Get IT Project Evaluation: Final Report

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EXECUTIVE SUMMARY

NHTI, Concord's Community College, used US Department of Labor (USDOL) funds to expand the capacity of their IT-related programs: Animation and Graphic Game Programming (AGGP), Computer Engineering Technology (CPET), and Information Technology (IT). The Growing the Economy through Information Technology (*Get IT*) program sought to improve student preparation for jobs in the IT field, which are in high demand in the state of New Hampshire and surrounding region.

Program Description

Beginning in 2015, the *Get IT* project convened a team consisting of a Project Coordinator, an Instructional Designer, a Data Analyst, a Career Counselor, and faculty and staff. *Get IT* focused on four main activities to expand and improve NHTI's IT-related programs:

1. Development of common core foundational IT courses to be stacked and transferred across the Community College System of New Hampshire (CCSNH)
2. Creation of new IT-related certificate programs based on industry needs
3. Acceleration of IT course completion using high-impact practices such as career counseling, latticed programming, and improved prior learning assessment (PLA) procedures
4. Establishment of a new Digital Fabrication Lab, combining IT and industrial design components

This project entailed considerable interaction with local and regional IT and technology companies through regular communications and meetings initiated by the *Get IT* team, convening of advisory boards, internship placement, and surveys of employer needs. Development of the common core foundational IT courses and 11 1-year certificates were intertwined with understanding and addressing employers' skill needs. Further, the latticed program, Mindful Communication, was a direct response to IT companies' desire to see new graduates with better "soft skills," such as general communication, punctuality, and professionalism.

Complimentary to the new programs were the integration of "high-impact" practices intended to address common barriers students face in completing degree programs. Practices included (a) a dedicated career specialist, who assisted students with job search and preparation (e.g., résumé assistance, mock interviewing) and internship placement; (b) redesigning of courses (degree and developmental courses) into accelerated formats for students who need to complete quickly or on a non-traditional schedule; (c) integration of the latticed Mindful Communication program, allowing for soft skill development within the degree program; and (d) introduction of a portfolio review process to assess prior learning, giving students another avenue to earn credits for previous experiences.

Evaluation Design

The *Get IT* team partnered with Hezel Associates to evaluate the fidelity of grant activity implementation and impacts on participating students. The evaluation was guided by the following research questions focused on implementation and student outcomes.

Project Implementation
1. How was the *Get IT* program managed and implemented, in terms of administrative structure and management, program design and delivery methods, and support services?
2. How was the *Get IT* program curriculum selected, used, or created?
3. How did *Get IT* grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program?
4. What contributions did each of the partners (i.e., employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of (a) program design, (b) curriculum development, (c) recruitment, (d) training, (e) placement, (f) program management, (g) leveraging of resources, and (h) commitment to program sustainability?

Project Impact
5. To what extent did program activities increase student retention rates for Trade Adjustment Assistance (TAA)-eligible workers and other adults?
6. To what extent did the *Get IT* program increase the attainment of certifications, certificates, diplomas, or other recognized credentials?
7. To what extent did the program improve participants' employment outcomes?

The evaluation team utilized a mixed methods approach, using both qualitative and quantitative data. Data sources included employer and industry stakeholder interviews in Years 2 and 3; annual interviews with project staff and faculty; a student questionnaire implemented in Years 2, 3, and 4; three student focus groups in Year 4; and program documents from all grant years. Student data provided by NHTI were used to address project impact in terms of retention and credential attainment. Both descriptive and inferential statistics were performed to explore the characteristics of students who attained credentials and persisted in their programs, as well as potential characteristics that may be predictors of retention.

Each year, data were analyzed and triangulated to determine annual findings. In this final year, all data were synthesized to generate overall findings for the entire *Get IT* project.

Findings
The 4-year evaluation of the *Get IT* project found that:
- Led by NHTI's TAACCCT Project Coordinator, the grant was managed effectively, with all planned activities and deliverables being completed to the extent possible.
- A common core IT curriculum was aligned and established across all CCSNH colleges, allowing credits to be accepted by NHTI.
- Eleven 1-year IT and AGGP certificate programs were created, by revising existing and developing new courses.
- Curricula were developed and enhanced based on substantial industry feedback from advisory board discussions, a survey sent to companies early in the grant, and continued communication between NHTI and local IT and technology firms.
- Grant funds were used to revamp and update equipment and software throughout the IT and AGGP departments, which stakeholders believe has greatly improved the quality of the programs.

- In addition to AGGP, CPET, and IT student career support, the Career Counselor led and contributed to several initiatives, including PLA revisions and Mindful Communication certificate development.
- The *Get IT* Career Counselor was key to strengthening and fostering new relationships with local and regional employers, as well as making connections between those companies and students.
- For PLA, a portfolio review process was developed and institutionalized campus-wide.
- Based on industry feedback, a Mindful Communication program was established, using three existing and one newly developed course, that lattices with the IT associate degree programs.
- Students expressed positive opinions of the Mindful Communication courses, indicating they found much of the content useful and intend to change their behaviors based on what they learned.
- Formation of a registered apprenticeship in partnership with an IT company did not occur; however, the *Get IT* team worked diligently throughout the 4 years to generate interest and learn about the challenges IT firms face.
- A Digital Fabrication Lab was constructed on campus, dedicated to merging IT and industrial design work. According to project staff, this has generated substantial interest among students.
- The Game Assembly organization was chosen as an AGGP student co-working space for project work. After considerable review, the use of Game Assembly for AGGP students was discontinued in Year 3 due to low usage, distant physical location, and changes in the organization's structure and purpose.
- Faculty believed that student retention in programs has improved; however, available data were not conclusive in demonstrating this outcome. That said, data were limited, and further analysis may yield different results.
- Since the Fall 2015 semester, a higher percentage of TAACCCT students were awarded a credential (certificate or associate degree) than not, versus non-TAACCCT students.
- Faculty claimed that all IT students are typically employed at the time of graduation.
- Student internships are a large part of the CPET and IT programs. Employers tend to offer interns permanent positions if they have performed well during an internship.
- Employers voiced satisfaction with those hired from NHTI IT programs, noting that their technical skills are in alignment with what is needed for the job.
- Faculty, students, and employers agreed that the embedded industry certifications are crucial for gaining entry into the workplace in IT.
- Despite the value of the grant-funded staff as communicated by the team, several staff members left their positions or the college prior to grant end.
- Faculty were concerned that enrollment in the certificate programs was low.

Overall, the evaluation demonstrated that the *Get IT* team successfully revamped their IT-related programs to better align with industry needs. The activities resulted in department-level changes, including new programs and courses, avenues for students to more easily transfer into an NHTI IT program from other CCSNH colleges, updated equipment and software, and strengthened partnerships with local employers. Moreover, this work generated institution-wide changes that

will likely provide benefits beyond the IT Department, including expanded processes for evaluating prior learning and establishment of the Mindful Communication certificate.

It is not completely clear if these changes have resulted in improved student outcomes, in terms of retention, degree attainment, and employment; however, outcomes appear to be positive according to stakeholder feedback and preliminary data analysis. Based on the evaluation findings, Hezel Associates offers the following recommendations to NHTI for program improvement and sustainability:

- Evaluate enrollment in new certificate programs and certificate awards made after grant end to assess their utility
- Maintain momentum on cultivating new employer partnerships, as well as sustaining existing relationships

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INTRODUCTION

NHTI, Concord's Community College, received funding from the U.S. Department of Labor's (USDOL's) Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant program in October 2014. The 4-year project, entitled Growing the Economy through Information Technology (*Get IT*), was intended to increase the capacity of NHTI's IT programs.

Collectively, the *Get IT* activities have helped to strengthen the program and employment opportunities for NHTI students through:

- Creation of a series of "Common Core" IT courses that align with select courses in all seven Community College System of New Hampshire (CCSNH) colleges, which are transferrable to NHTI
- Development of 11 new information technology (IT) certificate programs to address local and regional industry demand
- Incorporation of new practices and processes that support program completion and employment, including career counseling, improved prior learning assessment (PLA) methods, a Mindful Communication latticed program, and accelerated remediation and program courses
- Establishment of a new Digital Fabrication Laboratory for the integration of IT and industrial design work

In order to ensure the project proceeded according to its work plan, as well as to receive feedback for improvement, the *Get IT* team partnered with Hezel Associates to conduct an external evaluation throughout the duration of the grant. Evaluators carried out a mixed methods study that focused on the project team's completion of deliverables, grant management, and student outcomes. Evaluation questions for the project are as follows:

Project Implementation
1. How was the *Get IT* program managed and implemented, in terms of administrative structure and management, program design and delivery methods, and support services?
2. How was the *Get IT* program curriculum selected, used, or created?
3. How did *Get IT* grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program?
4. What contributions did each of the partners (i.e., employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of (a) program design, (b) curriculum development, (c) recruitment, (d) training, (e) placement, (f) program management, (g) leveraging of resources, and (h) commitment to program sustainability?

Project Impact
5. To what extent did program activities increase student retention rates for Trade Adjustment Assistance (TAA)-eligible workers and other adults?
6. To what extent did the *Get IT* program increase the attainment of certifications, certificates, diplomas, or other recognized credentials?
7. To what extent did the program improve participants' employment outcomes?

The following report is a comprehensive review of the *Get IT* grant, detailing findings from all 4 years. Findings are organized by research question and are followed by conclusions and recommendations for improvement and sustainability of activities. A description of the methods used in the evaluation are included as Appendix A.

FINDINGS

Overall, the *Get IT* program delivered a variety of successful and useful changes to IT students at NHTI. The following offers details on (a) the effective grant management and implementation of activities, (b) the development of new curricula and stakeholder perceptions on its utility, (c) how external partners (i.e., local and regional IT firms) were involved in the work, and (d) student academic and employment outcomes.

Program Management and Implementation

The *Get IT* program consisted of several complex components intended to improve student outcomes in the IT field. As described in the following section, the grant work was managed effectively, with the bulk of activities and deliverables being completed as intended.

Grant Management

The *Get IT* team included staff and faculty with a variety of roles, including lab support and equipment maintenance, student counseling, and instruction. Most were brought on when the grant began, including the Project Coordinator, who managed the grant work; the Data Analyst, who was responsible for tracking student data; and the Instructional Designer, who aided faculty in developing curricula and formatting it for open source platforms. Some faculty responsible for curriculum development were at NHTI prior to the grant, while others were hired in Year 1. Individuals who held the Data Analyst, Instructional Designer, and IT Professor roles left their positions mid-grant; however, vacant positions were quickly filled, and continuity of work was not affected greatly, according to staff interviews.

The workplan originally approved by USDOL consisted of four activities geared toward developing and enhancing IT curricula and student supports at NHTI with the purpose of preparing students to transition rapidly into skilled positions within the local and regional IT industry. The overall goals and four activities did not change over the course of the grant; however, minor modifications (submitted to and approved by USDOL) were made to the workplan in Year 1. These include changing the proposed Game Incubator to use of an existing co-working space, Game Assembly; and the addition of a technician position.

In Year 1, faculty and staff pointed out that some project activities did not occur on the intended timeline, mainly due to a delay in getting the project started. Managing a grant of this size from the USDOL was new to many on the project team, so they needed time to learn specific monitoring, communication, and reporting procedures before work could begin. As one member stated early in the grant, "I feel a year behind." However, once the Project Coordinator came on board in November 2014, work on deliverables gained momentum and they were able to complete almost all intended activities within the 4-year grant period. Specific activities and deliverables are discussed in subsequent sections.

In terms of communication, many team members worked directly with the Project Coordinator as needed. In general, the team met in person less often as the grant progressed, as many were not on site regularly, but felt that they had clearly established roles and responsibilities to work autonomously as needed. Internal communication was mainly conducted through informal one-on-one meetings or through the Basecamp file sharing system. The Basecamp system was organized in such a way that the Project Coordinator was able to create "To Do" lists, assign

tasks to team members, and track progress. Each week, all team members were asked to submit an update on their grant activities, which was compiled in a weekly activity report (WAR). These documents became a running record of all grant activities. Other pertinent project documents, such as meeting minutes, course approvals, and outreach materials, were uploaded. Additionally, they often used Basecamp discussion boards to provide updates to the rest of the team. Interviewed team members found that Basecamp was an effective way to communicate and track progress.

Throughout the grant period, the project team expressed satisfaction with the management of the grant, particularly the leadership of the Project Coordinator, noting that she helped ensure activities were completed as scheduled and held those responsible accountable. They cited the "good people" on the team as a major reason for its success. Project staff and faculty opinions about the grant work in general was also positive. They believed it caused faculty to "look at things in a different way," particularly course delivery models. The grant also changed the ways in which staff and faculty work together on tasks, in terms of the method (e.g., Basecamp) and the different NHTI departments and external companies with whom they collaborate.

Activity 1: Common Core Curriculum for Foundational IT Courses throughout CCSNH
The intent of Activity 1 was to establish a foundational IT curriculum that gives students the ability to stack those courses into degree programs and to easily transfer credits between CCSNH institutions. In lieu of developing a new curriculum, the project team identified its IT Hardware and Software Certificate, consisting of four existing courses, to serve as the core curriculum. The courses are Personal and Computer Hardware and Software, English Composition, College Algebra, and Communication: Mindful. Project faculty aligned those with similar existing courses, in terms of instructional materials and common learning outcomes, at each of the other six CCSNH colleges. Therefore, the equivalent four courses were already existing at all CCSNH colleges.

The Common Core Curriculum equivalencies across CCSNH were approved by NHTI and the other CCSNH colleges and were posted to NHTI's website in Year 3.[1] These equivalencies show which courses at each CCSNH college correspond to each of the courses in NHTI's IT Hardware and Software Certificate program. Only NHTI will accept the aligned course credits from other CCSNH colleges and award the certificate.

Activity 2: Industry Demand and Programs of Study in IT
Eleven 1-year certificate programs were developed as intended by the *Get IT* team in Years 1 through 3. These programs were identified and developed using industry input, collected throughout Years 1 and 2. Specifically, curriculum and course content were initially designed using input from surveys of local and regional IT employers. Additionally, the project Career Counselor regularly visited employers to discuss skills they need in employees. Through this, she established and maintained a network of employers who gave feedback on ideal skills and credentials, which helped to continually define curricula (see Curriculum Development section for more detail).

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[1] https://www.nhti.edu/academics/programs-study/computer-programs/information-technology-hardware-and-software-certificate

The grant-funded IT Professor led the curriculum development of these certificates. Five were identified as needed programs prior to grant start and six were identified from the industry research that occurred during the grant. By the spring of 2016, the 11 new 1-year certificate programs were developed as intended and approved by NHTI (see Table 1). By the Fall 2016 semester, all 11 programs were offered to students. Some of these programs contain newly developed courses, while others include courses that preexisted the grant and were realigned into a program, such as the Game Development Programming curriculum.

Table 1. *Get IT* **Certificate Programs**

Pre-Defined Programs	New Programs
IT Entry Level Networking	Advanced Software Development
IT Hardware and Software	Entry Level Software Development
Linux	Game Development Programming
Microsoft Servers	IT Network Associate
Voice Over Internet Protocol (VOIP)	IT Security
	IT Visualization

Based on employer feedback, some courses were revised to align with industry certifications, such as A+ Certification, the Microsoft Certified Professional Certificate, and CISCO, so students can study for and take those tests as a part of their NHTI certificate coursework. Content for many of the certifications is embedded within program courses. Students felt that they will be well prepared to take certification exams following the completion of their courses, as reported in the student focus groups. According to focus group participants, NHTI receives a reduced price for these certifications, which is passed on and helpful to students. While the reduced cost is appreciated, IT students wished that the price was already built into program tuition. Some students strategically hold off on earning certifications until they are nearer to graduation, since many expire after two or three years, requiring them to retake exams once they enter the job market. Though selection of certifications to pursue is dependent on the career trajectory of a student, all students expressed interest in and intentions of attaining certifications—"it's what drives the industry." Certifications are arguably more important than a college degree within the field of IT.

