be the aforementioned web portal that includes a search engine of educational resources mapped to competencies and allows users to create their own free, personalized learning plans. The portal went live in March 2016 and underwent a significant user interface redesign in summer 2017. The College initially saw the portal as the launching pad to increase enrollment and awareness of its K2W CBE direct assessment programs, as well as a source of revenue to sustain the program after the grant ends. The assumptions about increasing enrollment through direct assessment have now changed in favor of course-based CBE implementation, and the portal continues to be a work in progress. Direct assessment CBE programs and the software for personalized learning plans and case management were in place and served students through the spring 2017 semester using the knowledgetowork.com domain. This software is no longer being used and this domain now is used instead for the portal.

Software and features for personalized learning plans, case management, competency-based extended transcripts, and tracking prospective students were fully working and in place to support the development of the College's direct assessment programs. The portal's design, database structure, and programming were leveraged and include features for personalized learning plans, custom dashboards, saved searches, the educational search engine, administrative consoles, notes, saved resources, blogs, a list of research and CBE links, profiles, and secure login. Both development and production server environments are being used for web and database applications, along with security and backup protocols as well as disaster recovery and risk management plans.

K2W has partnered with regional and national organizations in working on the portal, including but not limited to the following entities:

AHIMA
Microsoft
IAAP
Concentric Inc. (operator of the Badge Alliance)
Merlot OER repository
Saylor Academy
Community College Consortium for Open Education Resources (CCCOER)
Zinc Learning Labs
Open Textbook Library
SkillsCommons
New River/Mount Rogers Workforce Investment Area Consortium Board

PROJECT COMPONENTS, ORGANIZATION, AND PARTNERS

Project Components

Knowledge to Work consists of interrelated parts and features. These include the development of: (1) CBE credentials such as certificates, degrees, and digital badges; (2) individualized learning plans; (3) alignment of program outcomes to national competency frameworks by faculty; (4) use of competency frameworks for PLA; (5) development of an online portal with a unique educational search engine, personalized learning plans and OER tied to competencies; (6) wrap-around student support that has during the past three years included career coaches and a Workforce Navigator; (7) use of OER; and (8) training for effective practices in rubrics use to score artifacts for documentation of competency attainment. Along the way in this complex environment, technical, policy, business process, and system issues have been identified and addressed.

K2W Logic Model

The third-party evaluator first drafted a K2W logic model based on direct assessment in January 2015 that visually describes the sequence of activities thought to bring about change and how these activities are linked to the results the program is expected to achieve. The model was viewed by the K2W Leadership Team. It is an overview of the complexity and interrelated parts of this initiative. The third-party evaluator has updated and refreshed this model throughout the life of the grant (see Appendix A for the most recent version.

K2W Staffing

KW2's Leadership Team provides guidance and oversight for the work. The Leadership Team serves the project by serving as a sounding board for policy and procedure development as well as advocating for direct assessment internally and externally. As of November 2017, this team looks somewhat different than earlier versions given personnel changes at the College.

- Cheryl Thompson-Stacy, LFCC President (retired 2/1/18)
- Kim Blosser, Vice President for Academic and Student Affairs (became President 2/1/18)
- Karen Kellison, Dean of Business, Education, and Technology
- Lyda Kiser Costello, Director, Office of Transition Programs
- Amy Judd, Adult Basic Education Program Manager
- Valerie Priddle, K2W Grant Fiscal Agent
- John Milam, Executive Director K2W

During the third year of the grant, K2W staff consist of the individuals listed below. These positions are current as of September 30, 2017. Some are grant-funded, and others are part-time as noted.

- John Milam, Ph.D., K2W Executive Director (LFCC funding)
- Citrenbaum, Anna; K2W Workforce Navigator (LFCC/K2W split funding)
- Kiri Johnson, K2W Digital Librarian (K2W Full-time)
- Jeremiah Shifflett, K2W Database Administrator (LFCC/K2W split funding)
- Eric Simons, K2W Portal Development Manager (K2W Full-time)
- Katie Branson, K2W ABE Instructor (K2W Full-time)
- Josh Horstman, K2W ABE Instructor – NRADC (ABE/K2W split funding)
- Barbara Julian-Garner, HIM Faculty member (K2W Full-time)
- Karen Kellison, Ed.D. Dean (LFCC/K2W split funding)

Other grant aligned personnel are embedded in LFCC's academic and student services units. These positions, such as the Grant Fiscal Agent, Valerie Priddle, are not funded by the grant. The grant did fund faculty stipends to develop course-based CBE offerings, conduct inter-rater reliability of rubrics to score competency artifacts, and to do subject matter expert peer review of CBE courses prior to submission to SkillsCommons.

External Partners

Industry Partnerships. In its original proposal K2W identified ten local employer partners in three industry sectors:

Healthcare Sector
    Fauquier Hospital
    Valley Health
Information Technology Sector
    Frederick County Public Schools
    Shockey
    Shentel
    Winchester City Public Schools
Advanced Manufacturing Sector
    Ashworth
    Evolve Manufacturing
    Kraft
    O'Sullivan

National partnerships have continued at different levels of engagement throughout this reporting period and include coordination with the American Health Information Association (AHIMA) to ensure that K2W incorporates national competency standards. K2W was granted an additional $750,000 above the grant cap to support a new national credential/competency framework and selected AHIMA as a partner to develop a new, national level credential combining healthcare and information technology. As discussed above, LFCC worked with AHIMA to develop a new national competency framework. Four separate job analyses of Certified Healthcare Technology Specialists (CHTS) job roles were conducted by AHIMA. AHIMA

Foundation staff and subject matter experts invited from the field used these to develop a curriculum and national competency framework. This framework was completed in August 2017 and presented by AHIMA at its Academy of Educators conference. AHIMA worked during fall 2017 to finalize a new national certificate and exam for the Technology Specialist role as part of its CHTS series. AHIMA determined that this was the best fit for the national framework and it leads to a stacked and latticed credential and competencies in preparation for roles in informatics.

