



Heroes For Hire (H4H) Program Evaluation Final Report

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Executive Summary

Heroes for Hire Program Description and Activities

The Heroes for Hire (H4H) program was administered across a three-college consortium led by Mountwest Community and Technical College (Mountwest) with Southern West Virginia Community and Technical College (Southern) and Blue Ridge Community and Technical College (Blue Ridge). The H4H program sought to serve both trade-affected workers and veterans looking for middle-skills employment through skills upgrading and education, based on a needs assessment via Workforce West Virginia. Furthermore, the program also sought to identify transferrable skills in the veteran population and help articulate those skills into recognized civilian credentials aligned to in-demand jobs. The occupations targeted by the consortium were tailored to each individual college's job market, mainly encompassing the 38 industry-certified credentials across the healthcare industry sector as well as the manufacturing service industries. Four specific curriculum pathways within these fields included Health Information Management (Medical Billing and Coding), Health Professions (i.e., Patient Care Technician, EKG and Phlebotomy, EMT, and Paramedic Science), Chemical Technology, and Geospatial Technologies.

Providing support to H4H students both in the pre- and post-enrollment stages was founded on the work of Veterans Coordinators, college counselors, instructors, and prior learning assessment (PLA) services. Following veteran students' enrollment within H4H, the Veterans Coordinators at each institution identified potential transferrable skills and assisted veterans throughout their tenure at their respective college. Veterans Coordinators also provided assistance throughout the academic year in the forms of personal and academic advice, particularly as it related to life after military service. College counselors and instructors played a critical role assisting non-veteran students with similar activities as those done by Veterans Coordinators, particularly with in-class and out-of-class student support such as tutoring, mentoring, and professional networking. In many instances, instructors throughout the consortium leveraged their professional contacts in identifying potential job and internship opportunities for their students.

In line with the intent of the grant, appropriate equipment and supplies were purchased and used with a focus on addressing critical gaps in educational programming. In the H4H pathways, hands-on applied learning was an important element.

Additionally, the H4H program offered a variety of professional development for faculty and grant-funded staff throughout the life of the grant. These opportunities included attending national conferences, purchasing materials for enhancing existing pathways (new textbooks, EMT and paramedic simulators, and miscellaneous supplies in classrooms). Mountwest, as the lead institution, facilitated professional development at a consortium- and individual college-level based on the needs of grant staff and college faculty. The professional development funded through H4H was organized through a college and grant hybrid-funded position, the Professional Development and Training Coordinator. In addition to securing new professional

development opportunities for personnel, this position established new lines of communication between H4H staff, particularly by setting up monthly calls with all institutions.

Evaluation Design Summary

As a condition of the award, Mountwest implemented a third-party evaluation plan and hired a third-party evaluator, ICF Incorporated, LLC (ICF). ICF partnered with WorkED Consulting to conduct the program implementation study. ICF conducted both a longitudinal study of implementation and outcome data and conducted a comparison cohort impact study using a quasi-experimental, comparison cohort design to compare students in the H4H programs of study to students in comparable programs of study.

For the impact comparison study, the evaluation team used propensity score matching, created through a statistical model consisting of numerous demographic variables, to match each Pathway student with a similar Non-Pathway student. Between these two groups, the evaluation team compared academic progress, program participation and completion, as well as continuing education and employment outcomes.

The implementation study included annual site visits to the participating colleges, in-depth interviews with program staff and administration, and on-site data collection. Four areas of implementation were investigated through these methods:

1. **Curriculum selection, creation, and use.** How was the curriculum selected, used, or created?
2. **Program design, improvement, and delivery methods.** How were programs and program design improved or expanded using grant funds? What delivery methods were offered? How was the program administratively structured? What support services and other services were offered?
3. **Assessment tools and processes.** Was an in-depth assessment of participants' skills, abilities, and interests conducted, and how was it conducted? What assessment tools and processes were used? Who conducted the assessment? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided, and, if so, through what methods?
4. **Partner contributions.** What contributions did partners make? What factors contributed to partners' involvement or lack of involvement? Which contributions from partners were most critical to the success of the program and which contributions had less of an impact?