The IT Associate degree that preexisted the grant was restructured to offer two distinct degrees: IT Networking and IT Software Development. These more specialized degrees are viewed by staff and faculty as a "benefit to the student," as their specific track is more readily identifiable to employers on their diploma and résumés, likely making them more marketable. Some students in the focus groups expressed a desire to see credit requirements more evenly balanced throughout each semester, as in some semesters, they need to take more courses than in others. However, internships are required in the final semester, creating less time for coursework, explaining why there are more credits required in earlier semesters.

The grant was also used to enhance curricula in the Animation and Graphic Gaming Programming (AGGP) and IT programs by allowing for the purchase of new equipment and software. According to staff and faculty, they "updated just about everything." New equipment was purchased for computer labs and IT classrooms, which has helped to support students' learning and led to the development of a new course, *Programming with Raspberry Pi*. New software and hardware were purchased for the AGGP programs (i.e., Game Development

Programming certificate and AGGP Associate degree) that better align with current industry practices, helping both the associate degree and certificate program content stay current. The AGGP program now has a "diversity of different technologies" that faculty believe has improved the quality of the program content. In fact, faculty asserted that these upgrades have made the 2-year program competitive with "top-rated" 4-year programs in the field of animation and game programming. This was corroborated by focus group students, who stated that selection of a 4-year institution to transfer to is difficult, as many programs are perceived as "a step down" in comparison to NHTI's 2-year program. Students praised the multitude of technological resources they used within their courses (e.g., virtual headsets, game systems, augmented reality equipment, mobile devices, specialized software), all of which are state of the art tools that span across leading brands within the industry.

Students who participated in the focus groups did not feel it is realistic to complete the AGGP program in 2 years, though that is how it is marketed. The AGGP is a 72-credit program, with the course load being heavy for most classes. Students stated that the average time to completion is closer to 3 years. They reported that it is not unusual to be on campus as late as 4am working on assignments.

When interviewed, project staff and faculty expressed their satisfaction with the courses and programs developed, saying that they are "all really good." They believe the grant has made existing programs "stronger" and that it "played a key role in transforming" the programs. Job candidates who hold a certificate give employers the opportunity to "vet applicants right out of the box," as they will be equipped with a particular set of skills known to employers. Staff and faculty observed that current students are performing well academically in the new and enhanced courses, and that they tend to be more engaged with the new material than in the past.

Overall, local employers interviewed in Year 3 shared positive comments about NHTI's IT and Computer Engineering Technology (CPET) programs, faculty, internships, and students, stating "NHTI produces some great programs that really give the students a leg up when they come out into the workforce." They offered varying opinions on their preferences for hiring those with a 1-year certificate, however. A few employers preferred to hire those with an associate degree or higher and were not willing to employ someone with only a certificate. Others were prepared to hire someone with a certificate, as that would align with their type of work, but had not encountered any certificate candidates yet. They did, however, emphasize the importance of industry certifications, noting that they may hire someone with a 1-year certificate if they had the right industry certifications, such as A+. Employers expressed that NHTI courses are well-aligned to industry certifications, giving students an opportunity to complete relevant exams before seeking employment. Based on their interactions with IT and CPET interns at their companies, they also felt that the level of hands-on work students receive in their programs is "impressive," and have been pleased with interns' skill levels and eagerness to learn.

Students were also asked their opinions about the hardware and software they use regularly in their programs, via the Participant Questionnaire. As shown in Figures 1 and 2, in both Years 3 and 4 (Year 2 is not included, as it had a small number of responses), most agreed with the statements that the hardware and software (a) helped them apply learned concepts, (b) is

available for use, and (c) is similar to that used in industry. Means for all statements were relatively high but were somewhat lower in Year 4. The reason for this is unclear.

The hardware used in the program(s)...
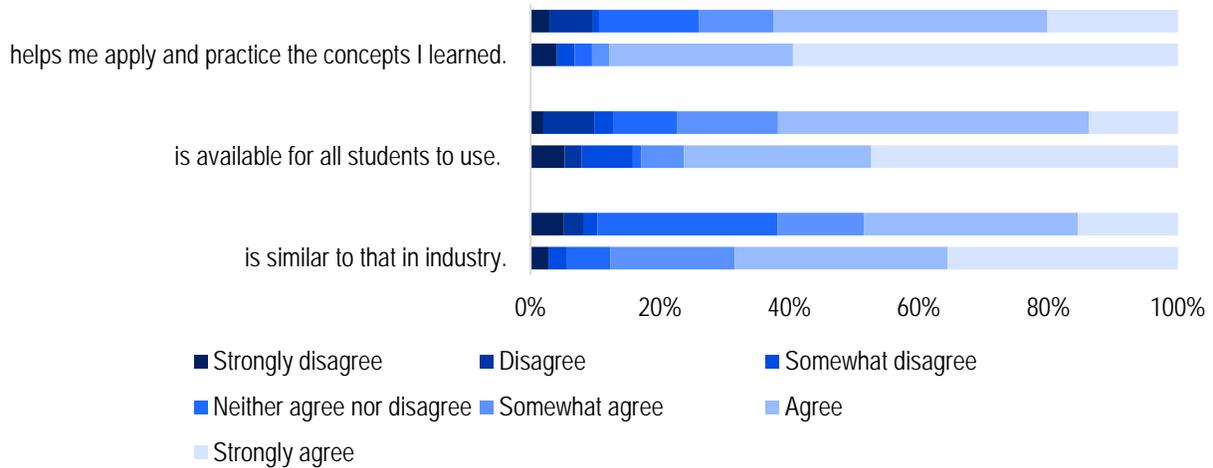
Figure 1. **Student Perceptions of Hardware used in IT Programs, Years 3 and 4**
Year 3 data is displayed above Year 4 data for each item in the chart. The number of responses for Year 3 data ranged from 73 to 76 and from 97 to 104 for Year 4 data.

The software used jn the program(s)...
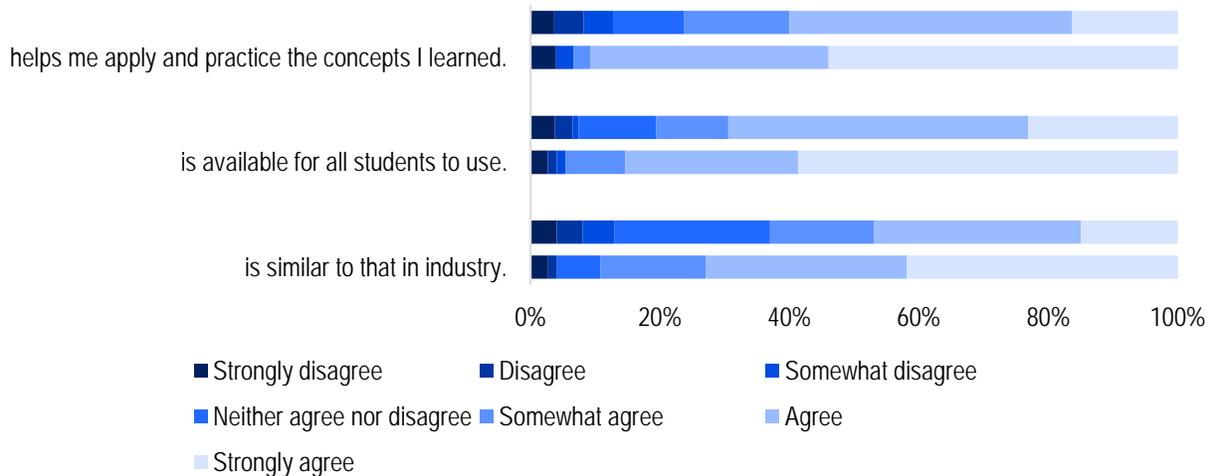
Figure 2. **Student Perceptions of Software used in IT Programs, Years 3 and 4**
Year 3 data is displayed above Year 4 data for each item in the chart. The number of responses for Year 3 data ranged from 74 to 76 and from 100 to 110 for Year 4 data.

In particular, due to the abundance of technological resources available to AGGP students, they claimed to feel well prepared to engage in game development on any platform. Students are aware that this technologically-rich environment would not have been feasible without TAACCCT funding and are grateful as "it's improved our educational experiences tenfold." The AGGP program is described as "rapidly changing" in alignment with industry trends, with many

of the courses students took in their earlier years of the program modified in response to industry shifts and needs. Many of the changes included use of updated technologies or application of more advanced, innovative approaches. Students are often "guinea pigs" in these new, rapid-response course designs. While the lack of structure is sometimes frustrating, students recognize that this is common practice within the industry, particularly when new products enter the market. They feel that they have become even stronger programmers because of the fluidity that exists in some of their courses' foundations. As a result of this learning style, their confidence in their own technical abilities has increased.

Across programs and cohorts, students in the focus groups felt that there is a good balance between traditional instruction and hands-on learning experiences. They commented that in some IT courses, there is a disconnect between lecture content and course materials (e.g., books) and hands-on lab exercises. However, they noted that instructors are supportive in the labs, answering questions and troubleshooting other issues that present themselves.

In terms of instruction, focus group participants reported that the level of support received varies across instructors. Most instructors have been helpful, but students have encountered negative learning experiences with a small few. Some of the criticism included non-responsiveness to emails and failure to provide feedback on course performance. Students described that one instructor was more than 4 weeks behind in grading, leaving about 20 assignments left unmarked. Delayed feedback contributed to students' inability to gauge where they stand in the class, and perhaps most importantly, assess their understanding of course concepts.

While teachers typically avail themselves to provide instructional support beyond the course period, specifically in the AGGP program, students equally value the peer-tutoring structure that exists. More specifically, students provide coaching support to fellow students. This resource is most useful to first-year students, as they can receive guidance from more senior peers. More informally, students also recognize other cohort members' specializations, so often use one another as resources. They regularly seek and offer help to colleagues, both of which strengthens overall skillsets and understandings.

Activity 3: IT Career Pathways Using High Impact Practices
Activity 3 involved integrating practices to accelerate program completion into the new certificate programs and to support student success. These include career counseling, revised institutional systems for PLA and remediation, latticed and stackable programming, new learning and assessment systems, and establishment of apprenticeships with local employers.

Career Counselor and Career Services
The grant Career Counselor was hired in June 2015 and left the position in March 2018. Throughout the grant, this individual advised students on résumé development, interviewing skills, and course selection, and connected them with local and regional companies for internships and/or employment. The Career Counselor interacted one-on-one with students within the AGGP, CPET, and IT programs, or through career development courses specific to those programs.

Focus group participants commented that interactions with the Career Counselor were of great value, and included activities like mock interviewing, which are viewed as relevant and applicable to employment outcomes. Students who were enrolled in an AGGP, CPET, or IT certificate or associate degree program were asked to share their opinions on various aspects of the career services offered by the Career Counselor and NHTI as part of the Participant Questionnaire in Years 3 and 4 (Year 2 is not included, as it had a small number of responses). More than 40% of questionnaire respondents indicated that they had worked with the Career Counselor in Year 3, while only 29% did in Year 4. When asked to rate their satisfaction with career support in general, the majority were *somewhat satisfied*, *satisfied*, or *very satisfied* with each aspect, which included résumé assistance, online career resources, and communication about job openings (see Figure 3). Mean ratings in Year 4 were slightly lower than Year 3 for all items, indicating slightly less satisfaction, particularly for communication about job openings (Year 3 M = 5.6, Year 4 M = 4.8). This may be due to staff transitioning out of grant positions, such as the Career Counselor.
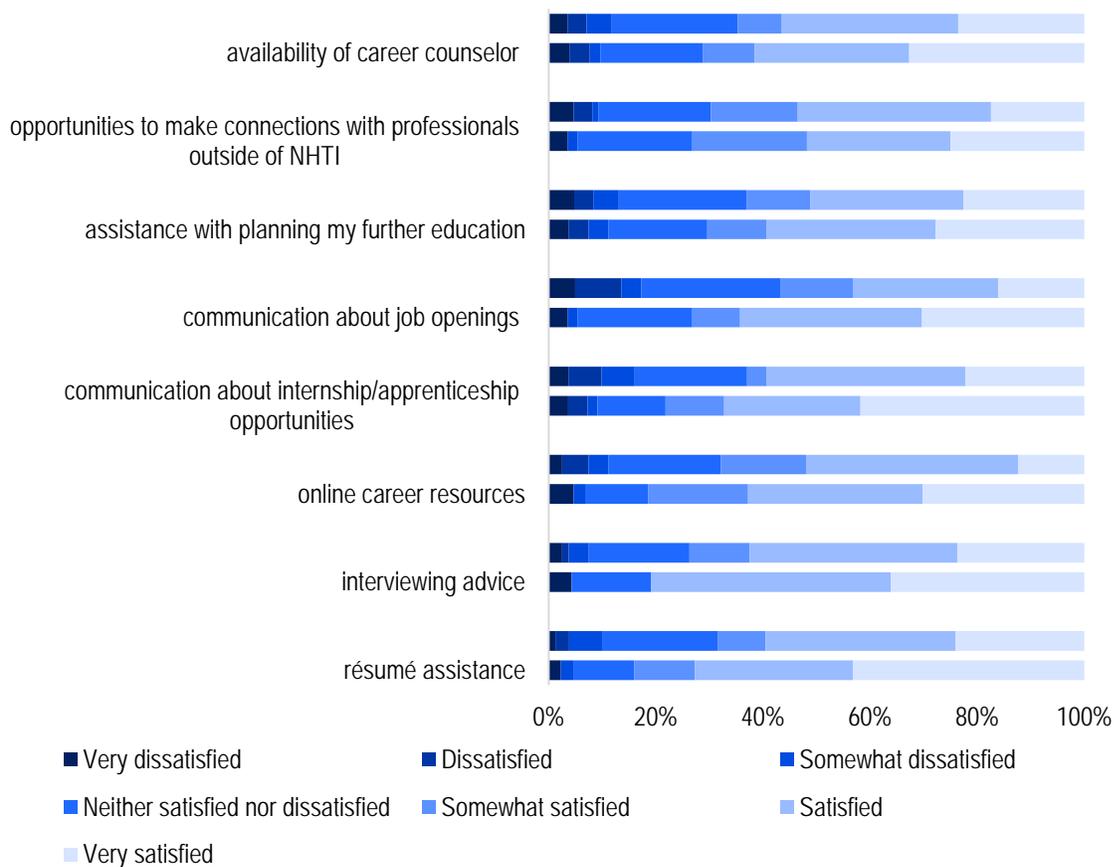
Figure 3. **Satisfaction with Career Services, Years 3 and 4**
Year 3 data is displayed above Year 4 data for each item in the chart. The number of responses for Year 3 data ranged from 43 to 56 and from 79 to 86 for Year 4 data.

A major part of the Career Counselor's duties was to regularly communicate with local and regional IT employers. Over the course of the grant, she established an extensive network of employers, allowing her to facilitate effective connections between companies and students

needing program-required internships. Interactions with firms were recorded by the Career Counselor regularly, resulting in a file containing contact information and notes regarding topics discussed and next steps for each meeting. At these meetings, new relationships were formulated and existing ones strengthened, which expanded the options for student internships, secured participation on NHTI advisory boards, and allowed companies to share the skills they need in employees. Interviewed IT employers explained that much of their contact with NHTI has been through the Career Counselor or faculty to secure interns, and they have done so for several years. This communication ensures that employers understand individual students' skill levels and experience prior to hiring. The Career Counselor also led the development and administration of the IT Demand Assessment in August 2015, which was a survey sent to employers early in the grant to gather their feedback on the new potential certificate programs and their skills needs for new hires. Information from this survey was used to help guide development of programs.

Fewer than 50% of Participant Questionnaire respondents participated in an internship in Years 3 (44%) and 4 (26%). Most respondents in both years (88% and 94%, respectively) were optimistic that the experience will help them secure a job in the future. Moreover, according to staff and faculty, the majority of Spring 2016 IT Associate degree graduates who worked with the Career Counselor had secured full-time jobs before graduation, suggesting that internships and facilitated partnerships through the Career Counselor were beneficial. Faculty interviewed in Year 1 expressed enthusiasm about the Career Counselor, noting that this person "will be a big help" in ensuring students are successful in the program and in finding subsequent employment.