LFCC also began developing ideas and plans for a collaborative project to map military job codes in HIM to the AHIMA competency framework for health information management. The American Council on Education (ACE), the Council for Advancement of Experiential Learning (CAEL), the Badge Alliance, University of Maryland University College (UMUC) and AHIMA have been partners in this work over the past three years. Dr. Milam was invited by Lumina Foundation to participate in a summer 2017 convening with eArmyU, CBEN, and other organizations about mapping military job competencies to national credentials and other CBE initiatives.

DATA SOURCES

Data to inform this evaluation have been gathered to date through review of LFCC's original TAACCCT proposal and subsequent amendments, program documentation and deliverables as well as interviews of LFCC administrators, KW2 program staff and faculty groups as well as nterviews with program graduates. The third-party evaluator has also examined internal email chains provided by K2W staff, internal spreadsheets, and all quarterly reports submitted to USDOL. All data provided the third-party evaluator were de-identified.[9]

OUTCOME MEASURES SUMMARY YEAR THREE

USDOL requires all TAACCCT grantees to report on nine outcome measures. For K2W, low enrollments in the direct assessment programs mitigated against an overall assessment of all nine outcomes for K2W. Three-year targets and performance are documented in Appendix B. Table 2 depicts targets for year three compared to performance.

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[9] To fully comply with the Family Education Rights and Privacy Act, no personally-identifiable data have been requested by the evaluator nor have they been provided by LFCC.

Table 2 Year One Targets and Actual Performance		
	Year 3 Target	Year 3 Actual Performance
1. Total Unique Participants Served	955	1,024
2. Total Number of Participants Completing a TAACCCT-Funded Program of Study	566	51
3. Total Number of Participants Still Retained in Their Program of Study (or Other TAACCCT-Funded Programs)	470	322
4. Total Number of Participants Completing Credit Hours	735	672
5. Total Number of Participants Earning Credentials	617	22
6. Total Number of Participants Enrolled in Further Education After TAACCCT-funded Program of Study Completion	486	8
7. Total Number of Participants Employed After TAACCCT-funded Program of Study Completion	430	0
8. Total Number of Participants Retained in Employment After Program of Study Completion (non-incumbent workers only)	345	0
9. Total Number of Those Participants Employed at Enrollment (Incumbent Workers) Who Received a Wage Increase Post-Enrollment	249	3

STATUS OF PLANNED PROJECT ACTIVITIES AND DELIVERABLES

The grant has met all planned activities and proposed deliverables through the third grant year. The evaluator's concerns about enrollment are highlighted throughout the report. A detailed summary of progress through year three can be found in Appendix C.

DETAILED IMPLEMENTATION ANALYSIS

The Solicitation for Grant Applications establishes specific evaluation questions to guide the implementation phase of all TAACCCT grants. These questions are supplemented by questions generated by the third-party evaluator appearing in a subsequent section.

Selection of Program Curriculum

LFCC's direct assessment CBE programs were developed based on regional labor market needs documented in its TAACCCT proposal. These include industries targeted nationally by the Administration as having direct pathways from training and education to jobs that lead to in-demand, mid- to high-skill jobs with family-supporting wages. In addition to the seven career and technical programs selected, LFCC added the continuum of ABE to GED to degrees and certificates in the industries of information technology, health information management, administrative support, and supervision (manufacturing).

Program Designs and Grant Funds

Each career and technical program identified above now has a CBE counterpart developed with by TAACCCT funds. Seven certificate or degree programs are mapped to national competency frameworks that include specific competencies. The eighth program, supervision, aligns with program student learning outcomes and accreditation standards for this program as determined by the program's full-time faculty member.

The use of national competency frameworks to develop, align and adopt program outcomes has resulted in observable changes in the College's curriculum for the traditional, non-CBE programs, according to the K2W director. These activities have expanded LFCC's intentions to meet workforce needs regionally and nationally, especially since they are rooted in national frameworks. Other by-products of this process include increased visibility of the PLA/CPL process and the intended use of rubrics and inter-rater reliability for peer review of artifacts and scoring of competency attainment for courses beyond those specified in the original grant.

Delivery Methods

The shift from direct assessment CBE model to course-based CBE has significantly altered CBE delivery formats at LFCC. A full discussion can be found above. Both models state competencies *a priori* and these competencies are intended to be rigorously assessed within individual courses.

OUTCOMES/IMPACT ANALYSIS

Data Sources

Since multiple streams of participants are served, it is not possible to collect all of these data through one large enterprise reporting system such as PeopleSoft. Therefore, K2W staff created and maintained a database for DOL reporting and to support of the third-party evaluator. This is because the continuum of students served crosses multiple silos of transaction systems. Enrollment records are maintained at the point of service (in the case of ABE programs) and by analysis of learning activity and extended transcripts within the portal. Evaluative data have also been generated by review of LFCC's original TAACCCT proposal and subsequent amendments, program documentation and deliverables, interviews of LFCC administrators, KW2 program staff and faculty groups. A special database request was made by the evaluator to estimate any causal effect of course-based CBE delivery on short-term outcomes (see below).

Performance Standards

For each annual report, K2W staff assembled student performance data pursuant to national TAACCCT guidance.[10] Data from the Annual Performance Reports are provided in Appendix C. Given the nature of the TAACCCT data collection process, there are no benchmarks or comparisons with other TAACCCT grants at other colleges that can be made at this juncture. Instead, K2W's annual results are plotted against the projected goals by outcome measure.

Effect of Course-Based CBE Instruction

A propensity analysis (PSA) using available data was begun in 2017 to estimate whether course-based CBE delivery has having a positive effect on these short-term outcomes: (a) passing course with a grade of C or better, (b) course withdrawal, (c) subsequent term grade-point average; and program completion. The unit of analysis was the largest enrolled CBE-aligned course offered at LFCC in fall 2016, Principles of Public Speaking (CST 100). Students enrolled in CBE-aligned CST 100 students was used as the intervention (or treatment) group and to use all other non-CBE sections of CST 100 as the comparison (control) group.