Implementation Findings

With regard to implementation area one, the implementation study revealed that out of the 24 credentials intended for expansion or creation across the three participating colleges, two were fully implemented, eight were implemented with high fidelity to design, six were partially

implemented, and seven were not implemented at all.¹ The evaluation team found that Mountwest, Southern, and Blue Ridge all now possess the capacity to implement online courses that meet required standards in a hybrid or fully online instructional model.

Investigation into the second implementation area—program design, improvement, and delivery methods—revealed that each site attempted to find an appropriate balance between dedicated personnel, resources and supplies, and professional development. Each college had a consistent program structure and delivery design. This included being led by an Institutional Lead with faculty engaged in curriculum and course development serving as the foundational structure. During interviews, staff and faculty reported that they understood their roles and responsibilities and had a clear vision for the project. However, both Mountwest and Southern had significant staff turnover during the course of the grant period, including new Institutional Leads. Staff reported that neither college had a formal onboarding process that updated new staff on grant progress, grant deliverables, and performance expectations. As a result, new staff had to learn on the job, which led to confusion. H4H program staff also collected evaluation forms following faculty and grant staff participation in professional development workshops. Examples of professional development activities included:

- Implementation of Quality Matters into online curriculum standards and development;
- How to ensure quality of data and use effectively to measure results and provide feedback;
- How to use technology to impact programs and results;
- Incorporation of PLA; and
- Best practices in enhanced student success.

In terms of the third implementation area, intake processes for the three colleges were straightforward and included procedures for non-veterans and veterans. For non-veterans, each college had a designated H4H career pathways advisor. Mountwest specifically tasked a single advisor who met with all students enrolled in health information technology (HIT), HCP, and geospatial technology (GST). Students enrolled in those career pathways were screened for Trade Adjustment Assistance Community College and Career Training (TAACCCT) eligibility and were entered as participants upon eligibility verification. If a veteran, the participant was referred to the Veterans Coordinator for further follow-up and assistance with class registration, prior learning assessment, and financial aid. Blue Ridge instituted a similar process. Academic counselors assigned to the H4H career pathways helped participants enroll in programs and progress. All veterans were served by the Veterans Coordinator who provided holistic services.

The fourth area of implementation investigated for this report found that Mountwest has examples of partner contributions and engagement (with Marshall University, the Federal Aviation Administration (FAA), employers, as well as Blue Ridge and Southern), but these partnerships are not actively managed, tracked, and results are not logged through a formalized relationship management process. Blue Ridge developed partnerships that provided participants with a broader array of services. Key relationships through the H4H project include the Veterans Administration, Workforce West Virginia, and employers. Southern established

¹ Of the 24 credentials created, the Healthcare Management AAS was identified as “not applicable” and not counted toward the final implementation rating count.

ongoing healthcare employer partnerships, including hospitals, ambulance companies, home health providers, and hospice care providers.

Impact and Outcomes Findings

In terms of numbers of students participating in pathways programs and other pre-identified program outcomes, the evaluation team found that H4H met or exceeded program goals (see Table ES.1). The only outcome target that the H4H program failed to meet was the total number of participants employed after completion of their program of study (note, however, that H4H exceeded the target number of students who were already employed and retained in employment after completing the program).