Accelerated Courses
The development of accelerated IT course formats was completed during Years 1 through 3, in which some 16-week courses were converted into condensed 8-week formats. Some of these are now offered in the 8-week timeframe, while others are "hybrid," in that they are still accelerated, but offered over a 16-week period, where students meet once per week, every other week. This allows students to complete two accelerated 8-week courses in 16-weeks, alternating courses every other week. Staff noted that this is particularly beneficial for students who primarily take courses at night, because they can still complete two courses per semester, in addition to meeting their external obligations, like full-time employment.

Focus group participants expressed mixed feelings regarding accelerated formats. There are a few courses that students thought would work in an accelerated format, while a condensed structure might be ineffective for others. Some of the limitations of an accelerated program expressed by students included fear of not having enough time to process information, practicality of completing homework and assignments in such short time, and technological glitches with the system (e.g., CISCO's online lab environments) making a condensed schedule infeasible. Further, students talked about missing out on some of the benefits of attending a 2-year program, like collaborating with peers and having sufficient time to work on projects. Others stated that it would not make sense to enroll in an accelerated program at NHTI, since bootcamps and other alternatives already exist that would serve a similar function and purpose. AGGP students noted that it would be impossible to condense that program or its courses, given the intensity of the program, processing time needed to sufficiently grasp concepts, and real-time required to effectively complete assignments. In general, participants agreed that a student needs

to be driven, encompass profound background knowledge in IT, and have a dire need for attaining their credentials in a short timeframe to succeed in an accelerated format.

Prior Learning Assessment
The project team undertook an effort to revise campus-wide PLA practices at NHTI. They conducted an inventory of current NHTI PLA practices and procedures in early 2016. According to staff, practices prior to revisions were "not very systematic or intentional, nor were they documented, tracked, or regulated." Initially, staff intended to use the Council for Adult and Experiential Learning (CAEL) standards to guide changes, but instead opted to revise processes according to internal standards. To supplement this work, the college received a small grant from the American Council on Education (ACE) in 2015.

The team determined that to best serve students, they should focus on adding a portfolio review process, as that did not exist previously. The Career Counselor led the development of this process during Year 3, drafting a guidebook based on examples from other colleges. This guidebook was completed, presented to department heads, and approved by NHTI in May 2017. It gives matriculated students the ability to gain credits for experiential learning (i.e., knowledge acquired through work or life experiences) by providing a systematic method of documenting their prior experiences for faculty to then review. The process is currently outlined on the NHTI website.[2]

Some questionnaire respondents and focus group participants indicated that they were awarded credits for prior learning. Students in the focus groups noted that they were granted experiential awards from college transfer credits, high school Advanced Placement (AP) courses, and prior work experiences. The majority of questionnaire respondents expressed positive perceptions about NHTI's PLA process in both Years 3 and 4, with 75% or more agreeing that it was easy to understand, efficient, and fair. Not many students had time to utilize the portfolio review process at the time of the survey administrations, so it is not possible to determine if it made a difference in their responses.

Accelerated Remediation
To ensure students enter programs of study at a college-ready level, NHTI utilizes the Summer Lynx program, which offers remedial courses in math and English/reading. This was piloted in the Summer 2015 semester and was deemed successful, as staff reported that students who enrolled in the math course performed well in the co-requisite course. Under the TAACCCT grant, the project team redesigned the course to combine two math courses into one, thus accelerating students' progression. The redesigned course was also expanded to include not only lower-level development math students, but mid-level students as well. Mid- and lower-level students are designated as such by scoring within certain ranges on placement tests; mid-level students scored higher than lower-level students, but still fell within the range to be recommended for developmental courses.

According to interviews with project staff, 2016 Summer Lynx courses "went really well" in terms of student grades and attendance. Several passed with a C or higher, which was considered

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[2] https://www.nhti.edu/academics/requirements-policies/prior-learning-assessment

successful. However, the structure was changed in 2017 so that courses met less frequently and alternated between math and English over a 5-week period. Also in contrast to 2016, staff described poor communication among faculty teaching the courses. While data were not available, staff believed these changes and lack of communication may have had a negative effect on student success in these courses.

Latticed Programming
The process of identifying a program to lattice with the IT programs underwent several iterations over the course of the grant. Most importantly, the program had to address industry need and be useful for students in securing a job. Early in Year 2, project staff identified project management as an IT industry need, based on employer feedback. They presented a proposal to the NHTI Business Administration Department and the Business Training Center to create a Project Management certificate, based on an existing program at Great Bay Community College (a CCSNH institution), to be integrated into the IT certificates. The structure (i.e., courses included, credit vs. non-credit) went through several revisions over the course of Year 2. After consideration, the NHTI Business Administration Department and the Business Training Center determined that it did not have the staffing capacity to add the program, due to staff retirements.

Staff continued to examine other options over the course of Year 3, such as data analytics. Based on feedback from an NHTI-administered IT employer survey and a review of current workforce literature, the team turned its focus to mindful communication. Courses related to this topic already existed in the English Department at NHTI and the Communication: Mindful course was already a requirement of the IT Associate degree. Staff worked with the English Department to create an 11-credit certificate, Mindful Communication, that pulled together three existing courses and created a new capstone course. The courses that constitute this program are integrated into the IT associate degree programs. This choice is supported by comments from interviewed employers, who voiced a need for candidates possessing a combination of technical and soft skills, including communication. The certificate was approved by NHTI's curriculum committee and Institution Leadership Committee and CCSNH in the fall of 2017. Before grant end, the team finalized a promotional video highlighting the program to generate student interest.

Students in the focus groups indicated that the course helped them develop skills related to interacting with people more generally and customers specifically, being effective at technical support, and dressing professionally. As an incentive, students reported that they were awarded extra points for wearing professional clothing to class. Some students believed that they gained understanding of themselves, having better insight into the emotions they experienced. Other students shared that they were better able to communicate their ideas to others, especially when conveying technical information to those that are not as tech-savvy.

Some thought that the skills taught are "basic knowledge," with outcomes like active listening, making eye contact, and being respectful to others being commonsense. Others found reviewing these basic gestures helpful, especially when individuals had not had opportunities to formally build those skillsets. Many also found the public speaking activities useful. Moreover, they learned a great deal about communication through collaborating with peers in the program. Students tended to enjoy the Mindful Communication courses, despite their perceptions of the

value in the courses' targeted learning outcomes. However, they voiced that the program could be condensed to a few weeks in a semester, as opposed to being extended across full courses.

Year 4 Participant Questionnaire respondents were asked for their opinions on the Mindful Communication courses. The following chart illustrates the extent to which survey respondents agreed or disagreed with statements regarding behaviors that may have resulted from the course. Most respondents agreed with each statement, demonstrating that they believe the course positively influenced their communication abilities and behaviors.
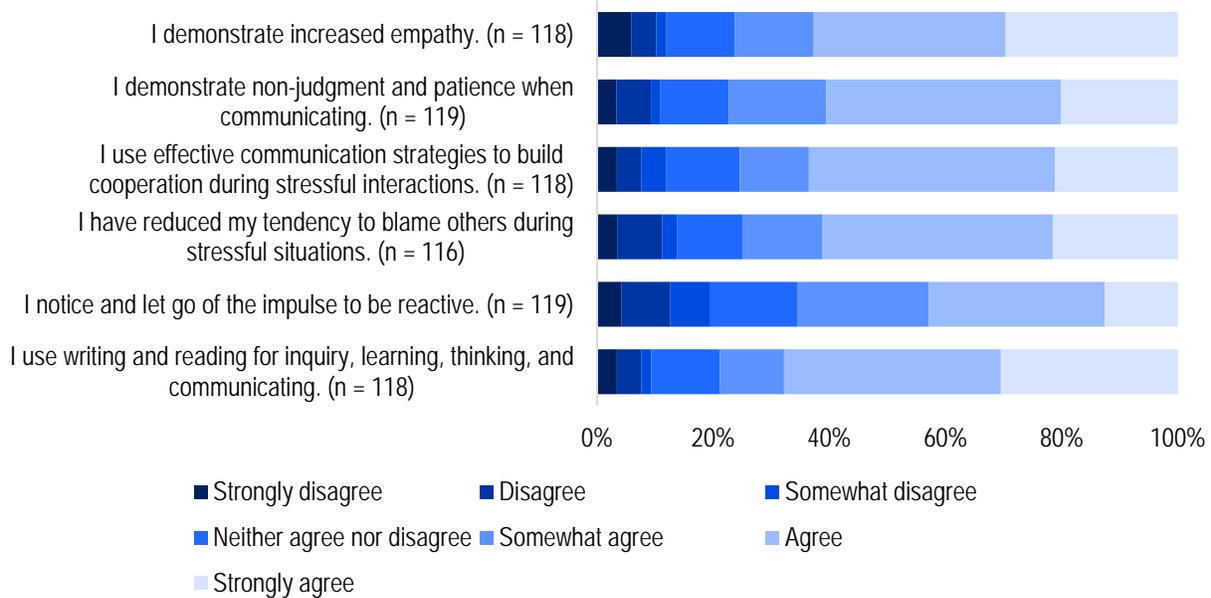
Figure 4.   **Mindful Communication Course(s) Results**

Likewise, when asked to indicate specific positive behaviors they were more likely to partake in based on their participation in the Mindful Communication courses (Figure 5), more respondents were inclined to engage in behaviors that required them to consider others' feelings and needs, such as actively listening (74%), being responsive (65%), and establishing good working relationships (63%), rather than individually-focused behaviors, such as overcoming setbacks (45%) and seeing things realistically (43%). In terms of negative behaviors (Figure 6), more than half indicated they would be unlikely to stay stuck in their assumptions (64%), resort to blame others (55%), or be judgmental (52%).

As a result of participating in the Mindful Communication course(s), I am more likely to...

Behavior	Percentage
Actively listen to others	74%
Be aware of emotions (both mine and others), and use that awareness to decide how to respond	70%
Be respectful of others	67%
Be thoughtful and responsive	65%
Establish and maintain good working relationships (e.g., personally, professionally, academically)	63%
Engage in conversations (e.g., one-on-one, in meetings, in class)	61%
Receive constructive criticism without being defensive	55%
Succeed in college	55%
Stay focused and engaged even when things are unpleasant, difficult, or challenging	52%
Notice subtleties impacting communication as it occurs (e.g., your inner monologue, other people's nonverbal behavior)	50%
Give constructive criticism respectfully	50%
Steer conversations back to important topics	48%
Paraphrase and/or ask useful follow-up questions	46%
Overcome setbacks (i.e., I have increased resilience)	45%
See things realistically without getting caught up in past events or "what-if's" about the future	43%

Figure 5.   Student Engagement in Positive Behaviors (n = 119)
Percentages represent the percent of total respondents that selected each item. Respondents were able to choose more than one response.

As a result of participating in the Mindful Communication course(s), I am less likely to...

Behavior	Percentage
Stay stuck in my assumptions (e.g., about situations, people, projects)	64%
Resort to blaming others	55%
Be judgmental (of self or others)	52%
Be reactive	46%
Hold a grudge	45%
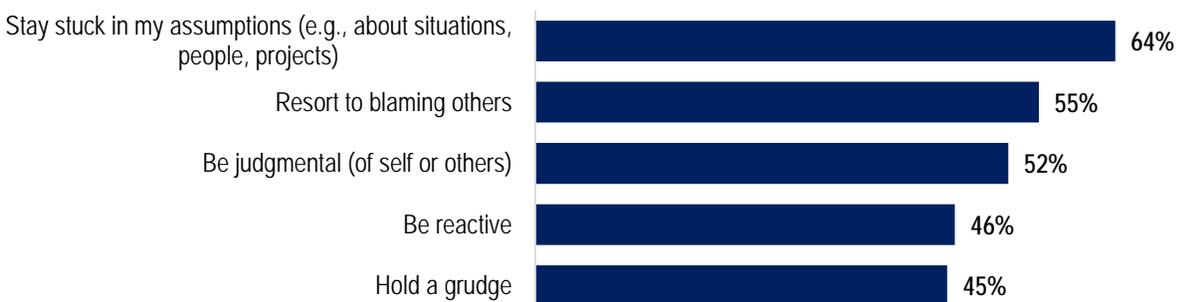
Figure 6.   Student Engagement in Negative Behaviors (n = 119)
Percentages represent the percent of total respondents that selected each item. Respondents were able to choose more than one response.

Overall, it appears that students found the Mindful Communication courses useful, as the IT field is very client-based. Students felt that they were better positioned to build stronger relationships with clients; communicate ideas in more effective, efficient ways; and better interact with stakeholders. They believe that their experience in these courses is viewed as an asset by prospective employers, since skills taught can aid employees' ability to remain calm and in control in high pressure IT settings.

Apprenticeships
Project staff conducted extensive outreach to local employers regarding the development of a federally-registered IT apprenticeship program. In particular, the Career Counselor regularly assessed interest in apprenticeships during meetings with employers. The team also made efforts to connect interested employers with the USDOL to discuss the registration process; however, it was difficult to organize interactions any further. In November 2016, a campus-wide open house was held at NHTI regarding apprenticeships. And, to further discuss the benefits and challenges of apprenticeship programs within the IT field, the grant team held an Apprenticeship Roundtable with IT company representatives in May 2017. Twenty-seven individuals attended, including representatives from local industry; Apprenti, a group developing a national model for apprenticeships in the technology industry; the state of New Hampshire; USDOL; and CCSNH.

From these outreach meetings and events, the team learned that employee retention is a common problem IT companies face, particularly in software development. There was interest from company representatives to form a consortium regarding an apprenticeship training curriculum, which would include community college courses, to specifically address the industry need for skilled workers trained in software development. To help facilitate apprenticeship programs, project staff worked with ApprenticeshipUSA to streamline a process for employers wishing to host apprentices.

While some companies participated in these discussions, interest in pursuing a registered apprenticeship program was low, in both AGGP and IT fields. As one staff member stated, "meetings are happening, but no one is signing on the dotted line quite yet." Staff observed that this was partially due to employers' high satisfaction with the existing internship programs, which employers do not want to change. It was also difficult to achieve because (a) there is no state-level incentive for companies to create an apprenticeship program and (b) staff have little control over the progress once the initial connection is made between the company and the USDOL.

Despite considerable effort to provide information, facilitate connections with USDOL, and encourage enthusiasm about apprenticeships, the team concluded that while some companies were somewhat interested, a registered apprenticeship was not an appropriate model for the IT industry. This grant milestone was not achieved; however, the team conducted extensive research and outreach before determining it was not feasible.

Activity 4: Training and Workforce Development with Industry Partners
Activity 4 deliverables, which focused on working with industry to establish training and workforce development programs, as well as developing physical spaces for collaborative work, were completed as intended.

Digital Fabrication Lab

A major component of this activity was the establishment of the Digital Fabrication Lab, a space dedicated to the combination of IT and industrial design work. While it was initially slated to be done in Year 1, the research and discussions to decide on a location took longer than anticipated. After the process of searching and comparing specifications and costs for on- and off-campus sites for the lab, project staff decided to pursue the renovation of an existing on-campus space. They first gathered feedback from faculty and staff affected by the displacement of classrooms that would be caused by the renovation. With minimal concerns to address, in February 2016, the college approved the renovations to create the new lab. This required an extension from USDOL to perform renovations and purchase equipment, which was also approved in February 2016. Renovations were completed and the lab was opened for use by one course for the Fall 2016 semester, and was expanded to full use in 2017. In Years 3 and 4, project staff made efforts to promote the lab to gain student interest by participating in NHTI's Engineering Open House and National Manufacturing Day. According to staff, enrollment in the Industrial Design program increased, as there was "a lot of excitement" about the program. Data provided by NHTI indicates increased enrollment in the program, with newly enrolled students increasing from 1 to 9 from the Fall 2015 to Fall 2017 semester.

The *Get IT* team intended to hire a Program Coordinator to manage the Digital Fabrication Lab for Innovation and Invention at the beginning of the grant; however, despite substantial outreach to potential candidates and interviews, no one was hired due to a lack of qualified candidates. In Year 1, the team reevaluated the position and determined that a lab technician would be more suitable to fulfill project needs. They closed the Program Coordinator position and hired an Industrial Design Lab Technician in October 2015. This individual's primary responsibilities were managing the renovation and equipment purchasing process and managing the operations of the lab. This position was discontinued early in Year 4, as planned.