				Finished
	Passed Course		Subsequent	Program at End
CBE Status	with C or Better	Withdrew	Term GPA	of Fall 2017
Enrolled in CBE-Aligned Course	27/ 81.8%	2/ (6.1%)	2.65	17 (51.5%)
Not Enrolled in CBE Course	31/ 93.9%	2/(6.1%)	2.66	14 (42.4%)

Table 3
Short-Term Student Outcomes, Matched Groups

The preliminary analyses shown in Table 3 suggests that are no significant differences between the CBE-aligned CST and non-CBE-aligned CST courses when students were matched on age, previous GPA, gender and race/ethnicity. Withdrawal rates were identical in the matched groups and slight variations in course pass rates, subsequent term GPA and program completion by fall 2017 were statistically inconsequential. As noted, these results should be interpreted cautiously since students may have been unaware that they were enrolled in CBE-aligned sections of this course. The full analysis is available as a separate report from K2W.

Further PSA is possible once more enrollments occur in course-based CBE, such as the redesigned CBE career studies certificate program in supervision. The evaluator will work with LFCC's staff office to identify comparison groups for the seven CBE programs. Given the anticipated small number of potential CBE participants and non-participants enrolled in the seven direct assessment programs, it is not feasible to randomly select a comparison group

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[10] Workforce GPS (2016, November). Performance Reporting Technical Assistance Resource #6: TAACCCT Performance Reporting Key Resources.

from the non-participant pool. The Detailed Evaluation Plan contains seven specific steps for making valid comparisons (pp. 13 -14):

1. The number of CBE participants in each program and collectively will be determined at the end of each term.
2. A random sample will be drawn from all career and technical students enrolled in corresponding terms to equal the absolute number of CBE participants in order to populate the comparison group.
3. Where appropriate—as mentioned immediately above—comparison groups also will be drawn on a program-by-program basis.
4. Intervention and comparison cohorts will be drawn for fall, spring, and summer terms.
5. The evaluator will subsequently work with LFCC personnel to identify covariates among the comparison and intervention groups.
6. The evaluator then will perform a Propensity Score Analysis that, in turn, will be used to remove covariate bias across both groups. PSA will provide a more unbiased picture of the effect of CBE.

INTEGRATIVE ANALYSIS AND CONCLUSIONS

Areas of Distinction

As a cutting-edge (or bleeding edge) initiative, Knowledge to Work is likely to continue to experience growing pains even after its third year. What is conceptually easy oftentimes runs into the reality of bureaucratic inertia, policies and procedures that require modification, incomplete technology, and alternations to longstanding business models. As noted above, LFCC understood those challenges variously from the perspective of launching what appears to be the first community college direct assessment program in the nation. While parts of the implementation process were frustrating at times for LFCC and K2W staff, a more significant part has been rewarding and forward-looking. These lessons carry forward in the transitions to course-based CBE.

What happens during the final year will more fully tell Knowledge to Work's story. That is not to say that all challenges identified in this report will have been met. In fact, it is likely that developments in technology and external bureaucratic processes may still be unresolved after TAACCCT funds have been expended. Regardless of continued workarounds and finding creative ways to offer CBE in a world dominated by credit hours, LFCC should keep building toward the best possible delivery of CBE, including accelerating its efforts to better market the program both internally and externally.

Opportunities for Progress

1. K2W's progress to date should be expanded by a college-wide plan for integrating its work with other units, chiefly the Workforce Solutions unit. Many practices inherent

in CBE delivery could be implemented by this unit. Other academic programs at the college reportedly are interested in the potential of CBE, such as the certificate in early childhood education, which launched an experimental cohort using CBE techniques in 2017. The faculty member for this program participated in professional development offered by K2W.

2. Work on documentation and promoting credit for prior learning assessment and certifications for competencies in the LFCC PLA policies and procedures. The College's renewed focus on PLA in the third year is a hopeful sign and can result in future enrollment gains across the entire college. The K2W Director has been given responsibility for leading PLA efforts college-wide, effective fall 2017.

3. Continue to align course-based CBE sections with local employer needs. Supervision program courses, for example, have filled quickly according to enrollment reports. This suggests that demand is present for this model, especially since a structure is now in place that accords with the traditional calendar, taking some of the unpredictability out of the CBE equation for students studying supervision as well as other program areas that have implemented course-based CBE.

4. Place high functioning ESL OER on the portal. Integrate this with the Spanish version of the portal. Provide additional OER materials linked to competencies for soft skills, management, and developmental education. These now are provided now through a series of icons representing special OER collections and experience will dictate what refinements may need to occur.

5. Continue to educate LFCC personnel about the portal and OER as a productive route to ongoing professional development.

6. Incubate more use of rubrics in teaching and learning, such as was done for direct assessment CBE. This includes faculty conversations about the development of appropriate rubrics, as well as what is learned through inter-rater reliability scoring studies. Similarly, encourage systematic faculty review of redesigned courses that incorporate competencies, such as is required by SkillsCommons for submission of course materials.

Formative Lessons

Knowledge to Work has existed for three full years and, while only relatively recent in origin, the program has gained critical lessons that are worthy of sharing. The forthcoming final report will incorporate these lessons with an accent on the quality of these initiatives, and how that quality is measured, to share internally and with a wide national audience.

(1) CBE programs and other innovations require changes to community college operations and can challenge existing institutional culture. Operational and conceptual change

cannot be over-communicated;

(2) Faculty are central to the success of CBE models. LFCC's Faculty Direct Assessment Committee was pivotal in working with national competency frameworks and providing the expertise for LFCC to meet its recent accreditation challenges. Faculty involvement in creating CBE—by whatever delivery mechanism—is critical;

(3) There is little to be gained by doing it alone. LFCC has derived benefit from participating in new networks such as C-BEN consisting of other institutions struggling with how to implement CBE and CBE assessment as well as national organizations that are trying to lead in this emerging area;

(4) LFCC is advised to wrap all of its CBE activity, including its renewed interest in PLA, within purposeful learning communities for which materials are developed including what to expect as a CBE learner and ensuring that everyone, faculty and students alike, is on the same page.