Table ES.1. Program Targets and Actual Performance, by Year and Outcome

Outcome Measure	Status	Year 1	Year 2	Year 3	Year 4	Total	Goal Status
1. Total Unique Participants Served	Target	63	60	104	N/A	227	✓
	Actual	131	391	450	N/A	972	Met
2. Total Number of Participants Completing a TAACCCT-funded Program of Study	Target	17	58	77	N/A	152	✓
	Actual	18	53	30	N/A	101	Met
3. Total Number of Participants Still Retained in Their Program of Study or Other TAACCCT-Funded Program	Target	26	19	26	N/A	71	✓
	Actual	0	129	381	N/A	510	Met
4. Total Number of Participants Completing Credit Hours	Target	63	60	104	N/A	227	✓
	Actual	122	171	116	N/A	409	Met
5. Total Number of Participants Earning Credentials	Target	22	61	83	N/A	166	✓
	Actual	18	66	32	N/A	116	Met
6. Total Number of Participants Enrolled in Further Education After TAACCCT-funded Program of Study Completion	Target	16	30	47	N/A	93	✓
	Actual	16	53	30	N/A	99	Met
7. Total Number of Participants Employed After TAACCCT-funded Program of Study Completion	Target	26	49	59	10	144	Target Unmet
	Actual	0	10	36	12	58	Target Unmet
8. Total Number of Participants Retained in Employment After Program of Study Completion	Target	23	42	54	8	127	✓
	Actual	0	19	109	34	162	Met
9. Total Number of Those Participants Employed at Enrollment (Incumbent Workers) Who Received a Wage Increase Post-Enrollment	Target	14	19	35	7	75	✓
	Actual	0	205	265	49	519	Met

When comparing pathways and matched non-pathways students, the evaluation team found that while pathways students tended to earn significantly more credit hours than their non-pathway counterparts (43.1 compared to 41.1) while retaining the same Grade Point Average (GPA) (approximately 2.7). In other words, pathways resulted in a faster to higher course load and faster accumulation of credit hours without a compensatory drop in GPA for participating students. Pathways students also tended to complete courses at a higher rate than did the matched control group. An inferential comparison of the completion rates between matched groups (Pathway rate=19.1, Non-Pathway=12.6) found the rates to be significantly different ($X^2=6.99$, $p=.00$), in favor of the Pathway group.

Program Sustainability and Recommendations

Several considerations for program sustainability should be noted as a result of this evaluation.

1. **Take a comprehensive approach to strengthening partnerships.** Partnerships between consortium colleges, other organizations, and the workforce development system in West Virginia lacks systematic processes and procedures. In response, the consortium could undertake a comprehensive approach to strengthening partnerships with collaborating organizations, as well as developing institutional processes by which partnership activities are organized and communicated across the consortium.
2. **Employ a focused approach to veterans services.** All three colleges employed focused approaches to providing program services to veterans. Though the approaches differ in some ways, it is still true that each site provided enhanced pathways and curricula designed to provide job-specific training and skills, as well as other support services for participating students. Future consortia (or, indeed, individual sites) that seek out veterans to participate in work-related training and support would do well to take a similarly focused approach.
3. **Coordinate assessment and certification roles across colleges.** A sustainable aspect of Mountwest's HIT pathway is the ability to serve students from other colleges in West Virginia and help them realize opportunities for industry certification through enrolling and testing in accredited institutions. Other colleges could employ this model, not necessarily by each independently building internal capacity to serve students from other colleges, but by coordinating enrollment, assessment, and accreditation roles among participating colleges.
4. **Develop systematic links between colleges and businesses.** Workforce development issues such as a geographically limited employer base, a lack of feedback from the business community regarding available jobs, and few direct ties to competencies and skills needed should be anticipated and planned for. Colleges (or groups of colleges) require a coordinated method of interacting and sharing information with the business community.
5. **Continue effective professional development.** A positive aspect of the H4H program was professional development opportunities provided for implementing staff. The professional development plan and associated activities reportedly had a positive impact on staff and faculty. As such, similarly structured professional development has the potential to have continued impacts beyond the grant period of performance.
6. **Coordinate skills assessments and employment assistance.** Programs like H4H could benefit from better coordination between colleges and Workforce West Virginia regarding participant skills assessments and employment assistance. The public workforce system in

each state typically offers assessments and employment assistance. Career readiness assessments are often seen as beneficial, especially when linked to a career readiness certification. H4H colleges and others should continue to explore positive working relationships with Workforce West Virginia and explore economies of scale regarding employment services or other student assistance where systems and services can be leveraged and not duplicative.