Game Assembly

To provide a space for students to explore and experiment with game development, the *Get IT* team signed a contract with Game Assembly in December 2015. Game Assembly is a membership-based organization that offers a place for video game developers to work together in a "co-working" setting. The contract granted five memberships to AGGP students each year, allowing them to use the space for collaboration. This contract was established in lieu of initial plans to create an on-campus game 'incubator' space, as it was deemed more cost effective to work with the existing organization.

Project staff and faculty assessed how students used the space in the Spring 2016 semester (Year 2) and found usage to be low. Faculty believed it was due to a limitation that only allowed AGGP Associate degree seniors to participate; this meant it was available to less than 10 students. To increase usage, faculty opened it up to all AGGP students who passed a "simple vetting process" to ensure they were responsible enough to use it appropriately and that they had projects to work on while there. They also tried to be mindful of AGGP student workloads to make sure they were able to fit in Game Assembly if they were interested. However, despite these efforts, low student use continued into Year 3. This was reflected in the Year 3 Participant Questionnaire, where only four students indicated they had used the space. Staff believed it was

due to companies leaving New Hampshire and Game Assembly, which meant that "internships dried up," and the fact that Game Assembly is in a different city and not on the bus line from Concord. Game Assembly was also undergoing changes, in that they were moving beyond a co-working space and instead focusing on "fostering the game development community." For these reasons, late in Year 3, the AGGP program decided to no longer purchase seats at Game Assembly, noting that they still intend to engage with the organization in other ways.

Advisory Board
A *Get IT* advisory board was formed during the summer of 2015 and was subsequently combined with an existing IT advisory board. It consisted of employer representatives and staff and faculty from the CPET, AGGP, and Electronic Engineering Technology (EET) programs. *Get IT* staff also attended three Industrial Design Advisory Board meetings throughout the grant.

Discussion at the IT and Industrial Design meetings focused on equipment needs and marketing strategies for the Digital Fabrication Lab; curriculum development, including incorporation of competency-based education into courses; student enrollment, retention, and graduation; and general student academic performance in each department. Conversations in later grant years also centered on skills employers need and how the IT programs align to those skills, enrollment, and outreach activities. The employers involved also gave the team input on skills they would like to see in graduates, such as the ability to sketch on a tablet or knowledge of 3D technology.

Interviewed employers expressed positive views of their experiences on the advisory boards. They described their participation as providing feedback on the programs and on internships, as well as discussing the industry in general. Employers found the meetings useful and appreciated the ability to get to know faculty. They noted that NHTI staff and faculty "ask good questions and listen" during these meetings, and that "everyone gets a voice."

Curriculum Development
The development of certificate and associate programs consisted of enhancing existing courses, developing new courses, and restructuring how courses are aligned within new programs. According to project staff, existing courses were in need of content updates, new technology, or a different delivery method (e.g., online). Further, new courses were created to support new certificate programs, with development being led by the grant-funded IT professor. The certificate programs were organized so that they were stackable into the IT Associate degree.

To assist with course and curricula content and design, staff sought industry feedback via a survey early in the grant and regular discussions with industry representatives in one-on-one meetings or Advisory Board convenings throughout the 4 years. The representatives of local IT employers who were interviewed confirmed that they met regularly with project staff to discuss curriculum and hiring needs. They believe that the IT department has a "pretty progressive feedback program" with industry and is continually looking to improve curriculum. Employer feedback, combined with the expertise of the grant-funded IT professor, generated curricula that faculty felt were beneficial to students, calling them "transformative." Most development was completed by Year 3 and faculty were looking to further update those that were changed in Year 1.

Focus group students commented specifically on the Raspberry Pi course. The curriculum is adopted from CISCO, thus is aligned to both industry standards and certification requirements. While there are many benefits to implementing vendor-developed curriculum (e.g., certification preparation, industry recognition), an identified downside is a lack of instructional autonomy. All components of the course are preestablished, including course content, course organization, assessment procedures, and grading criteria. Students expressed frustration at the professor's inability to modify instructional materials or pedagogical approaches and perceived the course's rigidity as contributing to missed learning opportunities. The course was described as fast-paced, with some students having difficulty keeping up. Students suggested revamping the course, breaking it down into two separate classes to provide a more focused curriculum and decrease cognitive load. Due to how heavily embedded the application of programming languages is to instructional activities, some students feel that a base level programming course as a prerequisite to this class would be beneficial.

In addition to topics traditional to networking and programming, students described the Raspberry Pi course as also covering concepts in electrical engineering and other non-related technical fields. While there might be connections in some respects, students thought that these subjects are not directly relevant to their career trajectory. Instead of prioritizing content that supports students' learning and employment outcomes, some perceived the course as being vendor-centered.

Course Review
Twenty courses developed or enhanced within the *Get IT* grant were subject to external review for instructional design quality. In Years 2 and 3, materials including syllabi, assessments, and lecture outlines were provided to Hezel Associates. Courses were scored based on a rubric, included as Appendix G, by a Hezel Associates instructional design expert. Aspects of some courses were not enhanced using grant funds, and those areas were therefore not subject to CC BY licensing required by the USDOL. These are marked *NT* (non-TAACCCT). Course attributes marked *NEI* indicate not enough information was available to rate the course on that specific topic area.

Scores are displayed in Table 2. These scores were provided to course developers to assist with course improvement. Overall, scores were high for the courses reviewed; however, some materials for courses either did not exist or were not provided, making scoring on certain aspects not possible. For example, several components of IST281 and IST284 were not enhanced by the grant, such as student support materials, labs, homework assignments, and lecture materials. Therefore, corresponding attributes in the rubric were not reviewed (i.e., alignment to learning objectives, sequencing, active learning, and formative feedback). Most of the 20 courses had clearly articulated learning objectives, while not enough information was provided to thoroughly review most courses for the other attributes of instructional quality.

All materials reviewed included the appropriate language for Creative Commons licensing, as required by the USDOL.

Table 2. *Get IT* **Course Quality Scores**

Course Number	Learning Objectives	Course Support of and Alignment to Learning Objectives	Sequencing of Course Content	Opportunities for Active Learning	Opportunities for Formative Feedback to Students	Summative Assessment of Learning
AGGP101	0	NEI	NEI	1	NEI	NEI
AGGP103	2	2	2	2	NEI	2
ENGL101	2	NEI	NEI	2	1	NEI
ENGL102	2	2	NT	1	2	NT
ENGL120	1	NT	NT	NT	NT	NT
ENGL294	2	2	NEI	2	1	NEI
INDS110	2	1	2	1	NEI	1
INDS150	2	NEI	NEI	2	NEI	NEI
INDS232	1	NEI	NEI	NEI	NEI	NEI
INDS250	2	NEI	NEI	2	NEI	NEI
IST103	2	NEI	NEI	NEI	NEI	NEI
IST165	1	NT	NT	NEI	NEI	1
IST170	2	2	2	1	2	2
IST225	2	NT	NT	NT	NT	NT
IST251	2	NEI	1	NEI	NEI	NT
IST253	2	NEI	1	NEI	NEI	NT
IST270	2	2	2	1	NEI	2
IST280C	2	2	2	2	2	2
IST281	2	NT	NT	NT	NT	1
IST284	2	NT	NT	NT	NEI	2

Note: Possible scores ranged from 0 to 2; NT = non-TAACCCT; NEI = not enough information

Intake Assessment

While outside of the grant work, NHTI changed its intake and advisement procedures in the 2017–18 academic year, affecting all students. Instead of a faculty-based approach, where instructors interviewed students to gauge what their full-time/part-time status should be and to help them register, the college instituted advisement immediately following placement testing. Every incoming student now must take a placement test for math and English on campus, prior to registration. Once completed, advisors (including the former TAACCCT Career Counselor) were on hand in the Fall 2017 semester to meet with and help students register for courses that day. The Career Counselor mainly focused on IT and CPET students during this process. Outside of that process, there is no assessment in place to "measure IT skills" of incoming IT students.

Overall, focus group students had positive experiences during assessment procedures, as the school "made it an easy process, helped schedule everything, and did a good job going over it."

Partner Contributions

The *Get IT* staff made considerable efforts to involve employer partners throughout the grant. In addition to aiding in curriculum development, advisory board participation, conversations about apprenticeships, and hosting of student interns, as discussed in the Program Management section, some employers actively interacted with students. For example, some visited NHTI to talk with

students during courses as a guest lecturer, while others regularly attend on-campus events, like open houses, career fairs, and other special occasions, like Girls' Technology Day. Students within the IT program are required to take the IT Career Topics course in their first semester, which encompasses professionals from partner companies coming in to speak with students. Industry stakeholders included individuals like CEOs, marketing representatives, and technical IT professionals. The intent of the course is to introduce students to the industry, and aid their decision regarding whether to pursue a networking or software development track.

AGGP students in the focus groups commented on their desire for more interactions with industry partners. They explained that there would be value in implementing their capstone project in a real game development environment with professionals from industry, or in having game developers visit NHTI to see their work. They would also find it valuable to gain feedback on the game they developed from industry professionals regarding programming strategy, design process, or any other contribution they can offer based on their industry experience. Further, they claimed that they do not have any employment opportunities stemming from departmental relationships. Students reported that they were not made aware of employment opportunities that exist or the skillsets and qualifications sought by actual hiring employers. They wished there were more industry connections, and felt they are left to navigate the job market alone. Some students noted that it takes proactivity, as they have attended events that were suggested in classes and offered by related professional associations (e.g., IGPA). NHTI also hosts Game Jam, which occurs in the winter, and entails a weekend of making games. This event attracts industry professionals, so can serve as a networking opportunity for students. Students recognized that both their location and the local workforce contribute to this issue. There are not many gaming companies or professional gaming networks in the surrounding area, which means students will need to branch out to the greater Boston area to pursue industry opportunities.

Student Outcomes

Data obtained from NHTI were examined to assess retention and credential attainment of students in the TAACCCT programs compared to all other NHTI students enrolled in the same terms. The data included students who first enrolled in the Fall 2015 through the Spring 2018 semesters.

In the data provided, 4,498 non-TAACCCT students and 716 TAACCCT students were included. TAACCCT students were defined by NHTI as any student who enrolled in at least one TAACCCT-related course. As shown in the following table, the two groups' characteristics did not differ substantially, with similar full-time/part-time status distribution, mean age, and mean GPA.

Table 3.   NHTI Student Characteristics

Characteristic	TAACCCT (n = 716)	Non-TAACCCT (n = 4,498)
Percent full-time	54%	59%
Percent part-time	46%	41%
Mean age at time of enrollment (standard deviation)	23.7 (8.15)	22.7 (8.19)
Lowest age at time of enrollment	16	16
Highest age at time of enrollment	68	75
Mean GPA (standard deviation)	2.7 (1.14)	2.4 (1.32)

TAACCCT students did, however, demonstrate more variety in their student "type," which differentiated between statuses such as transfer, non-matriculated, first time freshman, and academic probation. The following table highlights these data. It is not clear why these differences exist.

Table 4.   NHTI Student Status

Status	TAACCCT (n = 716)	Non-TAACCCT (n = 4,498)
Academic Probation	33	-
First Time Freshman	201	2,805
Freshman Continuing	159	-
Change of Program	40	302
Non-Matriculated	36	-
Readmit Freshman	35	-
Senior Continuing	106	--
Transfer	104	1,391
Program Suspension	2	

Retention

In terms of retention of students in TAACCCT programs, project staff indicated that they have seen improvements, particularly in the AGGP Associate degree program, which is believed to be the result of the enhanced curriculum.

That said, TAACCCT and non-TAACCCT students in the data set were shown to have similar 1-year retention rates, defined by continued enrollment from fall to the following fall semester, or spring to the following spring semester. Table 5 shows the percentage of each.

Table 5.   NHTI Student One-Year Retention

One-Year Retention	TAACCCT (n = 716)	Non-TAACCCT (n = 4,498)
Persisted	29%	33%
Did not persist	71%	67%

The retention outcome is tabulated by the type of credential students were enrolled in (i.e., associate degree or certificate) in Table 6. The data show that there was little difference in retention rate between TAACCCT and non-TAACCCT students enrolled in associate degree programs. However, TAACCCT students persisted less often than non-TAACCCT students in certificate programs. A chi-square test of independence was performed to further examine the relation between retention and whether or not a student was in a TAACCCT program/course. It was found that there is a statistically significant difference between the groups, (X^2 (1, N = 5, 214) = 5.36, p = .02), suggesting that slightly lower retention levels of TAACCCT students are not due to chance and could be attributable to TAACCCT-related activities.

Table 6.   Retention by Program Type

One-Year Retention	Certificate	Associate	Not enrolled in a program
TAACCCT (n = 716)			
Total enrolled	64	612	40
Persisted	14%	31%	28%
Did not persist	86%	69%	73%
Non-TAACCCT (n = 4,498)			
Total enrolled	371	4,127	-
Persisted	27%	34%	-
Did not persist	73%	66%	-

Note. Percentages represent the percent of students by group (TAACCCT or non-TAACCCT) within a credential type

Logistical regression was conducted in an attempt to better understand the variables as they relate to retention. In the model, students' age at enrollment, cumulative GPA, and whether or not a student was in a TAACCCT program or course were used as independent variables, examining the degree to which they may predict the likelihood of a student persisting from one year to the next. The model demonstrated that the three variables are statistically significant indicators of retention ($p < .01$). As is expected, the higher the GPA, the more likely a student will persist. Interestingly, the results suggest that age is negatively associated with retention, meaning that younger students are more likely to persist. Finally, TAACCCT students are 1.4 times more likely to persist than non-TAACCCT students. This seems to contradict the descriptive data presented in Table 5; however, this model considers all three predictors (age, TAACCCT status, and GPA) together, where their combined interaction may have a differing influence on outcomes than each variable on its own.

Other contextual factors may influence results as well. As noted previously, faculty observed that students sometimes find relevant employment after receiving industry credentials and leave their programs prior to graduation. These students did have a positive outcome, in that they found employment; however, in the data they are represented as not persisting, connotating a negative result.

Overall, the results are not conclusive in showing how being a TAACCCT student versus not influences NHTI student retention. This relationship is likely more complex than available data were able to demonstrate, and additional predictors likely exist.

Attainment of Credentials
In the available data, a total of 446 students earned a degree or certificate. Only those students who had enough time to complete a program were included in this analysis. For certificate students, that included those who first enrolled in the Spring 2017 semester or earlier. For associate degree students, those who first enrolled in Spring 2016 or earlier were included.

The following table highlights the number of awards by TAACCCT status and degree type. A higher percentage of awards were given to TAACCCT students (31%) than non-TAACCCT students (23%) in the timeframe. Further, 85 non-TAACCCT students had applied for their degree at the time of data collection, but had not yet received it, while 17 TAACCCT students

had done the same. Of note, the data were not able to reflect if a student received both a certificate and then a subsequent associate degree, which limits the interpretation of the numbers.

Table 7.   NHTI Student Degree Awards

	TAACCCT (n = 293)			Non-TAACCCT (n = 1,979)		
	Award	Applied	No Award	Award	Applied	No Award
Associate degree	76	17	186	271	77	1,538
Certificate	14	0		85	8	

Those who graduated within 100% of the time to completion (within 7 semesters for associate and 4 semesters for a certificate [including summer semesters]) or 150% of the time (5 semesters for a certificate) were delineated to show the length of time it took students to complete their program. While the sample is small, it appears that a higher percentage of non-TAACCCT students were awarded certificates in 100% compared to 150% of time to completion than TAACCCT students (Table 8).

The data did not span enough time to fully examine those who graduated within 150% of the time for associate degree students, so those numbers are likely underrepresented. We would expect the number of students within 150% time to completion for an associate degree to have grown over subsequent semesters. Further, AGGP students from the focus groups commented that the associate degree program typically takes 3 years, as opposed to 2, so their time to completion is not necessarily aligned to other 2-year programs.

Table 8.   Length of Time to Award

Award	Certificate	Associate
TAACCCT (n = 293)		
Total awards	14	76
100% of time to completion	57%	100%
150% of time to completion	43%	0%
Non-TAACCCT (n = 1,979)		
Total awards	85	271
100% of time to completion	84%	100%
150% of time to completion	16%	0%

Due to the limitations of the award data, inferential tests were not performed.