Evaluative Conclusions

Substantial progress is evident throughout LFCC's TAACCCT grant. All Department of Labor required and amended milestones and deliverables have been met. At the same time, enrollment remains a concern by K2W staff as well as by USDOL. The transition to course-based CBE, as well as increased services to veterans and corrections populations, has helped increase enrollment although the College is advised to press ahead with new courses and programs so as to meet new demand.

K2W met its year three target for participants and may meet the total target for participants at grant conclusion. Employment outcomes are more difficult to ascertain, however, since the course-based CBE approach includes courses that fall at the beginning of a program sequence and not at the end, meaning that many current participants cannot be expected to enter the labor market until significantly beyond the completion of the current grant and its evaluation cycle.

Despite moving away from direct assessment CBE, K2W has distinguished itself within its accreditation region and nationally through those efforts to pioneer direct assessment CBE. The learning that was required to position the College in this area appears not to be in vein, however. These experiences can now serve as a test bed for adapting to the constraints and regulatory issues of direct assessment and has many lessons—especially the development of CBE program curricula—that can be shared with other higher education institutions

LFCC reports aspirations to keep innovative CBE practices going, despite the setbacks encountered and occurring on the national stage and the college's efforts to generate enrollment. with the release of a new national competency framework and certification for IT in healthcare through AHIMA, the college and the U.S. are poised to better meet this imminent and pressing need for a skilled workforce.

APPENDIX A
Revised K2W Logic Model

K2W LOGIC MODEL
Version 2

ASSUMPTIONS	INPUTS	ACTIVITIES	OUTPUTS	OUTCOMES	IMPACT
1. Competency-based learning accelerates students' completion of workforce certificate and degree programs 2. CBE assessment leads institutions and faculty to develop new learning pathways 3. Higher education needs new direct assessment models. 4. LFCC is committed to transformational change 5. LFCC will build capacity to fully implement competency-based programs built on course-based CBE.	1. Resources from TAACCCT grant. 2. Staff and faculty expertise in Competency-Based Education (CBE) and Open Education Resources (OER). 3. Commitment from LFCC's administration and faculty. 4. Support from national organizations and networks.	1. Faculty and staff training to develop competency-based degree and certificate pathways and programs in selected areas. 2. Development of wrap around student support services. 3. Partnerships with area employers for curriculum development and employment opportunities for graduates. 4. Recruitment and induction of students. 5. Development of partnerships with AHIMA and Microsoft. 6. Creation of a web portal and search engine connecting learners to OER resources used to create individual learning plans.	1. Establishment of Competency-based programs via using strong practices in CBE. 2. Curriculum reflects competencies drawn from standards established by national partners. 3. Student-centric materials drawn from its experience in educating students about CBE and direct assessment are developed. 4. Templates for individual education plans using CBE. 4. Integration of web portal and search engine within LFCC's selected programs.	1. Students in CBE programs are retained at rates higher than a comparison group. 2. Graduates of LFCC's CBE programs earn credentials at a rate faster than comparison groups. 3. Graduates obtain jobs directly related to their chosen fields. 3. Graduates are retained in employment.	1. Competency-Based Education becomes the primary vehicle for Career and Technical programs. 2. LFCC's experience in establishing CBE and direct assessment informs and educates national work in workforce development and community college education.

APPENDIX B
K2W Department of Labor Outcome Targets

Outcome Measure	Year One Approved Goal	Year One Actual	Year Two Approved Goal	Year Two Actual	Year Three Approved Goal	Year Three Actual	Year Four Approved	Total Approved
1. Total Unique Participants	1,073	39	801	311	955	1,024		2,829
2. Total Who Have Completed a Grant-Funded Program of Study	493	8	436	30	566	51		1,495
3. Total Number Still Retained in Their Program of Study (Or Other Grant-Funded Programs)	440	22	370	105	470	322		1,280
4. Total Number of Students Completing Credit Hours	285	7	446	126	735	672		1,466
5.Total Number of Students Earning Credentials	544	10	472	31	617	22		1,633
6. Total Number Pursuing Further Education After Program of Study Completion	342	1	304	7	486	8	-	1,132
7. Total Number Employed After Program of Study Completion	361	0	324	0	430	0	339	1,454
8. Total Number Retained in Employment After Program of Study Completion	259	0	253	0	345	0	420	1,277
9. Total Number of Participants Employed at Enrollment Who Receive a Wage Increase Post-Enrollment	169	2	189	0	249	3	289	896

APPENDIX C
Program Outcomes After Year Three

Program Outcomes through Year Three				
Category	Number from APR	Target from SOW	% of Target Achieved	% of Eligible Participants*
1. Total unique participants served (B.1)	1,374	2,829	49	n/a
2. Total number of participants completing a TAACCCT-funded program of study (B.2)	68	1,495	5	31
3. Total number of participants still retained in their program or another TAACCCT-funded Program (B.3)	450	1,280	35	31
4. Total number of participants completing credit hours (B.4)	805	1,466	55	15
5. Total number of participants earning credentials (B.5)	47	1,633	3	15
6. Total number of participants enrolled in further education after TAACCCT-funded program of study completion (B.6)	16	1,132	1	33
7. Total number of participants employed after grant-funded program of study completion [non-incumbent workers only] (B.7)	3	1,454	0	0
8. Total number of participants retained in employment after program of study completion [non-incumbent workers only] (B.8)	0	1,277	0	0
9. Total number of those participants employed at enrollment [Incumbent Workers] who receive a wage increase post-enrollment (B.9)	5	896	1	N/A
Source: K2W staff drawn from DOLA required Annual Progress Reports *As calculated by DOLA Withdrawal rates were identical in the matched groups and slight variations in course pass rates, subsequent term GPA and program completion by fall 2017 were inconsequential.				