7. **Expand research and grant implementation capacity through existing staff.** Programs like H4H could benefit from further capacity building within and among colleges around data collection, management, and reporting. Designating existing institutional staff to manage the research agenda would build internal and consortia consistency across grants and promote quality data-tracking systems to support future growth and data use.

I. Introduction

West Virginia has ranked low among the states in educational attainment, notably so in the pursuing of career pathways that lead to stable employment that pays a living wage. The Heroes for Hire (H4H) program was funded through the Trade Adjustment Assistance Community College and Career Training (TAACCCT) program (Round 4) by the U.S. Department of Labor (USDOL) to provide institutions of higher learning with resources to expand and improve career pathway programs that increase employability and employment of unemployed and underemployed adults, including veterans.



1. Evaluation Overview

In 2014, Mountwest Community and Technical College (Mountwest) led a consortium application for, and was successfully awarded, a TAACCCT grant from USDOL. The H4H program is a three-member consortium award that targets veterans, trade-impacted workers, and dislocated workers in the coal mining industry, who need skills upgrades or current skills recognition in order to pursue jobs and careers in the fields of applied health, health information technology (HIT) and health information management (HIM), geospatial technology (GST), and chemical technology (CT). Blue Ridge Community and Technical College (Blue Ridge) and Southern West Virginia Community and Technical College (Southern) represent the other two member institutions of the consortium.

As a condition of the award, Mountwest implemented a third-party evaluation plan and hired a third-party evaluator, ICF Incorporated, LLC (ICF). ICF partnered with WorkED Consulting to conduct the program implementation study. ICF conducted both a longitudinal study of implementation and outcome data and conducted a comparison cohort study using a quasi-experimental, comparison cohort design to compare students in the H4H programs of study to students in comparable programs of study.

This final report compiles results of (1) the implementation study and (2) the outcome/impact study, submitted to the Mountwest Community and Technical College and its consortium leadership as the final requirement of the grant. The report presents longitudinal changes that have occurred in each institution through annual site visits, phone calls, document reviews, and follow-up staff interviews.

The objectives of this report are twofold. First, the report provides USDOL with results from initial implementation efforts that have occurred for each institution within the consortium. Second, the report provides USDOL information from descriptive analyses examining final outcomes for H4H participants.

2. Evaluation Methods

The evaluation of the H4H program includes two distinct but inter-related approaches. First, the evaluation team conducted an implementation evaluation to determine the extent to which stated program objectives were met and implementation processes followed in the three consortium sites.

Second, to estimate the impact of participating in the H4H program upon key outcomes compared to those of non-participants, the evaluation team used a quasi-experimental design (QED). Although an experimental design was not possible because program participation was not randomized, rigorous QEDs also permit estimation of project effectiveness (Shadish, Cook & Campbell, 2002). Propensity score matching (PSM) (Lunceford & Davidian, 2004; Zhao, 2004), a technique that helps to adjust for selection bias when randomization is not employed, was used to identify comparison group members (that is, TAA (trade adjustment assistance)-eligible individuals not participating in H4H) similar to treatment group members (TAA-eligible individuals participating in H4H); differences in the achievement of key outcomes among matched pairs of treatment and comparison group members can then be calculated.