Employment

Data were not available to quantify *Get IT* student employment; however, faculty and employers shared their views. During the program, students in both the IT and AGGP programs typically participated in internships with local companies. Interviewed employers were generally pleased with interns they work with and expressed that students' technical skills are "good" and that they "know their way around equipment." Many explained that NHTI's hands-on training makes a positive difference when comparing candidates, stating that NHTI graduates "know how to program, they know how to manage and administer systems and switches and routers" when they begin work. Some believed that the hands-on training they received at NHTI is superior to local 4-year colleges and universities, as students have "the equivalent, if not better, skill sets." A few felt that those who treat computers as a hobby tend to perform better, because they spend time

outside of work and school "pulling things apart and purring things back together." Opinions were mixed on students' soft skills (e.g., professionalism, punctuality); however, most found them to be acceptable.

Internships, whether required of a program or not, have been beneficial for students for securing employment. Several interviewed employers hire interns each year as permanent employees. As one mentioned, "Literally every year we end up hiring one of the three, if not two out of the three." In fact, faculty explained that many associate degree students, particularly those in internships, are offered full-time permanent employment before they complete their degree. Typically, attaining the industry certifications embedded in the programs tend to make individuals more marketable when seeking employment in the IT field, so employers are more likely to hire a student once he or she passes the exams, rather than wait for graduation. This results in students leaving the program early without earning a degree; however, faculty stated that these students usually do re-enroll to complete their degree over a longer period of time, while working full-time.

Regardless of internship participation, faculty pointed out that most students in the IT program have full-time jobs upon graduation. In fact, they claimed that every IT student who graduated in the spring of 2017 had employment prior to completing. Further, AGGP students are seeing more employment opportunities, which faculty attribute to the skills they are learning due to grant activities.

Sustainability of Grant Activities
The project team made sustainability planning a priority in Year 3, meeting monthly to discuss options. Initially, they reviewed toolkits and other resources from USDOL, as well as consulted with a representative from Jobs for the Future for further support. Based on these discussions and examination of resources, staff began to track success of students in a systematic way, aligning NHTI-tracked data with TAACCCT indicators and Complete College America (CCA) data. The intention was to use these data to make evidence-based decisions on sustaining grant activities; however, it is unclear if and how that was done.

Staff and employers expressed their opinions on sustainability, describing trends they have seen, as well as what they think works well and what does not. In particular, many believe that grant-funded staff and faculty positions are valuable and would have liked those to extend beyond the grant. Lab technicians, who provide support for both students and faculty, were noted as essential to keeping labs functioning properly, in terms of equipment and software. The Career Counselor position evolved into several functions over the course of the grant, many of which those interviewed felt were needed to continue to provide support to students. They specifically expressed the need to continue to support students with job placement and maintain relationships with local companies to facilitate internships and employment. Faculty noted that those are activities "we'd like to do if we had more time." However, the NetLab Technician, Industrial Design Lab Technician, and Career Counselor positions were discontinued in the spring of 2018. It is unclear if their duties were redistributed or were ended.

Some expressed concern that the 11 certificate programs are not achieving high enough enrollment numbers to sustain, particularly in the higher-level courses. While data are not yet

available, there does not seem to be higher enrollment in the IT department overall, and the current number of students are now spread across more courses in the certificate and associate degree programs. Grant funds allowed NHTI to hold courses with only three or four students, but after the grant is over, it is doubtful these courses will be held without a higher number of students enrolled. Canceling courses could create difficulties for students attempting to complete a certificate in one year. Faculty also observed that the AGGP program enrollment has dropped slightly; however, retention has improved, as described in the *Student Outcome*s section. The Industrial Design program, which was enhanced by the new Digital Fabrication lab, appears to be performing well, as enrollment has increased.

The grant also allowed NHTI to purchase a substantial amount of equipment, both hardware and software, to support new program content. Faculty in the AGGP and IT programs believe the new equipment will be up-to-date for at least 3 to 5 years, at which time they will need to consider new purchases. This is typical due to the rapidly changing nature of the IT field.

Finally, employers who have worked with the grant team have been pleased with the communication with staff and faculty, and with student skills. They noted that the relationship with NHTI has been productive and convenient. They expressed a desire to continue the internship program, as the interns they have worked with have benefited their companies. They would like to further their involvement with the internship program by continually discussing how their internship opportunities align with classroom work. Several also send their employees to take courses at NHTI in order to update their skills. They intend to continue this practice in the future and note that it benefits both their employees and other NHTI students, as current students are able to learn "real world" experiences from incumbent workers.

CONCLUSIONS

Overall, the *Get IT* grant project was successfully implemented and resulted in department- and institution-level changes at NHTI. Specific conclusions from the grant are as follows:

- **The *Get IT* grant was managed and executed successfully.** The grant team, under the effective leadership of the Project Coordinator, was well-managed throughout the 4 years. All activities and deliverables were pursued as intended, with many resulting in department- or institution-level changes, such as new IT certificate programs; restructuring of IT associate degree programs, including courses with new delivery methods (e.g., online, accelerated); establishment of IT common core curriculum; and development of new methods to award credits for prior learning. The team not only accomplished its goals, but appropriately addressed issues as they arose. For example, they quickly filled positions that were vacated early and maintained continuity of task completion; regularly reviewed data and made necessary decisions regarding Game Assembly participation; and made a strong effort to generate interest in IT apprenticeships, acknowledging that creating an apprenticeship was ultimately not feasible.

- **NHTI recognizes that in IT, gaining industry certifications are invaluable for students.** The IT curricula have incorporated several industry certifications, and employers voiced that the content aligns well with the exams. NHTI offers discounted exam fees for students and instructor support, helping to ensure they pursue and attain the credentials as part of their program. Faculty, employers, and students who participated in the evaluation clearly believe that industry certifications, such as A+ and CISCO, are essential for employment in the IT field. Employers, who generally prefer to hire those with associate degrees, stated that they would hire individuals with a 1-year certificate, as long as they had the desired certifications. Students felt that the certifications were more important to employers than a degree. Faculty supported this view, reporting that IT students are often hired once they pass the appropriate exams, even if it is before they graduate.

- **New equipment and software have been transformative for some programs.** Staying current with equipment and software in the IT field is crucial, as changes occur rapidly. Grant funds were used to overhaul much of the existing infrastructure, allowing for better alignment with employers' technology and giving students opportunities to learn on state-of-the-art tools. This was particularly important for the AGGP program, which faculty and students believe now rivals 4-year degree programs with similar content.

- **The Career Counselor led several initiatives under the grant and was critical to the success of a number of activities.** The major role of the Career Counselor was to provide program and career assistance and support for AGGP, CPET, and IT students. Students and faculty found this to be effective and helpful, as she spent considerable one-on-one time with students. Throughout the 4 years, she was able to connect with dozens of local and regional IT and technology employers, maintaining existing relationships and creating new ones, which helped to bridge NHTI programs and students with employer needs. These connections were crucial for placing student interns. In addition, she

spearheaded the portfolio review process development to award credit for prior learning, which was adopted by the entire institution. Finally, she was instrumental in developing the Mindful Communication certificate program, leading the creation of the capstone course. This role clearly served multiple purposes, but was vacated in March 2018.

- **NHTI's network of IT employer partners was expanded during the grant.** AGGP, CPET, and IT faculty had several relationships with local/regional IT and technology firms prior to the grant, mainly related to the placement of student interns. The Career Counselor sought out and met with existing and new contacts throughout the grant and was diligent in recording those contacts and their interests/needs. These meetings resulted in more internship opportunities for students, more involvement of companies in curriculum development, and greater participation on advisory boards and other activities (e.g., guest speakers in classes).

- **Internships are essential elements of the program, for both students and employers.** The internships available to (and sometimes required of) students provided opportunities for employers to vet potential employees by giving them the ability to observe students' skills firsthand. Participating companies regularly hire interns as permanent employees, often before graduation, based on how they performed during the internship. Therefore, students are finding immediate employment and firms are hiring new employees whose skills are familiar.

RECOMMENDATIONS

Based on evaluation findings for the *Get IT* project, Hezel Associates offers the following recommendations for program improvement and sustainability beyond the grant.

- **Evaluate enrollment in new certificate programs and certificate awards made after grant end.** Faculty believe that few students are enrolling in higher-level courses required for new certificates, and few have attained the certificates. Further, employers expressed mixed feelings about hiring individuals who only held a 1-year certificate, unless they had achieved industry certifications. It would be useful to review enrollment and certificate awards a few semesters past grant end (into 2019) and determine where the shortfalls are. Also, re-evaluating employers' views on 1-year certificates would provide more detail into which may be beneficial to students and which may not be useful. This could be done through informal conversations, advisory board meetings, or surveys.

- **Maintain momentum on cultivating new employer partnerships, as well as sustaining existing relationships.** A key to the success of the *Get IT* project was guidance from, and collaboration with, local IT companies. Their offering of internships, input on curriculum, and participation in courses have helped to align coursework with industry needs and given students ample opportunities for employment. While several new relationships with firms have been established, and existing ones strengthened, the loss of the Career Counselor as an intermediary between employers, faculty, and students could be an impediment to future communication. Lapses in college/employer communication could negatively affect partnerships, as research has shown that effective partnerships between colleges and companies must have frequent and regular communication, with employers providing repeated guidance on industry changes (Adams, 2015). Therefore, it is important to keep up the momentum generated in the last 4 years. Faculty are encouraged to continue their own relationships with industry via informal communications and continuation of advisory boards; however, creating a more formal position to assist with maintaining, as well as creating new relationships, is recommended.

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APPENDIX A: METHODS
The *Get IT* project evaluation was conducted as a mixed methods study, consisting of both qualitative and quantitative data collection and analysis. Findings from all data collection methods were triangulated to correspond to each research question.

Instrumentation and Data Collection
The following provides an overview of instruments and data collection methods used throughout the entire grant period.

Document Review
Throughout the life of the grant, program documents and work products, including industry outreach tracking files, marketing materials, and meeting agendas, were made available by *Get IT* staff primarily via the Basecamp file sharing system. At the start of the grant, evaluators created a document review framework based on the project work plan, consisting of planned activities and deliverables and their expected completion date, to guide review of materials. The framework was updated to reflect USDOL-approved modifications to the workplan in Year 1.

Items were reviewed on a weekly basis and were aligned with applicable activities and/or deliverables in the framework. Each file was recorded as evidence of progress toward completion. When activities and deliverables were deemed complete based on reviewed documents, status was noted using the indicators: *in progress*, *met within the timeframe*, *met outside of the timeframe*, and *met with no indication of timeframe*. The completed document review framework, with final activity and deliverable statuses, is included as Appendix B.

Interviews and Focus Groups
Program Staff and Faculty Interviews. Staff and faculty involved in the *Get IT* project were interviewed by evaluators in Years 1 through 3. Semi-structured protocols were developed to guide questions that focused on the progress of implementation and interviewees' perceptions of impact on students. Each year, the protocol was updated slightly to best reflect current grant activities. These protocols are included as Appendix C.

Interviews in Year 1 took place in-person at the NHTI campus during a site visit. The Project Coordinator scheduled the interviews in advance of the visit. Telephone interviews were conducted in Years 2 and 3. Year 2 interviews were scheduled using Doodle©, an online scheduling system, while in Year 3, the evaluator scheduled the interviews via email. Contact lists were provided each year by the Project Coordinator. Additional staff and faculty were added to the list each year as they were hired or brought in to project activities or were removed as they left the project or college. Interviews did not occur in Year 4, as many staff and/or faculty were temporary employees and left the college months before the grant ended. The following table describes the interviews in terms of invitations vs. actual interviews conducted.

Table 9.   *Get IT* Program Staff and Faculty Interviews

	Year 1	Year 2	Year 3
Interview date	August 2015	August 2016	September 2017
Number invited	7	12	12
Number interviewed	7	8	7

Each interview lasted approximately 15–30 minutes. Interviews were recorded, with interviewee permission, and narrative was transcribed later using the recordings.

Employer Interviews. Evaluators interviewed employers and other industry representatives who were associated with NHTI's *Get IT* project in Years 2 and 3. These included companies from a variety of fields, including marketing, insurance, hospitality, repair, tech support, software, and education. Interview questions were guided by a protocol that concentrated on their involvement with the project and the impact they perceived the grant work to have on their company or industry. The protocol was updated slightly in Year 3 to better reflect current grant activities (Appendix D). The *Get IT* Project Coordinator provided contact lists each year. The following table shows the number invited and interviewed each year.

Table 10. *Get IT* **Employer and Industry Stakeholder Interviews**

	Year 2	Year 3
Interview date	May 2016	April 2017
Number invited	7	24
Number interviewed	3	12

Each interview was conducted on the telephone and lasted approximately 15–30 minutes. Interviews were recorded, with interviewee permission, and narrative was transcribed later using the recordings.

Student Focus Groups. Three in-person focus groups were conducted with current *Get IT* students in Year 4 (April 2018) at NHTI by evaluators. They were guided by a protocol developed by evaluators (Appendix E), which included questions regarding students' experiences and perceptions with the *Get IT* programs. Specifically, the facilitator asked about their backgrounds and use of credit for prior learning, how well the program is preparing them for a career, and their ultimate career plans. Prior to participation, students were asked to sign a document consenting that they understood the focus group purpose and its potential risks and benefits, and to be audio recorded. Focus group recordings were transcribed for analysis.

Participant Questionnaire
An online questionnaire was developed by evaluators and administered in Years 2–4 to current students in *Get IT*-related programs at NHTI (i.e., AGGP, CPET, and IT programs). The purpose was to examine how students used and perceived services and programs developed under the grant. The original questionnaire consisted of items regarding (a) demographic and respondent characteristics, (b) use and perceptions of the credit for prior learning process, (c) career counseling services perceptions, and (d) perceptions of other aspects of the programs (e.g., Game Assembly). Items regarding perceptions of programs or services were arranged as 7-point Likert scales, ranging from *very dissatisfied* to *very satisfied* or *strongly disagree* to *strongly agree*; all included a *neutral* option. Other items were formatted as either "select one" or allowed multiple responses. Minor revisions to language were made for the Year 3 distribution. In Year 4, per Project Coordinator feedback, items regarding credit for prior learning were condensed, as most students entered programs from high school and would not likely have prior learning credits. Due to low participation, items regarding Game Assembly were removed. Finally, several items were added to understand students' perceptions of how the newly available Mindful Communication course(s) impacted their attitudes and behavior.

The questionnaire was programmed into Qualtrics survey software by evaluators. Each version of the instrument is provided as Appendix F.

Surveys were sent to students each spring semester and were closed soon after the semester ended (early May). In Year 2, evaluators distributed the survey link via email, using a list of participant emails provided by project staff. The survey went to a small group of students in select courses, based on a request from the Project Coordinator. In Years 3 and 4, the survey link was distributed via email by the project Career Counselor to all students in the AGGP, CPET, and IT programs. Each year, one to two reminder emails were sent to encourage more participation. See the following table for a description of survey distribution. Note that in Year 4, it was unclear how many students were invited to participate in the survey, but it is likely a number close to that in Year 3.

Table 11.   *Get IT* Participant Survey Distribution

	Year 2	Year 3	Year 4
Date of initial administration	April 2016	April 2017	March 2018
Number invited to complete survey	53	358	unknown
Total responses	13	83	153

Data regarding respondent demographics and characteristics for each survey administration are included as Appendix H.

Student Data

Data for the purpose of determining student outcomes were provided to evaluators in an Excel worksheet in 2017. Information for all NHTI students who first enrolled in the Fall 2015 semester through the Spring 2018 semester was included. These data included characteristic information such as age, full-time/part-time status, term enrolled, student type (e.g., first time freshman, transfer), major, program enrolled, and whether or not they were considered a TAACCCT student (affected by the grant). Those counted in the TAACCCT group were students who had taken at least one TAACCCT course. Outcome data included hours attempted, hours earned, GPA, remedial and first year course success, degree awards, and retention from semester to semester. Each student record contained a unique ID number, with no other identifying information included.