APPENDIX D
Summary of Goals, Deliverables, and Evaluation Findings

Appendix D: Summary of Goals, Deliverables, and Findings			
Item	**Deliverable**	**Description and Target Dates**	**Year Three Evaluation Findings**
1.1 Oversight - General		Meetings, status reports, hiring, space, computers, and general planning work with partners. *[Expected Start 10/1/14; Actual Start 10/1/14; Expected End 9/30/18]*	All required reporting and communication with DOL has been completed for year three and previous years. Additional partnerships were explored but focused on expansion of the portal. The portal went live in year two and has been continually improved since. General planning is ongoing, including oversight of the AHIMA sub-award, evaluator, and sustainability consultant. External and internal presentations made by K2W Executive Director. Sustainability planning ongoing with New River America's Promise grant; braiding of 400K will allow the portal work to continue beyond the TAACCCT grant from through December 2020. Successful on-site monitoring report by Federal Project Officer (FPO). Presented at national & state conferences. DOL prepared case studies about the portal and work with AHIMA.
1.2 Oversight - Reporting		Quarterly and annual progress reports, participant tracking for outcomes. *[Expected Start 2/1/15; Actual Start 2/1/15; Expected End 9/30/18]*	All quarterly narrative and financial reports have been submitted on time to USDOL. Revised enrollment projections and updated data for FPO. K2W participant streams defined and used for reporting. Prepared non-identifiable student level data files of CBE vs. non-CBE for evaluator to conduct preliminary propensity analysis. Discussion with FPO about enrollment projections to address shortfalls in projected outcomes each quarter.
	#1 - 1. Oversight - Notes, reports	Documentation of meeting notes, required reporting *Expected Start: 10/01/2014 Expected End: 09/30/2017 Actual Start: 10/01/2014*	All deliverables met. All required reporting and communication with DOL has been completed for year three and previous years. All quarterly narrative and financial reports have been submitted on time to USDOL.
2.1 Portal - Design and Develop		Create design and wireframes for portal for search, learning plans, competencies, and portfolios. *[Expected Start 5/1/15; Expected End 9/1/15]*	Global portal has undergone major overhaul with a new design and location. New features for employers and job seekers are being integrated. Work with external vendors and Bing search engine to promote portal and conduct outreach to meet participant outcomes.

Item	Deliverable	Description and Target Dates	Year Three Evaluation Findings
	#2 - 2.1 Portal - Create wireframes	Documentation of portal design with wireframes and feature set. *[Expected Start 5/1/15; Expected End 9/1/15]* Extended	All deliverables met. Created new wireframes. Updated design to include more use of graphics to document progress on custom dashboard. Added several changes identified through usability studies. Finalized design and implemented Spanish version. Added API connection to careeronestop.org allowing job search by keyword and zip code.
2.2 Portal - Develop software		Develop software for required features. *[Expected Start 7/1/15; Expected End 8/1/16]* Extended	Modified portal user interface per results of usability testing. Implemented Spanish version, now live. Added new features for graphic display of competency attainment on dashboard. Enhanced tracking of users based on IP addresses. Identified features & redesign to meet employer CBE needs as well as learners. Added API connection to careeronestop.org allowing job search by keyword and zip code.
	#3 - 2.2 Portal - Create software	Software created and documented. *[Expected Start 7/1/15; Expected End 8/1/16]* Extended	All deliverables met. Modified portal user interface per results of usability testing. Implemented Spanish version, now live. Added new features for graphic display of competency attainment on dashboard. Enhanced tracking of users based on IP addresses. Identified features & redesign to meet employer CBE needs as well as learners. Added API connection to careeronestop.org allowing job search by keyword and zip code.
2.3 Portal - Develop database		Create and maintain database structure behind portal. *[Expected Start 5/1/15; Expected End 8/1/16]*	Continued refining import of OER into database. Planning for ties of competencies to assessments and credentials. Additional work importing OER into database, particularly with new data structures for Lynda.com and other providers. Work w/ data models for Spanish version. Investigated more content providers & ways to leverage their content. Met with CEDS staff on evolving CBE data. Analyzed DOL competency database structure & how to map data to occupations, career pathways, & OER. Worked w/Skills Commons on ideas to incorporate OER filed by TAACCCT grantees & map them to pathways & competency frameworks.

Appendix D: Summary of Goals, Deliverables, and Findings

Appendix D: Summary of Goals, Deliverables, and Findings			
Item	**Deliverable**	**Description and Target Dates**	**Year Three Evaluation Findings**
	#4 - 2.3 Portal - Create database	Documentation of database created for portal. *[Expected Start 5/1/15; Expected End 8/1/16]*	All deliverables met. Continued refining import of OER into database. Planning for ties of competencies to assessments and credentials. Additional work importing OER into database, particularly with new data structures for Lynda.com and other providers. Work w/ data models for Spanish version. Investigated more content providers & ways to leverage their content. Met with CEDS staff on evolving CBE data. Analyzed DOL competency database structure & how to map data to occupations, career pathways, & OER. Worked w/Skills Commons on ideas to incorporate OER filed by TAACCCT grantees & map them to pathways & competency frameworks.
2.4 Portal - Functional mockup		Create working, functional portal at domain http://highered.org *[Expected Start 9/1/15; Expected End 9/1/16]*	Portal fully live with backup. Continued monitoring of site activity and usage reporting. Expanded IP tracking of users in higher education to engage them more. Redesigned portal fully, now with features now on http://KnowledgeToWork.com ported over from HigherEd.org. Old domain still offered with links to new features. Launched new features for job seekers.
2.5 Portal - Live nationally		Make portal live, available nationally. *[Expected Start 1/1/16; Expected End 12/1/16] Extended*	Portal live under domain name KnowledgeToWork.com and previous domain name (HigherEd.org) redesigned. Both live and fully functional.
	#5 - 2.5 Portal - Go live!	Documentation that portal is live nationally. *Expected Start: 10/01/2014 Expected End: 09/30/2017 Actual Start: 03/16/2016*	All deliverables met. Portal live under domain name KnowledgeToWork.com and previous domain name HigherEd.org redesigned. Both live and fully functional.
3.1 Coach/Navigator - Services		Career coaches and workplace navigator provide in-place, wrap-around support services *[Expected Start 1/1/15; Actual Start 1/1/15; Expected End 9/30/17]*	Career coach and Navigator continued to meet with prospective students for part of year. K2W hosted booth at AHIMA national convention in Baltimore. K2W leadership determined that outreach coach position was ineffective; redirection to more extensive outreach to employers to assist them identifying job role competencies as a basis training. Workforce Navigator position now located in split-funded role in LFCC Veterans Services.