3. Data Limitations

This evaluation provides a report of implementation and outcomes based on data provided by the consortium and collected through the consortium. Unfortunately, there were limitations to the data collected for this grant. First, the intake data collected is incomplete for many students, so that data was only partially useful. Next, ICF was not able to collect relevant certification exam scores or pass rates from relevant state and national administrative boards and associations. Additionally, while ICF collected partner data through National Student Clearinghouse and Workforce West Virginia to provide employment and retention data, there was no quantitative survey data reported by students to reflect on the impact of any student support services, employment, or their success during their program of study. Lastly, Matching methods based on propensity scores are not without limitations. The effectiveness of PSM depends critically on the quality of the data available. Unlike randomization, PSM can only reduce bias due to observed covariates, but cannot remove bias due to unobserved covariates, except to the extent that the unobservables are correlated with the observables. Thus, where causality is concerned, PSM can only approximate and that is dependent upon the quality of data, which in this case had a great deal of missingness in some places.

4. Data Sources

The program evaluation was organized around the use of multiple sources of data collection and mixed methods evaluation design.

- **Student Intake Forms.** The ICF team worked with Heroes program leaders and staff to develop student intake forms for treatment and comparison students that capture information not recorded in Banner student information systems. Data from student intake paperwork was collected in partnership with Heroes program leaders. This included information about program eligibility, past work and education experience, TAA-eligibility,

veteran status, current employment, occupation, wages at enrollment, and other relevant data points.

- ***Semi-Annual Site Visits and Staff Interviews.*** The evaluation team conducted annual site visits in Year 1, Year 2, Year 3, and Year 4 of the grant period of performance. The first visit was a kickoff meeting to establish the evaluation design and data collection procedures; implement ongoing communication processes; and review program milestones, goals, and deliverables. The second and third site visits, in September 2015 and May 2016, respectively, included interviews of program staff and administrators at all three consortium colleges. The fourth set of site visits was conducted in March of 2018, and the final set was completed the summer of 2018. The final site visits focused specifically on sustainability of curriculum and career pathways and the intensive veterans' services, which are a core focus of the program. During site visits, interviews were conducted with program staff and administration to understand both the implementation and impacts of H4H.
- ***Student Tracking Data.*** Each of the institutions collected student academic and demographic information (updated each semester), which the evaluation team compiled into a single master student tracking database.
- ***Program Documents.*** The evaluation team created and used a document review matrix to track key findings and program developments summarized from H4H monthly and quarterly reports, memos, course syllabi, marketing materials, individual program notes, as well as meeting notes and agendas. The evaluation team reviewed and analyzed these documents to assess the extent to which the project was implemented in relation to the original project plan.
- ***Workforce and Unemployment Insurance Data.*** We obtained workforce data from several sources to capture the full employment status of participating students and comparison students. We first consulted the H4H database for data provided through the consortium institutions' career services and faculty records. We accessed employment status and wage records through the state's employment data system.
- ***National Student Clearinghouse Student Tracker Data.*** ICF collaborated with Mountwest program staff to obtain data from the National Student Clearinghouse on any treatment and comparison students who enrolled in further education following their program of study. This data includes the name and location of the institution of study and, where available, the student's major or degree program.

5. Report Organization

This report is organized into five main sections: (1) Introduction, (2) Program Description, (3) H4H Program Implementation Study Findings, (4) H4H Outcome and Impact Study Findings, and (5) Program Sustainability and Recommendations. Within the Implementation Study Findings, each primary component includes promising practices, challenges, continuous improvement, and recommendations.

II. Program Description

1. Program Context

Mountwest, Blue Ridge, and Southern are three community and technical colleges in the West Virginia Community and Technical College system. All three colleges offer certificates and associate degrees in a number of fields of study, and provide a wide array of job training and education tied to local employers' needs for a skilled workforce. Mountwest and Southern are respectively located in the western and southern parts of West Virginia, regions decimated by unemployment in the coal industry. Blue Ridge sits on the eastern edge of the state and is home to various industries, and even serves as an outlying "bedroom community" for the Washington, DC metropolitan area.