Course Review

Materials for newly developed or enhanced courses were reviewed by evaluators for instructional quality. Course materials, including syllabi, course outlines, lesson plans and activities, and student assessments, were uploaded by project faculty to a Citrix ShareFile system throughout Years 2–4. Hezel Associates downloaded materials when they became available and then indexed each according to course number and type of document (e.g., syllabus, lesson plan). To guide review of instructional design, a rubric was developed based on established principles of instruction (Gagné, Briggs, & Wager, 1992; Maryland Online, Inc., 2014; Merrill, 2002), to evaluate the quality of the content at the course level. This rubric included six topics: (a) learning objectives, (b) course support and alignment to learning objectives, (c) sequencing of course content, (d) opportunities for active learning, (e) opportunities for formative feedback to students, and (f) summative assessment of learning. A scoring scale of *0*, *1*, or *2* (with *0* meaning

the topic was not incorporated into the course, *1* signifying that it was sometimes incorporated, and *2* denoting it was always incorporated) was established for each topic, along with an area to note if there was not enough information for review. The Course Review Rubric is included as Appendix G.

Data Analysis
Qualitative
To analyze the interview and focus group narrative, an emergent scheme was used to identify themes. Narrative was reviewed and segments were parsed and assigned to the appropriate research question. Under each research question, similar segments were grouped and themes identified. These emergent themes were then used to answer the corresponding research question.

Quantitative
Questionnaire. Each year, Participant Questionnaire data were reviewed and those who did not provide responses past the introductory characteristic questions (questions 1 through 3) were removed. Frequencies were calculated for all items and means/standard deviations were determined for scale items. Respondent demographics and characteristics for each survey administration are included as Appendix H.

Student Data. Student data were provided as separate tabs within an Excel worksheet. To prepare for analysis, data were merged into one dataset in Stata, using the student ID as the matching variable. Descriptive statistics (i.e., frequencies, means, standard deviations) were calculated for several variables (e.g., full-time/part-time status, age, GPA), separated by TAACCCT status to allow for informal comparison of the two groups (TAACCCT, non-TAACCCT).

Where appropriate, inferential tests were conducted on the data. A chi-square test of independence was performed to examine retention of TAACCCT students (a dichotomous variable), using the retention and TAACCCT status variables. Logistical regression was conducted, using retention as the dependent variable and students' age at enrollment, cumulative GPA, and TAACCCT status as independent variables. Assumptions were tested and met for logistic regression, which included (a) a binary dependent variable (retention = 0 [no], 1 [yes]), (b) independent observations, (c) no multicollinearity, (d) normality, and (e) appropriate sample size.

Triangulation. Findings across all data collections were triangulated (compared and contrasted), using a framework organized by research questions. Findings from each data source were amalgamated for each question and were then reviewed for complimentary and/or contradictory evidence. These results were summarized in this final report.

Limitations
For the overall evaluation, considering the limited sample size of data from the participant questionnaires and the use of qualitative data findings from interviews and focus groups, the reader should use caution when estimating the extent to which opinions formed through these data can speak for the population as a whole. The findings from these data are intended to provide feedback on the *Get IT* project activities only.

The student data in particular contribute several limitations. First, the definition of TAACCCT status (those who took at least one TAACCCT course) may influence differences in outcomes, as those who only took one course compared to those who enrolled in a full TAACCCT program did not necessarily receive the same magnitude of the intervention. Further, because the data available were limited to the variables provided by NHTI, the regression model may not include all important variables. Other predictors of the outcomes (persistence and award attainment) likely exist (such as gender, socioeconomic status, prior education, family situations) that were not included in this analysis. Additionally, the data did not span enough time to allow for a thorough examination of award attainment, particularly for associate degree students. Those who graduated within 150% of the time were not fully captured, as the timeframe did not extend far enough.

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APPENDIX B: DOCUMENT REVIEW

Description	Milestone	Intended timeframe	Status	Evidence
Activity 1: Common Core Curriculum for Foundational IT Courses throughout CCSNH	Define goals, objectives, and outcomes of new curriculum	Y1Q1	Met outside of timeframe	WAR Reports[3]
	Construct and document goals, objectives, and outcomes of new curriculum	Y1Q3	Met outside of timeframe	WAR Reports
	Review goals, objectives, and outcomes of new curriculum	Y2Q1	Met within timeframe	IT Hardware and Software Certificate ACADEMIC FORM A-4 WAR Reports
	Finalize all aspects of new curriculum	Y2Q2	Met within timeframe	IT Common Core (list of equivalent courses across CCSNH) WAR Reports
	Fully implement new curriculum	Y2-Y3	Met within timeframe	WAR Reports
	Collect data and begin evaluation process	Y4Q1	Met within timeframe	Evaluation documents Student data
	Complete data analysis	Y4Q2	Met within timeframe	Evaluation documents Student data
	Prepare data for reporting	Y4Q3	Met within timeframe	Evaluation documents
	Report data evaluation	Y4Q4	Met within timeframe	Evaluation documents
Deliverable 1: A unified common core curriculum for foundational IT	Implementers meet and research best practices in Common Core Curriculum development	Y1Q1	Met outside of timeframe	WAR Reports
	Clearly define Common Core and essential learning outcomes	Y1Q2	Met outside of timeframe	WAR Reports
	Construct and document Common Core and essential learning outcomes using competency-based models for assessment as well as "next generation assessments"	Y1Q3	Met outside of timeframe	IT Common Core (list of equivalent courses across CCSNH) IT Hardware and Software Certificate ACADEMIC FORM A-4 WAR Reports
	Finalize full roll out of Common Core Curriculum	Y2Q3	Met outside of timeframe	Basecamp discussions WAR Reports

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[3] Weekly Activity Reports (WAR Reports): Description of activities of each project team member, compiled by the Program Data Analyst on a weekly basis.

Description	Milestone	Intended timeframe	Status	Evidence
	Full roll out of Common Core Curriculum	Y2-Y3	Met within timeframe	WAR Reports
Deliverable 2: Common set of instructional and student materials	Implementers meet and research best practices in essential learning outcomes	Y1Q3	Met outside of timeframe	IT Common Core (list of equivalent courses across CCSNH) IT Hardware and Software Certificate ACADEMIC FORM A-4 WAR Reports
	Clearly define common instructional materials and essential learning tools	Y1Q4	Met outside of timeframe	IT Common Core (list of equivalent courses across CCSNH) IT Hardware and Software Certificate ACADEMIC FORM A-4 WAR Reports
	Construct and document common instructional materials and learning tools	Y2Q1	Met within timeframe	IT Hardware and Software Certificate ACADEMIC FORM A-4 WAR Reports
	Prepare for full roll out of common materials	Y2Q3	Met within timeframe	Common Core syllabi WAR Reports
	Full roll out of common materials	Y2-Y3	Met within timeframe	NHTI website WAR Reports
Deliverable 3: Common set of essential learning outcomes for all students enrolled in foundational IT courses at all seven institutions within CCSNH	Implementers meet and research best practices in essential learning outcomes	Y1Q1	Met outside of timeframe	Basecamp discussions
	Clearly define essential learning outcomes	Y1Q3	Met outside of timeframe	Basecamp discussions
	Construct and document essential learning outcomes	Y2Q1	Met within timeframe	IT Hardware and Software Certificate ACADEMIC FORM A-4
	Finalize essential learning outcomes	Y2Q3	Met within timeframe	WAR Reports
	Full implementation of common learning outcomes	Y2-Y3	Met within timeframe	WAR Reports
	Prepare and publish job description, review resumes, conduct interviews	Y1Q1	Met outside of timeframe	WAR Reports

Description	Milestone	Intended timeframe	Status	Evidence
Deliverable 4: Hire Instructional Designer	Hire and train Instructional Designer	Y1Q2	Met outside of timeframe	WAR Reports
	Instructional Designer fully on-board	Y1Q2-Y3Q4	Met within timeframe	WAR Reports
	Transition out of position	Y3Q4	Met within timeframe	WAR Reports
Activity 2: Industry Demand and Programs of Study in IT	Implementers have researched real-time industry hiring demands in high-paying, high-demand IT fields in NH and have developed ideas to address those demands as an institution	Y1Q2	Met outside of timeframe	NHTI IT Demand Assessment Results WAR Reports
	Implementers will decide on new certificate programs that can be immediately designed and adopted by the institution	Y1Q2	Met outside of timeframe	Cert layout (graphic of new programs)
	Implementers have researched regional industry leaders in the field of IT for possible partnerships and developed plans to connect with these companies	Y1Q3	Met within timeframe	TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports
	Roll out of new certificate programs	Y2Q2M1	Met outside of timeframe	NHTI approvals WAR Reports
	Implementers have researched certificate, credentialing, and program gaps at the institution and developed ways to reconcile these gaps	Y2Q2	Met within timeframe	WAR Reports Y1Q4 IT Minutes Advisory Board Meeting
	Implementers have researched community hiring needs and employment gaps and developed ways to address these gaps as an institution	Y2Q4	Met within timeframe	TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports Y1Q4 IT Minutes Advisory Board Meeting
	All new degree and certificate programs have been defined by the implementers	Y2Q1	Met within timeframe	Cert layout (graphic of new programs)
	All new degree and certificate programs have been constructed and documented	Y2Q2 & Q3	Met within timeframe	Draft Course Development Schedule WAR Reports
	New degree and certificate programs have been finalized	Y2Q4	Met within timeframe	NHTI approvals WAR Reports
	Roll out new degree and certificate programs	Y3Q1	Met within timeframe	NHTI approvals WAR Reports

Description	Milestone	Intended timeframe	Status	Evidence
	Evaluation of this activity will begin	Y4Q1	Met within timeframe	Evaluation documents
	Implementers will meet with regional industry partners to evaluate and assess the effectiveness of this activity	Y4Q2	Unclear	
	Implementers will have data analysis results to discuss and make recommendations on for the report	Y4Q3	Unclear	
	Report evaluation results	Y4Q4	Met within timeframe	Evaluation documents
Deliverable 5: Launch five new IT certificates	Implementers will have researched and developed industry hiring gap needs	Y1Q1	Met outside of timeframe	NHTI IT Demand Assessment Results TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports
	Implementers will decide on new certificate programs that can be immediately designed and adopted by the institution	Y1Q2M1	Met outside of timeframe	NHTI program proposals WAR Reports
	Roll out new certification programs	Y2Q2M1	Met within timeframe	NHTI approvals NHTI website WAR Reports
	Begin evaluation	Y4Q1	Met within timeframe	Evaluation documents
	Meet with regional industry partners to evaluate and assess effectiveness	Y4Q2	Unclear	
	Have data analysis results ready for discussion; make recommendations	Y4Q3	Unclear	
	Report evaluation results	Y4Q4	Met within timeframe	Evaluation documents
Deliverable 6: Launch six new IT programs	Implementers have researched real-time industry hiring demands in high-paying, high-demand IT fields in NH and have developed ideas to address those demands as an institution	Y1Q1	Met outside of timeframe	NHTI IT Demand Assessment Results TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports
	Implementers have researched regional industry leaders in the field of IT for possible partnerships and developed plans to connect with these companies	Y1Q2	Met outside of timeframe	TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports

Description	Milestone	Intended timeframe	Status	Evidence
	Implementers have researched certificate, credentialing, and program gaps at the institution and developed ways to reconcile these gaps	Y1Q3	Met outside of timeframe	WAR Reports Y1Q4 IT Minutes Advisory Board Meeting notes
	Implementers have researched community hiring needs and employment gaps and developed ways to address these gaps as an institution	Y1Q4	Met outside of timeframe	Advisory Board agendas and notes WAR Reports
	All new degree and certificate programs have been defined by the implementers	Y2Q1	Met within timeframe	NHTI program proposals WAR Reports
	All new degree and certificate programs have been constructed and documented	Y2Q2 & Q3	Met within timeframe	NHTI program proposals WAR Reports
	New degree and certificate programs have been finalized	Y2Q4	Met within timeframe	NHTI program approvals WAR Reports
	Roll out new degree and certificate programs	Y3	Met within timeframe	NHTI website WAR Reports
	Evaluation of this activity will begin	Y4Q1	Met within timeframe	Evaluation documents
	Implementers will meet with regional industry partners to evaluate and assess the effectiveness of this activity	Y4Q2	Unclear	
	Implementers will have data analysis results to discuss and make recommendations on for the report	Y4Q3	Unclear	
	Report evaluation results	Y4Q4	Met within timeframe	Evaluation documents
Deliverable 7: Hire Program Manager	Prepare and publish job description	Y1Q1M1	Met within timeframe	WAR Reports
	Review resumes, conduct interviews, hire, and train Program Manager	Y1Q1M4	Met within timeframe	WAR Reports
	Program Manager fully on board	Y1Q2M1-Y4	Met within timeframe	WAR Reports
Deliverable 8: Hire Data Manager	Prepare and publish job description	Y1Q1M1	Met within timeframe	WAR Reports
	Review resumes, conduct interviews, hire, and train Data Manager	Y1Q1M4	Met within timeframe	WAR Reports
	Data Manager fully on board	Y1Q2M1-Y4	Met within timeframe	WAR Reports

Description	Milestone	Intended timeframe	Status	Evidence
	Analyze & Report Data	Y4	Met within timeframe	Student data
Deliverable 9: Hire IT Professor	Prepare and publish job description, review resumes, conduct interviews	Y1Q2	Met within timeframe	WAR Reports
	Hire and train full-time IT Professor	Y1Q3	Met within timeframe	WAR Reports
	IT Professor fully on board	Y1Q3-Y3Q4	Met within timeframe	WAR Reports
	Transition out of position	Y3Q4	Not completed	IT Professor still employed at NHTI
Activity 3: IT Career Pathways Using High Impact Practices	Implementers will have researched and developed evidence-based systems for implementation of Deliverables 10-16	Y1Q1	Met within timeframe	WAR Reports
	Implementers have defined the high impact systems that will best serve the special population addressed in this proposal	Y1Q2	Met within timeframe	WAR Reports
	Implementers have constructed and documented institutional systems that use Deliverables 11-16	Y1Q3	Met within timeframe	WAR Reports
	Finalize all aspects for roll out of new systems	Y1Q4	Met within timeframe	WAR Reports
	Roll out of Deliverables 10-16	Y2-Y3	Met within timeframe	WAR Reports
	Analyze data and report on Activity #3	Y4	Met within timeframe	Evaluation documents
Deliverable 10: Hire Career Counselor	Prepare and publish job description	Y1Q1M1	Met outside timeframe	WAR Reports
	Review resumes, conduct interviews, hire, and train Career Counselor	Y1Q1M4	Met outside timeframe	WAR Reports
	Career Counselor fully on board	Y1Q2M1-Y3Q3	Met within timeframe	WAR Reports
	Transition out of position	Y3Q4	Met within timeframe	WAR Reports

Description	Milestone	Intended timeframe	Status	Evidence
Deliverable 11: New learning systems: Accelerated formats, prior learning assessment (PLA), accelerated remediation	Implementers will have researched and developed evidence-based systems for implementation of accelerated formats, prior learning, assessment, and accelerated remediation	Y1Q2	Met outside of timeframe	Accelerated weekend framework WAR Reports
	Implementers have defined the high impact systems that will best serve the special population addressed in this proposal	Y1Q2	Met outside of timeframe	PLA Page Revision (webpage revisions) Summer Lynx_Developmental Program_Sample Schedule WAR Reports
	Implementers have constructed and documented an institutional wide system for accelerated formats, prior learning assessments, and accelerated remediation	Y1Q3	Met outside of timeframe	Accelerated weekend framework Inventory of Prior Learning Assessment Resources at NHTI IT CreditByExam (description of practice) Portfolio Guidebook WAR Reports
	Finalize all aspects for roll out of new systems	Y1Q4	Met outside of timeframe	WAR Reports
	Roll out of Deliverable 11	Y2-Y3	Met within timeframe	2016, 2017 Summer Lynx Program flyers WAR Reports
	Analyze data and report on Activity 3	Y4	Met within timeframe	Evaluation documents
Deliverable 13[4]: Latticed programming	Implementers will have researched and developed evidence-based systems for implementation of a unified system for latticed programing	Y1Q3	Met outside of timeframe	Basecamp discussions CM Survey 2015 Mindfulness at Work report WAR Reports
	Implementers have defined the latticed system that will best serve the special population addressed in this proposal	Y1Q4	Met outside of timeframe	Basecamp discussions Course descriptions of Mindful Communication certificate WAR Reports
	Implementers have constructed and documented an institutional wide system for latticed programming	Y2Q1	Met outside of timeframe	Basecamp discussions WAR Reports
	Finalize all aspects for roll out of new systems	Y2Q2	Met outside of timeframe	WAR Reports

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[4] There is no Deliverable 12, as this number was inadvertently skipped in the work plan. This table reflects what is in the actual work plan.