Item	Deliverable	Description and Target Dates	Year Three Evaluation Findings
	#6 - 3. Coach/ Navigator - Services	Documentation of services provided by career coaches & workforce navigator w/ reports & tracking *Expected Start: 10/01/2014* *Expected End: 09/30/2017* *Actual Start: 01/05/2015*	All deliverables met. Career coach and Navigator continued to meet with prospective students for part of year. K2W hosted booth at AHIMA national convention in Baltimore. K2W leadership determined that outreach coach position was ineffective; redirection to more extensive outreach to employers to assist them identifying job role competencies as a basis training. Workforce Navigator position now located in split-funded role in LFCC Veterans Services.
3.2 Coach/Navigator - Reports		Participant reports. [Expected Start 7,1/15; Expected End 9/30/17]	Continued use and refinement of tracking systems for participant streams. Continued contact of contacts as well as applicants. Workforce Navigator continued work with split-funded role in LFCC Veterans center.
3.3 Coach/Navigator - Tracking		Tracking and case management updates. [Expected Start 7,1/15; Expected End 9/30/17]	Continued use of case management and tracking in custom software through spring 2017 semester. Limited enrollment direct assessment CBE programs has resulted in less need for case management software. K2W created employer database for region and collected data for custom contacts. Executive Director. Meeting with Army, ACE, CBEN, CAEL, and other representatives at about meeting CBE needs in military and workforce. Discussions with Mary Beth Lakin about reaching out to U.S. Borders and Customs as CBE initiative using portal.
4.1 Digital content - OERs		Electronic resources available through portal search feature. [Expected Start 7,1/15; Expected End 9/30/17]	Added more OER and development of APIs to scrape content. Work with Saylor as new partner to add their courses mapped to pathways and competencies. Finalist for IMS Learning Impact Award. Discussion w/other VCCS colleges about posting their OER on the portal. Explored more resources, coding & mapping to pathways & competency framework. Discussed OER expansion of 3 approved industries to additional SOC occupation codes to align w/portal vision of new America's Promise grant to New River WIB. Conference calls & met w/Merlot & Skills Commons staff about partnership.

Appendix D: Summary of Goals, Deliverables, and Findings

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4.2 Digital Content-Assessment		Links to and creation of other online assessments. *[Expected Start 7,1/15; Expected End 8/1/16]*	Workforce Navigator, ABE instructor, and Corrections CBE coordinator continued work with various assessment tools as needed. Reviewed new quality CBE standards at CBEN meeting in May 2017. Met with eLumen CEO about assessment options that could be used through portal. Director tracked Lumina's Credential Engine and other initiatives using of competencies and badges along with credential designs that could help grant work.
4.3 Digital content - Plans		Individualized study plans [incorporated]. *[Expected Start 5/1/15; Expected End 12/1/15]*	Offering CBE redesigned courses and more Prior Learning Assessment (PLA) options to students as additional use of existing services and products created with grant funding. Continued to redesign courses that are required in grant funded programs to include CBE as part of their delivery. This includes program courses, general education courses required for the grant-funded programs, and a new CBE version of the certificate in supervision. Rubric development continued. New CBE courses include general education, and new IT in HIM competency framework and credential by new faculty member.
	#7 - 4. Digital content - OER	Documentation that OERs are listed for use in the portal, including assessments and plan samples. *[Expected Start 7/1/15; Expected End 1/11/16]*	All deliverables met. More than 20,000 electronic resources including metadata are now available through the portal's educational search engine. Backend admin tools exist for cataloging. Merlot and Microsoft MOUs are in place. Added more OERs. Work with Saylor as new partner to add their courses mapped to pathways and competencies. Discussion at Open Education in Nov. CCC OER and VCCS OER initiatives continued. Digital librarian on CCC OER leadership team. Discussed OER expansion of 3 approved industries to additional SOC occupation codes to align w/portal vision of new America's Promise grant to New River WIB. Conference calls & met w/Merlot & Skills Commons staff about partnership.

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5.1 Apprenticeships - Listing		Provide/promote list of apprenticeship offerings. *[Expected Start 4/16/15; Actual Start 4/16/15; Expected End 9/30/17]*	Four HIM job roles for apprenticeships are promoted on the portal including maps to competency frameworks and OER including AHIMA content. Competency model with OER presented by AHIMA Vice President at their AHIMA Academy of Educators conference reviewed in July 2017, as well as online presentation to AHIMA Research Network. Apprenticeship roles promoted in K2W outreach materials. Discussion with America's Promise grant on redesigning new features on portal to promote apprenticeship opportunities in Virginia regions.
5.2 Apprenticeships - Sponsors		Work with sponsors to promote apprenticeships on the portal. *[Expected Start 6/1/15; Expected End 9/30/17]*	AHIMA Foundation staff turnover and resignation of AHIMA VP for Certification stalled momentum. Director met with Microsoft representative at IMS Global LILI conference Director prepared outreach material for AHIMA convention and worked with AHIMA staff to distribute.
5.3 Apprenticeships - New ones		Work with national association partners on potential new offerings. *[Expected Start 2/10/15; Actual Start 2/10/15; Expected End 9/30/17]*	Continued to host AHIMA apprenticeship job roles, competencies, and OER on portal.
	#8 - 5. Apprentices hips	Apprenticeships listed, including sponsored and new offerings. *[Expected Start 1/12/15; Actual Start 4/16/15; Expected End 9/30/17]*	All deliverables met in year two. Additional discussion held about promotion of AHIMA and other registered apprenticeships relative to grant.
6.1 ABE/Remedial - Services		Provide adult basic education and contextual remedial/development education as needed based on tests. *[Expected Start 1/1/15; Actual Start 1/1/15; Expected End 9/30/17]*	ABE instructor and jail CBE/ABE instructor continue to work. Planning for jail expansion in MT1 credential, driven by LFCC's workforce division. Expanded enrollments in ABE and jail settings.