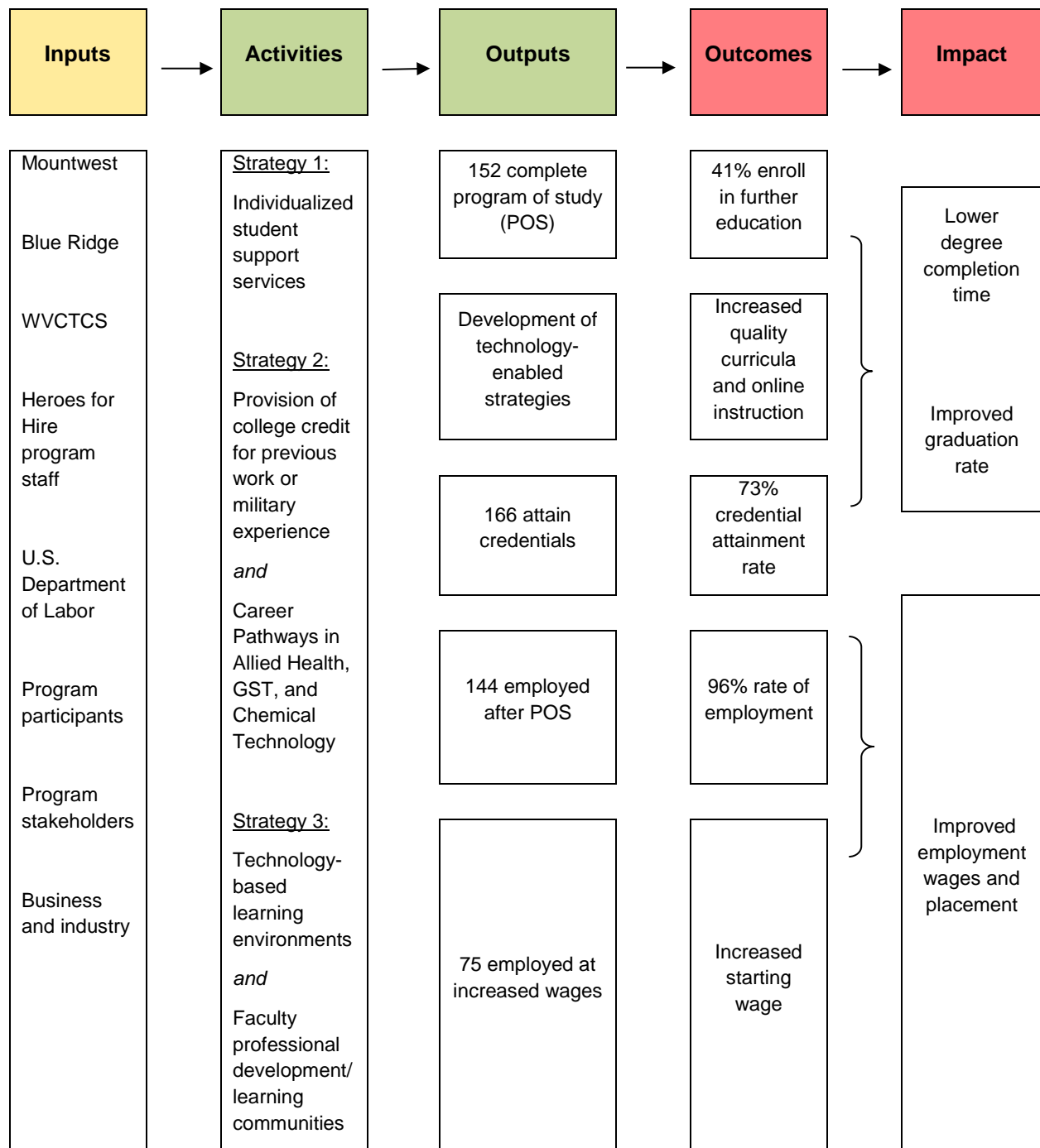
2. Heroes for Hire Program Purpose and Strategies

The H4H program was designed to be responsive to the TAACCCT program priority areas by addressing workforce needs in West Virginia. Prior to implementation, each college in the Heroes consortium identified Gaps in training programs and staffing. To address these gaps in training programs being offered, the consortium has interacted with the West Virginia Workforce Investment Board (WIB), regional employers, Workforce West Virginia (the state government agency that oversees the state unemployment insurance program), and veterans service and support organizations² to gain insight on employment trends and needs.