Description	Milestone	Intended timeframe	Status	Evidence
	Roll out of Deliverable 13	Y2-Y3	Met outside of timeframe	NHTI website WAR Reports
	Analyze data and report on Activity 3	Y4	Met within timeframe	Evaluation documents
Deliverable 14: Stackable credits	Implementers will have researched and developed evidence-based systems for implementation of a unified system for stackable credits	Y1Q2	Met outside of timeframe	WAR Reports
	Implementers have defined the stackable credit system that will best serve the special population addressed in this proposal	Y1Q3	Met outside of timeframe	NHTI5101_3-Panel Infographic Bro-4x9-FINAL_PQ.pdf (brochure outlining stackability) WAR Reports
	Implementers have constructed and documented an institutional wide system for stackable credits	Y1Q4	Met outside of timeframe	Basecamp discussions
	Finalize all aspects for roll out of new systems	Y2Q1	Met outside of timeframe	WAR Reports
	Roll out of Deliverable 14	Y2-Y3	Met within timeframe	WAR Reports
	Analyze data and report on Activity 3	Y4	Met within timeframe	Evaluation documents
Deliverable 15: System for learning and assessment	Implementers will have researched and developed evidence-based systems for implementation of a unified system for learning and assessment	Y1Q1	Met within timeframe	Basecamp discussions TAACCCT_Guide-for-Developing-CompetencyModels WAR Reports
	Implementers have defined the various aspects of learning and assessment that the institution will adopt and that will best serve the special population addressed in this proposal	Y1Q2	Met within timeframe	Basecamp discussions CBE Database Notes Low residency frameworks WAR Reports
	Implementers have constructed and documented an institutional wide system for learning and assessment	Y1Q3	Met within timeframe	Basecamp discussions eDesign Rubric 2015 WAR Reports
	Finalize all aspects for roll out of new systems	Y1Q4	Met within timeframe	WAR Reports
	Roll out of Deliverable 15	Y2-Y3	Met within timeframe	WAR Reports

Description	Milestone	Intended timeframe	Status	Evidence
	Analyze data and report on Activity 3	Y4	Met within timeframe	Evaluation documents
Deliverable 16: Apprenticeship program	Implementers will have researched and developed regional businesses for implementation of an apprenticeship program	Y1Q1	Met outside of timeframe	Basecamp discussions TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports
	Implementers have defined the apprenticeship program that will best serve the special population addressed in this proposal	Y1Q2	Met outside of timeframe	WAR Reports
	Implementers have constructed and documented an apprenticeship program	Y1Q3	Not completed	TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports
	Finalize all aspects for roll out of new systems	Y1Q4	Not completed	
	Roll out of Deliverable 16	Y2-Y3	Not completed	
	Analyze data and report on Activity 3	Y4	Met within timeframe	Evaluation documents
Activity 4: Training and Workforce Development with Industry Partners	Implementers will list potential board members and sites for the new labs	Y1Q1	Met outside of timeframe	Advisory Board meeting notes
	Implementers will outreach to potential board members and secure new lab locations	Y1Q2	Met outside of timeframe	WAR Reports
	Implementers will establish the board members and furnishings for new labs	Y1Q3	Met within timeframe	Advisory Board contact information (list) TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports
	Implementers will finalize date of their first board meeting and plans for roll out of new labs	Y1Q4	Met within timeframe	092215 IT advisory board meeting agenda WAR Reports Y1Q4 IT Minutes Advisory Board Meeting
	Full roll out of Activity 4	Y2-Y3	Met within timeframe	WAR Reports
	Analyze data and report on Activity 4	Y4	Met within timeframe	Evaluation documents
Deliverable 17: Hire full-time	Prepare and publish job description	Y1Q1M1	Met outside of timeframe	Basecamp discussions

Description	Milestone	Intended timeframe	Status	Evidence
Industrial Design Lab Technician[5]	Review resumes, conduct interviews, hire, and train Industrial Design Lab Technician	Y1Q1M4	Met outside of timeframe	WAR Reports
	Industrial Design Lab Technician fully on board	Y1Q2M1-Y3Q3	Met within timeframe	WAR Reports
	Transition out of position	Y3Q4	Met within timeframe	WAR Reports
Deliverable 18: Create Advisory Board	Implementers will brainstorm and list potential board members	Y1Q3	Met within timeframe	WAR Reports
	Implementer will contact potential board members to ask them to serve on the board	Y1Q3	Met within timeframe	WAR Reports
	An Advisory Board will be established by those who have made the commitment to serve for four years	Y1Q4	Met within timeframe	Advisory Board contact information (list) TAACCCT 4 Industry Meetings (description of each meeting with industry, updated regularly) WAR Reports
	Advisory Board will have conducted their first meeting	Y2Q1	Met within timeframe	092215 IT advisory board meeting agenda WAR Reports Y1Q4 IT Minutes Advisory Board Meeting
	Advisory Board Meeting	Y2Q2	Met within timeframe	ID Advisory Board minutes WAR Reports
	Advisory Board Meeting	Y2Q3	Met within timeframe	Advisory Board Agenda EET-CPET-AGGP Advisory Board Minutes WAR Reports
	Advisory Board Meeting	Y2Q4	Met outside of timeframe	IT Advisory Board Minutes WAR Reports
	Advisory Board Meeting	Y3Q1	Met within timeframe	WAR Reports
	Advisory Board Meeting	Y3Q2	Met within timeframe	WAR Reports
	Advisory Board Meeting	Y3Q3	Met within timeframe	IAB Meeting Minutes ID Meeting Minutes WAR Reports

[5] This changed from a Content/Program Coordinator to an Industrial Lab Technician.

Description	Milestone	Intended timeframe	Status	Evidence
	Advisory Board Meeting	Y3Q4	Met within timeframe	IT Meeting Minutes WAR Reports
	Advisory Board will evaluate and report on overall success of the grant program and make recommendations for future endeavors	Y4	Unclear	
Deliverable 19: Digital Fabrication Lab for Innovation & Invention	Implementers will list possible location sites for lab	Y1Q1	Met outside of timeframe	WAR Reports
	Implementers will decide on a site and secure its location through proper documentation	Y1Q2	Met outside of timeframe	Basecamp discussions WAR Reports
	Implementers will establish the new space with all necessary equipment and furnishings	Y1Q3	Met outside of timeframe	Equipment/renovations request for proposals WAR Reports
	Implementers will finalize all aspects of the new lab for full roll out in Y2	Y1Q4	Met outside of timeframe	WAR Reports
	Full roll out of the new NHTI Digital Fabrication Lab for Innovation & Invention	Y2-Y4	Met within timeframe	Basecamp discussions WAR Reports
Deliverable 20: Game Incubator	Implementers will list possible location sites for lab	Y1Q1	Met outside of timeframe	WAR Reports
	Implementers will decide on a site and secure its location through proper documentation	Y1Q2	Met outside of timeframe	WAR Reports
	Implementers will establish the new space with all necessary equipment and furnishings	Y1Q3	Met outside of timeframe	WAR Reports
	Implementers will finalize all aspects of the [Game Assembly] for full roll out in Y2	Y1Q4	Met within timeframe	Game Assembly Agreement WAR Reports
	Full roll out of the new [Game Assembly]	Y2-Y4	Met within timeframe	Game Assembly Report year 1 Game Assembly Utilization Report 05152016 WAR Reports
Deliverable 21: Hire NetLab Technician[6]	Prepare and publish job description	Y1Q1M1	Met outside of timeframe	WAR Reports
	Review resumes, conduct interviews, hire, and train NetLab Technician	Y1Q1M4	Met outside of timeframe	WAR Reports
	NetLab Technician fully on board	Y1Q2M1-Y3Q3	Met within timeframe	WAR Reports

[6] This deliverable was added according to Modification 3.

Description	Milestone	Intended timeframe	Status	Evidence
	Transition out of position	Y3Q4	Met within timeframe	NHTI website

APPENDIX C: PROJECT STAFF INTERVIEW PROTOCOLS

Year 1 Questions

1. Please describe your role in the Get IT project.

2. Can you explain the organizational structure of the project?
   (***Probe**: implementation of strategies, leadership, administrative structure*)

3. Please describe your role in curriculum development.
   (*If not involved in curriculum development, skip to Question 6*)

4. Could you walk me through your curriculum development process?
   (***Probe**: how it was/will be selected/created/used, communication methods, plan for industry alignment, challenges, successes*)

5. (*If curriculum development not started yet*) What is your plan for curriculum development?
   (***Probe**: how it will be selected/created/used, communication methods, plan for industry alignment*)

6. Could you describe the program(s) being developed?
   (***Probe**: existing program changes, improvement, expansion, delivery method, administrative structure*)

7. Specifically, can you talk about progress on institutionalization of high-impact retention and completion practices?
   (*Examples: accelerated formats, prior learning assessments, and accelerated remediation, latticed programming, stackable credits, learning and assessment, apprenticeships*)

8. What services for students are offered or will be offered as a result of the grant?

9. Can you tell me about the contributions that partners have made or are planning to make to the program?
   (*Examples–employers, workforce agencies, external education providers*)
   (***Probe**: factors impacting involvement, most and least critical contributions, challenges, successes*)

10. Can you describe any plans for sustaining your program once the grant is over?

11. What is your overall opinion of the Get IT grant project and its certificate programs?

    Do you have any suggestions for improving the project?

12. Is there anything else you'd like to say about the project in general?

Year 2 Questions

1. Please describe your role in the Get IT project.

2. Can you explain the organizational structure of the project?
   *(**Probe**: implementation of strategies, leadership, administrative structure)*

3. Please describe your role in curriculum development.
   *(**Probe**: both certificate curricula and the Common Core curriculum)*
   (If not involved in curriculum development, skip to Question 5)

4. Could you walk me through your curriculum development process?
   *(**Probe**: how it was/will be selected/created/used, communication methods, plan for industry alignment, challenges, successes)*

5. Could you describe the program(s) being developed or enhanced? How are they different than other programs? How have they changed?
   *(**Probe**: improvement, expansion, delivery method, administrative structure, facilities)*

6. Specifically, can you talk about progress how these practices are being institutionalized at NHTI?
   - accelerated formats of programs
   - prior learning assessments
   - accelerated remediation
   - latticed programming
   - stackable credits
   - apprenticeships

7. Are any additional services for students being offered as a result of the grant?

8. Can you tell me about the contributions that partners have made or are planning to make to the program?
   (Examples–employers, workforce agencies, external education providers, Game Assembly)
   *(**Probe**: factors impacting involvement, most and least critical contributions, challenges, successes)*

9. Can you describe any plans for sustaining your program once the grant is over?

10. What is your overall opinion of the Get IT grant project and its certificate programs?

    Do you have any suggestions for improving the project?

11. Is there anything else you'd like to say about the project in general?

Year 3 Questions

1. Please describe your role in the Get IT project.

2. Can you describe how the project team works together?
   (**Probe**: *leadership, communication, administrative structure*)

3. To what extent is curriculum development complete?
   (**Probe**: *how it was selected/created/used, industry alignment, challenges, successes*)

4. How well have the new certificate programs been integrated into the existing IT, AGGP, and/or CPET programs?
   (**Probe**: *stackability, successes, challenges, revisions*)

5. Describe any new intake procedures (e.g., skills assessments) you are applying to students in the new certificate programs.

6. To what extent have the following new/revised practices been completed?
   - accelerated formats of programs
   - PLA processes
   - accelerated remediation (Summer Lynx program)
   - latticed programming
   - apprenticeships

7. Tell me about the contributions that partners have made or are planning to make to the program?
   (*Examples–employers, workforce agencies, external education providers, Game Assembly*)
   (**Probe**: *factors impacting involvement, challenges, successes*)

8. Describe any effects the grant activities (e.g., new programs, career guidance, other support services) are having on students.
   (**Probe:** *enrollment, retention, completion, employment*)

9. What resources acquired through the TAACCCT grant (e.g., equipment, additional staff) are most crucial to the success of Get IT project activities?
   (**Probe:** *marketing, teachers, student supports, equipment*)

   a. How will you continue activities after the grant ends?

10. What is your overall opinion of the Get IT grant project and its certificate programs?
    (**Probe:** *suggestions for improvement, overall impacts on the college*)

11. Is there anything else you'd like to say about the project in general?

APPENDIX D: EMPLOYER INTERVIEW PROTOCOLS

Year 2 Questions

1. To begin, please tell me a little about your company/organization.

2. Could you describe your involvement in the Get IT programs at NHTI?
   (Probe: new relationship or existing, advisory board, new labs, apprenticeships/internships)

   a. How have you been involved in curriculum development?

3. *ASK WHEN HIRING BEGINS* Have you hired any employees from these programs since 2015 (since the grant implementation started)?

   a. If yes, what can you say about their skills in comparison to past hires, or those hired who did not complete one of the new Get IT programs?

4. How do you think the programs will affect your organization/company?
   (Probe: hiring of workers, different employee skill sets, current employee training)

5. What are your future plans for involvement with the Get IT programs at NHTI?
   (Probe: curriculum development, hiring)

6. What is your overall opinion of the Get IT project?

   a. Do you have any suggestions for improving the project?

Is there anything else you'd like to say about the Get IT project at NHTI?

Year 3 Questions

1. To begin, please tell me a little about your company/organization.

2. Please describe your involvement in the *Get IT* programs at NHTI. (*ask a-b if not addressed in initial answer*)
   a. Are you on the Advisory Board? (*if no, skip to b*) Describe how the Advisory Board functions. (*probe: purpose, meeting frequency, interactions with other employers*) How satisfied are you with the board activities?
   b. Describe how you interact with current NHTI IT students, if at all (e.g., internships, student on-site visits, staff classroom visits).

3. Outside of the Advisory Board, what is your (and/or your company's) communication with the NHTI IT staff and faculty like? (*probe: frequency; purpose; THEN quality: successes; challenges*)

4. Did you assist with curriculum development? How so?

5. Have you hired any recent graduates of NHTI's IT programs? Have any of your current employees enrolled in IT courses or programs in the last three years? (*if no to both, skip to 6*)
   a. Do you find that the curriculum is preparing individuals with the appropriate skills for your workplace? In what ways? (*probe: what skills are present or lacking [technical and soft skills]; degree level preference [e.g., certificate vs. associate degree]*)

6. What are your future plans for involvement with NHTI's IT programs, staff, and faculty? (*probe: any changes needed to improve partnership, incumbent employee training*)

Is there anything else you'd like to say about the *Get IT* project at NHTI?

APPENDIX E: STUDENT FOCUS GROUP PROTOCOL

Questions

1. As I mentioned, we want to learn about your experiences in the *Get IT* program. To start off, I'd like to hear about your experiences enrolling in the program.
   (Probe: why did you pick it, how did you hear about it)

2. I know you all have different backgrounds and experiences. Did the college assess your skills or previous educational experience before you entered the program?
   (Probe: PLA, Interviews)

3. I'm interested in the different ways students are learning Information Technology. Can you describe the educational experience in this program?
   (Probe: online learning, hands-on classroom experience)

4. What is your opinion of the way your program is structured?
   (Probe: issues, benefits, hours, courses offered)

5. What are some of the ways your program is preparing you for a career in Information Technology?
   (Probe: skills, career guidance, internships, job search, interactions with local employers, certifications)

6. What aspect of the program is most important to your success?
   (Probe: hands-on experience, structure, curriculum, exposure to industry)

7. What are your plans once you leave your program?
   (Probe: credentials, employers, career path)

8. I'm interested to know what your perception of IT was before you entered the program?
   (Probe: changes in perception, desire to learn more)

9. What is your overall opinion of the program?
   (Probe: suggested changes)

10. What else would you like to share about your program that we haven't talked about?

APPENDIX F: PARTICIPANT QUESTIONNAIRE

Get IT NHTI TAACCCT Round 4
Participant Questionnaire

Email to potential respondents

Subject: NHTI Questionnaire

Hello,
Since you are a current or former student in an NHTI program that is part of a USDOL grant, I'd like to invite you to complete a brief questionnaire.