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	#9 - 6. ABE/Remedial Services	Document services provided w/ report referrals & tracking. *Expected Start: 10/01/2014 Expected End: 09/30/2017 Actual Start: 01/05/2015*	Deliverables met. ABE instructor and jail CBE/ABE instructor continue to work. Planning for jail expansion in MT1 credential, driven by LFCC's workforce division. Expanded enrollments in ABE and jail settings. Reporting continued for different participant streams in corrections and ABE.
6.2 ABE/Remedial - Reporting		Report referrals to ABE and developmental ed. Track reports on completion and course success. *[Expected Start 7/1/15; Expected End 9/30/17]*	Continued reporting for different participant streams in corrections and ABE. More exploration of OER use.
7.1 CBE - LFCC Program/Policy		Create LFCC competency-based education policy and program. *[Expected Start 10/20/14; Actual Start 10/20/14; Expected End 12/31/16]*	Participated in CBEN national meetings and on CBEN Board with elected office of treasurer. With low enrollment in direct assessment CBE programs, K2W Leadership team decided to move CBE programs from direct assessment to the more traditional course-based model. Extensive review of project success in light of this change in approach to accreditation. Discussion w/ACE staff on meeting needs of federal agency Borders & Customs w/portal & CBE offerings. Launched Certificate in Supervision CBE program. Work on IT in HIM course. CB Exchange conference presentation about portal. Work on CAEL PLA efforts to redesign College assessment strategies for advanced standing, including CBE.
	#10 - 7.1 CBE - Create program	Documentation of CBE program and policies, with faculty committee and work with system and state approvals. *[Expected Start 10/20/14; Actual Start 2/2/15; Expected End 12/31/16]*	Participated in CBEN national meetings and on CBEN Board with elected office of treasurer. With low enrollment in direct assessment CBE programs, K2W Leadership team decided to move CBE programs from direct assessment to the more traditional course-based model. Extensive review of project success in light of this change in approach to accreditation. Discussion w/ACE staff on meeting needs of federal agency Borders & Customs w/portal & CBE offerings. Launched Certificate in Supervision CBE program. Work on IT in HIM course. CB Exchange conference presentation about portal. Work on CAEL PLA efforts to redesign College assessment strategies for advanced standing, including CBE.

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7.2 CBE – PLA Policy Development		Review and update LFCC policy on prior learning assessment as it impacts a new CBE program.	Analysis of granting partial course credit equivalencies for documented attainment of competencies tied to courses in CBE programs, an additional type of PLA at LFCC that could help students complete regular credit programs more quickly. In the third year, redesigned course-based approach to CBE also occurred with planning to incorporate direct assessment in mapping prior learning to course credit equivalencies. Discussions with ACE staff on offering expanded PLA for CBE in grant programs and redesigned courses. Included PLA options in new certificate in supervision based on competencies. Meetings were held with VCCS staff on new portal for military job code maps. Director worked with CAEL, ACE, and Empire State on new approaches to PLA and PLA policy review. America's promise grant will fund LFCC participation in CAEL review of PLA policies w/policy survey, Adult 360 learner survey, & policy review. Internal PLA review.
7.3 CBE - Accreditation		Apply to SACSCOC on regional accreditation to gain approval of CBE offerings. *[Expected Start 10/18/14; Actual Start 2/2/15; Expected End 12/31/16]*	LFCC withdrew its substantive change proposal for direct assessment CBE in January 2017. This decision is driven in part from low enrollment and slow program growth due to the lack of Title IV financial aid. Approval received to offer these 7 programs as course-based CBE. Approval received to offer new CBE-course-based version of career studies certificate in supervision. Attended Summer and annual meetings of SACSCOC, with multiple discussions about CBE with staff. Assisted in preparation of 10 year reaffirmation documentation related to CBE.
	#11 - 7.3 CBE - Accreditation	Documentation of SACSCOC regional accreditation approval for proposed CBE programs. Expected Start: 10/01/2014 Expected End: 09/30/2017 Actual Start: 10/01/2014	All deliverables met. After offering 7 direct assessment programs from fall 2015 through spring 2017, LFCC withdrew its substantive change proposal for direct assessment CBE in January 2017. This decision is driven in part from low enrollment and slow program growth due to the lack of Title IV financial aid. Approval received to offer these 7 programs as course-based CBE. Approval received to offer new CBE-course-based version of career studies certificate in supervision. Attended Summer and annual meetings of SACSCOC, with multiple discussions about CBE with staff. Assisted in preparation of 10 year reaffirmation documentation related to CBE.

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7.4 CBE -State/System Approval		Work with SCHEV and VCCS on state and system approval of CBE offerings. *[Expected Start 12/8/14; Actual Start 12/8/14; Expected End 12/31/16]*	K2W received approval from Virginia department of veterans' affairs for military education benefits for the seven CBE direct assessment programs in the grant after extensive work. Worked with VCCS PLA staff on shared vision for portal as part of America's Promise grant to New River and 3 other WIBs and 8 other community colleges in Virginia. Discussed unveiling of portal for military PLA initiatives by state system and how LFCC CBE efforts are tied in to this system vision for PLA.
7.5 CBE - Seek Title IV Aid		Seek Department of Education approval to offer Title IV financial aid for direct assessment of competencies. *[Expected Start 7/15/15; Expected End 12/31/16]*	After initially seeking US Dept. of Ed approval for Title IV financial aid, LFCC subsequently withdrew its substantive change request for direct assessment CBE in a letter to SACSCOC on January 23, 2017, making the need for Title IV approval to award financial aid to students in direct assessment CBE moot. Financial aid is already available for course-based CBE model, including new program in Supervision, with approval from regional accreditor SACSCOC.
	#12 - 7.5 CBE - Title 4 Aid Approval	Documentation of U.S. Dept. of Education approval of Title IV financial aid for CBE programs. *Expected Start: 10/01/2014 Expected End: 09/30/2017 Actual Start: 10/01/2014*	All deliverables met. After initially seeking US Dept. of Ed approval for Title IV financial aid, LFCC subsequently withdrew its substantive change request for direct assessment CBE in a letter to SACSCOC on January 23, 2017, making the need for Title IV approval to award financial aid to students in direct assessment CBE moot. Financial aid is already available for course-based CBE model, including new program in Supervision, with approval from regional accreditor SACSCOC.
7.6 CBE - Map SOC		Document competency maps tied to targeted industry occupations. *[Expected Start 7/1/15; Actual Start 4/17/15; Expected End 9/30/17]*	CSC in Supervision developed with review of ACSB competency framework and launched in summer 2017. Redesigned to course-based CBE model. Director analyzed DOL Competency Model Clearinghouse database of competency frameworks. Work with Skills Commons on ideas for mapping DOL frameworks to OER in it. Director worked with IMSGlobal's Mark Leuba on possible idea to host Competency and Academic Standards Exchange taxonomy of CBE. Work by LFCC full-time faculty for new course in IT in HIM using new AHIMA national competency framework developed with grant.