The purpose of this questionnaire is to help us better understand the programs at NHTI. Your feedback is important and will potentially help improve these programs.

Please answer the following questions as honestly as possible. The online form should take about 10 minutes to complete. After you have reviewed the Informed Consent information below, you may click this link to begin:

<Questionnaire link>

Thank you for your participation!

[*Name, title of sender*]

Informed Consent
Completing this questionnaire is not anticipated to pose any risk to you. Your participation is strictly voluntary and you may withdraw your participation at any time without penalty.

All information collected will be used for research purposes only. Because this questionnaire is anonymous, there will be no connection to you specifically in the results or in future publication of the results. If you have any questions, please contact the GetIT Project Coordinator, Lynn Szymanski, at lszymanski@ccsnh.edu.

Additionally, if you have any concerns about your treatment as a participant in this study, please contact Hezel Associates' external institutional review board (IRB), Solutions IRB, at participants@solutionsirb.com or 1.855.226.4472.

By clicking the questionnaire link above, you are verifying that you have read the explanation of the study, and that you agree to participate. You also understand that your participation in this study is strictly voluntary.

[Signature block]

Years 2 and 3 Get IT NHTI Participant Questionnaire

Thank you for participating in this survey! Hezel Associates is looking for feedback on the programs that are part of NHTI's USDOL grant funding. Your feedback will potentially help improve these programs.

This survey will take approximately 10 minutes. Be assured that your individual responses are confidential and will be reported only as part of group feedback.

1. **Are you 18 years of age or older?**
   o Yes
   o No *[Go to Termination Page]*
[Required question]

2. **Which best describes your work experience before you began your program?**
   o I did not have any prior work experience.
   o I had experience in a field similar to my program.
   o I had experience in an unrelated field.

3. **Before enrolling in your program, what was the highest level of education you completed?**
   o Completed some high school
   o High school diploma or equivalent
   o Some college
   o Earned a one-year (or less) certificate
   o Associate (2-year) degree
   o Bachelor's (4-year) degree
   o Master's degree
   o Doctoral degree
   o Other_____

4. **Upon enrollment in your program, did you receive credits for…**
   Check all that apply.
   o Prior education
   o Prior work experience
   o Military service
   o I did not have credits transfer into my program
   o Other _____
[Required question]
[If "I did not have credits transfer into my program," Go to Q5, others Q6]

5. Why did you not receive credits for prior learning and/or work experience?
  - o I did not attempt to receive any credits
  - o I attempted to receive credits, but I was not awarded any
  - o Other _____

[Required question]
[If "I did not attempt to receive any credits," Go to Q8]

6. How was your prior learning experience assessed? Check all that apply.
  - o American Council on Education (ACE)
  - o College-Level Examination Program (CLEP)
  - o Credit-by-examination
  - o Portfolio
  - o Transcript evaluation
  - o Unsure
  - o Other _____

7. Please indicate your level of agreement or disagreement with the following items regarding credits for prior education, work experience, or military service:

	Strongly disagree	Disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Agree	Strongly agree	Not appli-cable
NHTI's process of reviewing my previous education/work experience was easy to understand.								
NHTI's process of reviewing my previous education/work experience was efficient.								
My prior education/work experience was assessed in a fair manner.								
I believe I was awarded the appropriate amount of credits for my prior experience.								

8. Do/did you use Game Assembly?

o   Yes
o   No
o   Unsure

[Required question]
[If "No" or "Unsure" Go to Q10]

9. Please rate your level of satisfaction with Game Assembly, in terms of the following:

	Very dis-satisfied	Dis-satisfied	Somewhat dis-satisfied	Neither satisfied nor dissatisfied	Some-what satisfied	Satisfied	Very satisfied	Not appli-cable
Ease of signing up to use the space								
Convenience of location								
Opportunities to make connections with professionals outside of NHTI								

10. To what extent do you agree or disagree with the following statements about hardware and software used in your program and coursework?

	Strongly disagree	Disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Agree	Strongly agree	Not appli-cable
The hardware we use in the courses helps me apply and practice the concepts I learned.								
The software we use in the courses helps me apply and practice the concepts I learned.								
There is enough hardware available for all students to use.								
Software is available for all students to use.								
The hardware used in the program is similar to that in industry.								

	Strongly disagree	Disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Agree	Strongly agree	Not appli-cable
The software used in the program is similar to that in industry.								

11. Have you contacted or worked with a career counselor at NHTI during your program?
- o Yes
- o No
- o Unsure

12. Please rate your level of satisfaction with NHTI's career assistance, in terms of the following:

	Very dis-satisfied	Dis-satisfied	Somewhat dis-satisfied	Neither satisfied nor dissatisfied	Some-what satisfied	Satisfied	Very satisfied	Not appli-cable
Résumé assistance								
Interviewing advice								
Online career resources								
Communication about internship/ apprenticeship opportunities								
Communication about job openings								
Assistance with planning my further education								
Opportunities to make connections with professionals outside of NHTI								
Availability of career counselor								

13. During your time at NHTI, were you aware of internship and/or apprenticeship opportunities with local companies or organizations?
- o Yes
- o No
- o Unsure

14. As part of this program, did you participate or are you currently participating in an internship and/or apprenticeship?
- o Yes
- o No
- o Unsure

[Required question]
[If "No" or "Unsure," Go to Q16]

15. Do you think your internship and/or apprenticeship will help you get a job in the future (either at that company or another company)?
- o Yes
- o No
- o Unsure

16. What is your gender?
- o Male
- o Female
- o Prefer not to answer

17. Which of the following best describes you?
- o American Indian/Alaska Native
- o Asian
- o Black/African American
- o Hispanic/Latino
- o Native Hawaiian/Other Pacific Islander
- o White
- o Prefer not to answer
- o Other _____

18. Do any of the following apply to you?

	Yes	No	Unsure	Prefer not to answer
Pell Grant recipient				
Trade Adjustment Assistance (TAA)-eligible				
Veteran or Spouse eligible for Priority of Service				

19. What is your age? *Numeric responses only.*

_____

20. Please share any additional comments you may have about your experience with the programs and courses at NHTI:

_____

_____

_____

Year 4 Get IT NHTI Participant Questionnaire

Thank you for participating in this survey! Hezel Associates is looking for feedback on the programs that are part of NHTI's USDOL grant funding. Your feedback will potentially help improve these programs.

This survey will take approximately 10 minutes. Be assured that your individual responses are confidential and will be reported only as part of group feedback.

1. **Are you 18 years of age or older?**
   o Yes
   o No *[Go to Termination Page]*
   [Required question]

2. **Which best describes your work experience before you began your program?**
   o I did not have any prior work experience.
   o I had experience in a field similar to my program.
   o I had experience in an unrelated field.

3. **Before enrolling in your program, what was the highest level of education you completed?**
   o Completed some high school
   o High school diploma or equivalent
   o Some college
   o Earned a one-year (or less) certificate
   o Associate (2-year) degree
   o Bachelor's (4-year) degree
   o Master's degree
   o Doctoral degree
   o Other_____

4. **Since enrollment in your program, were you awarded credits for prior education, work experience, or military service?**
   o Yes
   o No
   o In progress
   o Unsure
   [Required question]
   [If "Yes" or "In progress," go to Q5; if "Yes" display Q5d]
   [If "No" or "Unsure," go to Q6]

5. **Please indicate your level of agreement or disagreement with the following items regarding credits for prior education, work experience, or military service:**

	Strongly disagree	Disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Agree	Strongly agree	Not appli-cable
NHTI's process of reviewing my previous education/work experience is easy to understand.								
NHTI's process of reviewing my previous education/work experience is efficient.								
Prior education/work experience is assessed in a fair manner.								
I believe I was awarded the appropriate amount of credits for my prior experience.								

6. **Do/did you participate in Mindful Communication courses?**
   o Yes
   o No
   o Unsure

[Required question]
[If "No" or "Unsure" go to Q11]

7. **Please rate your level of agreement with the following statements: As a result of my participation in the Mindful Communication course(s), …**

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I use writing and reading for inquiry, learning, thinking, and communicating.							
I notice and let go of the impulse to be reactive.							

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I have reduced my tendency to blame others during stressful situations.							
I use effective communication strategies to build cooperation during stressful interactions.							
I demonstrate non-judgment and patience when communicating.							
I demonstrate increased empathy.							

8. **As a result of participating in the Mindful Communication course(s), I am <u>more</u> likely to…** *Select all that apply.*
   o Actively listen to others
   o Be aware of emotions (both mine and others), and use that awareness to decide how to respond
   o Be respectful of others
   o Be thoughtful and responsive
   o Engage in conversations (e.g., one-on-one, in meetings, in class)
   o Establish and maintain good working relationships (e.g., personally, professionally, academically)
   o Give constructive criticism respectfully
   o Notice subtleties impacting communication as it occurs (e.g., your inner monologue, other people's nonverbal behavior)
   o Overcome setbacks (i.e., I have increased resilience)
   o Paraphrase and/or ask useful follow-up questions
   o Receive constructive criticism without being defensive
   o See things realistically without getting caught up in past events or "what-if's" about the future
   o Stay focused and engaged even when things are unpleasant, difficult, or challenging
   o Steer conversations back to important topics
   o Succeed in college

9. **As a result of participating in the Mindful Communication course(s), I am <u>less</u> likely to…** *Select all that apply.*
   o Be judgmental (of self or others)
   o Be reactive
   o Hold a grudge
   o Resort to blaming others
   o Stay stuck in my assumptions (e.g., about situations, people, projects)

10. As a result of participating in the Mindful Communication course(s), I have experienced the following: *Select all that apply.*
- o Improved ability to manage stressful events
- o Improved ability to manage unpleasant emotions
- o Increased confidence when seeking an internship
- o Increased confidence in general

11. To what extent do you agree or disagree with the following statements about hardware and software used in your program and coursework?

	Strongly disagree	Disagree	Some-what disagree	Neither agree nor disagree	Some-what agree	Agree	Strongly agree	Not appli-cable
The hardware we use in the courses helps me apply and practice the concepts I learned.								
The software we use in the courses helps me apply and practice the concepts I learned.								
There is enough hardware available for all students to use.								
Software is available for all students to use.								
The hardware used in the program is similar to that in industry.								
The software used in the program is similar to that in industry.								

12. Have you contacted or worked with a career counselor at NHTI during your program?
- o Yes
- o No
- o Unsure

13. Please rate your level of satisfaction with NHTI's career assistance, in terms of the following:

	Very dis-satisfied	Dis-satisfied	Somewhat dis-satisfied	Neither satisfied nor dissatisfied	Some-what satisfied	Satisfied	Very satisfied	Not appli-cable
Résumé assistance								
Interviewing advice								
Online career resources								
Communication about internship/ apprenticeship opportunities								
Communication about job openings								
Assistance with planning my further education								
Opportunities to make connections with professionals outside of NHTI								
Availability of career counselor								

14. During your time at NHTI, were you aware of internship and/or apprenticeship opportunities with local companies or organizations?
- o Yes
- o No
- o Unsure

15. As part of this program, did you participate or are you currently participating in an internship and/or apprenticeship?
- o Yes
- o No
- o Unsure

[Required question]
[If "No" or "Unsure," go to Q17]

16. Do you think your internship and/or apprenticeship will help you get a job in the future (either at that company or another company)?
- o Yes
- o No
- o Unsure

17. What is your gender?
- o Male
- o Female
- o Prefer not to answer

18. Which of the following best describes you? *Select all that apply.*
- o American Indian/Alaska Native
- o Asian
- o Black/African American
- o Hispanic/Latino
- o Native Hawaiian/Other Pacific Islander
- o White
- o Prefer not to answer
- o Other _____

19. Do any of the following apply to you?

	Yes	No	Unsure	Prefer not to answer
Pell Grant recipient				
Trade Adjustment Assistance (TAA)-eligible				
Veteran or Spouse eligible for Priority of Service				

20. What is your age? *Numeric responses only.*

_____

21. Please share any additional comments you may have about your experience with the programs and courses at NHTI:

APPENDIX G: COURSE REVIEW RUBRIC

Score	2	1	0	Not Enough Information	Non-TAACCCT (materials relevant to this category are not subject to CCBY)	Notes
Learning Objectives	• All appropriate learning objectives for students are included • Objectives are clear and directly related to the course and program	• Some appropriate learning objectives for students are included • Objectives are clear but vaguely related to the course and program	• Learning objectives for students are not included • Objectives are confusing or not related to the course and program	*NEI*	*NT*	
Course Support of and Alignment to Learning Objectives	• Course activities are always aligned to the learning objectives • Course materials are always aligned to the learning objectives	• Course activities are sometimes aligned to the learning objectives • Course materials are sometimes aligned to the learning objectives	• Course activities are not aligned to the learning objectives • Course materials are not aligned to the learning objectives	*NEI*	*NT*	
Sequencing of Course Content	• Course content is clearly presented in a logical order and format • Students have many opportunities to build upon their existing knowledge with new knowledge	• Course content is generally presented in a logical order and format • Students have some opportunities to build upon their existing knowledge with new knowledge	• Course content is not presented in a logical order and format • Students do not have opportunities to build upon their existing knowledge with new knowledge	*NEI*	*NT*	

Score	2	1	0	Not Enough Information	Non-TAACCCT (materials relevant to this category are not subject to CCBY)	Notes
Opportunities for Active Learning	• Many opportunities exist in the course for active/hands-on learning • Learners are always engaged in real-world problem solving • Learners are often given opportunities to apply their new knowledge	• Some opportunities exist in the course for active/hands-on learning • Learners are sometimes engaged in real-world problem solving • Learners are sometimes given opportunities to apply their new knowledge	• No opportunities exist in the course for active/hands-on learning • Learners are never engaged in real-world problem solving • Learners are never given opportunities to apply their new knowledge	*NEI*	*NT*	
Opportunities for Formative Feedback to Students	• Students often have the opportunity to perform or practice their new skills • Feedback is often provided to the students based on their performance	• Students sometimes have the opportunity to perform or practice their new skills • Feedback is sometimes provided to the students based on their performance	• Students never have the opportunity to perform or practice their new skills • Feedback is never provided to the students based on their performance	*NEI*	*NT*	

Score	2	1	0	Not Enough Information	Non-TAACCCT (materials relevant to this category are not subject to CCBY)	Notes
Summative Assessment of Learning	• Summative assessment (e.g., final project or assignment) exists • Assessment is aligned with all learning objectives • Assessment accurately evaluates all of students' newly gained knowledge	• Summative assessment (e.g., final project or assignment) exists • Assessment is aligned with some learning objectives • Assessment accurately evaluates some of students' newly gained knowledge	• Summative assessment (e.g., final project or assignment) does not exist • Assessment is not aligned with learning objectives • Assessment does not evaluate students' newly gained knowledge	*NEI*	*NT*	

APPENDIX H: PARTICIPANT QUESTIONNAIRE RESPONDENT CHARACTERISTICS

Characteristic	Number of Respondents		
	Year 2 (n = 13)	Year 3 (n = 81)	Year 4 (n = 133)
Gender			
Male	6	53	59
Female	5	14	59
Preferred not to answer	1	6	0
Ethnicity[a]			
American Indian or Alaska Native	0	0	0
Asian	0	3	7
Black or African American	0	1	7
Hispanic or Latino	0	1	2
Native Hawaiian or Pacific Islander	0	0	0
White	11	63	97
Other	0	0	1
Preferred not to answer	1	6	5
Pell recipient	5	26	40
TAA	0	0	0
Veteran	1	4	3
Age			
Minimum	19	18	18
Maximum	51	56	58
Mean (Standard Deviation)	30.3 (10.98)	27.0 (11.01)	22.6 (7.14)

Note. The total number of responses for each characteristic may not equal the reported *n*, as some respondents did not answer all questions.

[a] Respondents were able to choose more than one response.