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7.7 CBE - Credentials			Related credentials are difficult to identify and map except individually. Extensive work on competencies & new certification for IT in HIM being developed w/AHIMA. Extensive discussion w/AHIMA staff about assessment-based certification credential. Reviewed DOL sites and other portal for display of competency-based credentials, including partner Saylor Academy and American Council of Education. AHIMA finalized new national competency framework for information technology in healthcare & AHIMA unveiled it to their national conference in August. To be used for new AHIMA Certified Healthcare Technology Specialist exam for technologist role.
7.8 CBE - New credentials		Create additional credentials and/or competency badges as needed based on the results of this review. *[Expected Start 2/10/15; Actual Start 2/10/15; Expected End 9/30/17]*	Work with AHIMA on national competency framework and certification as part of the AHIMA Certified Health Technology Specialist credential. Turnover in AHIMA as Foundation lead staff departed, slowing momentum. Over the course of summer 2017, AHIMA finalized new competency framework for information technology in healthcare and unveiled it at their national conference in August. Created outreach tear sheet for AHIMA national convention to promote new exam. Planning by LFCC dean and HIM faculty to offer coursework with CBE to prepare for this exam, with curricular mapping to new competency framework.
	#13 - 7.8 CBE - New credential	Documentation of new, nationally recognized credential(s) created. *Expected Start: 10/01/2014 Expected End: 09/30/2017 Actual Start: 10/01/2014*	All deliverables met. Work with AHIMA on national competency framework and certification as part of the AHIMA Certified Health Technology Specialist credential. Turnover in AHIMA as Foundation lead staff departed, slowing momentum. Over the course of summer 2017, AHIMA finalized new competency framework for information technology in healthcare and unveiled it at their national conference in August. Created outreach tear sheet for AHIMA national convention to promote new exam. Planning by LFCC dean and HIM faculty to offer coursework with CBE to prepare for this exam, with curricular mapping to new competency framework.

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8.1 Evaluation		Procure third-party evaluator. *[Expected Start 10/1/14; Actual Start 10/1/14; Expected End 9/30/18]*	Evaluation site visits were hosted during the third grant year with ongoing email and phone communication in intervening months. Visits focused on CBE implementation, especially for course-based design, counting additional participant streams, and enrolment management strategies. Second annual evaluation report was shared with leadership team and K2W staff. Evaluator also assisted with accreditation planning options. Discussions with the director about what the switch from direct assessment CBE to a course-based model means for quantitative analysis of course success. LFCC prepared non-identifiable student-level data for preliminary propensity analysis by the evaluator.
8.2 Evaluation - Reporting		Prepare annual and quarterly reports as required by SOW and DOL, assist with national evaluation. *[Expected Start 2/1/15; Actual Start 2/1/15; Expected End 9/30/18]*	Quarterly working reports and other required DOL reporting have been provided to the evaluator. Site visit and annual reports have been prepared by the evaluator.
8.3 Evaluation-Improve outcome		Documentation of interim steps to improve outcomes and ensure project success. *[Expected Start 2/1/15; Actual Start 2/1/15; Expected End 9/30/18]*	Evaluator reviewed SACSCOC visiting committee report and assisted in planning next steps, especially related to the use of rubrics and scoring of assessment artifacts. The evaluator has reviewed key documents related to accreditation, the evaluation plan, Title IV aid, etc. and provided guidance to ensure success with CBE and planning. He has assisted with training faculty and staff in the issues of CBE. He also assisted in reviewing and providing substantive feedback about the college's response to the SACSCOC visiting committee report, especially providing guidance and support about the use of rubrics, the scoring of assessment artifacts, establishing expected student performance levels, and implementing a process for using peer review to estimate inter rater reliability for rubrics.
8.4 Evaluation - Improve CBE		Documentation of interim steps to improve CBE options in K2W and ensure project success. *[Expected Start 2/1/15; Actual Start 2/1/15; Expected End 9/30/18]*	There have been numerous and extensive discussions with the evaluator about CBE issues, particularly related to outcomes, accreditation, and the regulatory environment as these might impact project timelines and enrollment.

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	#14 - 8. Evaluation	Documentation of third-party, independent evaluation conducted. *Expected Start: 10/01/2014* *Expected End: 09/30/2108* *Actual Start: 10/01/2014*	All deliverables met. Annual evaluator report completed and shared with leadership team and K2W staff. Discussion of problems in participant streams and tracking of course-based CBE activity. Review of accreditation planning options. Ongoing email and phone communication with evaluator. Plan for visits. Work on data planning for propensity score analysis with focus now on redesigned courses using CBE approach. Ongoing discussion w/evaluator re CBE course offerings & participants. Preparation of de-identified student-level data for comparison of CBE vs. non-CBE courses. Quarterly site report completed & shared with leadership team. Continued discussion about CBE course offerings

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