The H4H program builds on successful efforts to serve veterans in West Virginia by focusing services internally at each community college through the development of student support services and enhancing curriculum and pathways. The logic model provided a framework to guide the implementation analysis and act as a point of reference to define and assess the impact of the Heroes intervention program.

² Mountwest CTC Technical Proposal, submitted to U.S. Department of Labor

Exhibit 1. Heroes for Hire Program Logic Model



Assumptions: 1. Processes and activities may change and have effects on project outputs and outcomes. 2. Evaluators will monitor changes in participation as a result of project processes and activities across each cohort and types of students.

External Factors: Other activities and programs of study at the three colleges, employment conditions, industry outlooks, etc.

The program began with three main strategies supported by key activities and aligned to each strategy:

1. Offer student support services through “Veteran Success Centers” at each college focused on providing enhanced access to educational programs, veterans’ benefits and competency-based education and college credit.
2. Use prior learning assessments to provide prior work experience credit and improve career pathways in the target industries.
3. Enhance consortium-wide coordination and opportunities to collaborate on improving educational programming such as professional development, online and technology-based learning, and new curriculum development.

2.1 Strategy 1: Student Support Services

H4H support services are designed around a core of student success center professional services including *Veterans Coordinators* and *Faculty Advisors* as a central feature.

Veterans Coordinators are trained to advise veteran students in student success strategies and will work with each student to develop a personal success plan; facilitate access to academic, student, and financial services; promote positive interactions and a sense of community among participants; and help to coordinate work-based training opportunities.

Faculty Advisors are responsible for approving course substitutions and degree/certificate modifications. In the instance of prior learning assessment, Faculty Advisors assist in getting the student the right faculty member to review portfolios and/or provide testing required to assess subject mastery. Faculty work with the target population in the same capacity they work with other students.

2.2 Strategy 2: Implement Consistent Practices that Improve Educational Opportunities for Veterans and Dislocated Workers

H4H was designed to consistently implement practices that improve educational opportunities for veterans and dislocated workers in targeted industries. The consortium members developed and implemented a standardized and system-wide PLA program that assessed learning outside the classroom through student portfolios, recommendations based on corporate or military training programs, reviews by consortium faculty experts, and standardized exams. The most effective and accelerated path is determined through a degree-auditing process. The goal is to make PLA efforts more consistent and coherent across the three consortium colleges. In Year 1, consortium members began institutional PLA advancements to develop and share best practice protocols, expertise, and tools that were piloted in future years across the consortium. Across all institutions, H4H expanded career pathways in Allied Health, GIS, and Chemical Technology (see Table 2).

2.3 Strategy 3: Improve Educational Programming through Online and Technology-Based Learning and Professional Development

H4H program institutional efforts were enhanced by consortium-wide coordination and opportunities to collaborate on improving educational programming such as professional development and new curriculum development at each institution. During program implementation, consortium colleges piloted, shared findings, and adopted new blended technology-enabled teaching and learning strategies. These included “flipping the classroom”³ and other blended models whereby faculty incorporate simulation and e-learning tools to enable students to watch a lecture, view a related demonstration, and then perform the task themselves while being concurrently assessed. Contracted curriculum consultants—through consultation, training, and other professional development—supported H4H program faculty to develop high quality competency-based curriculum using best instructional practices for student engagement in traditional and online instruction.

III. H4H Program Implementation Analysis

The H4H program is designed to focus on providing veterans and dislocated workers with in-demand occupational opportunities in the growing industries of health information, health professions, geospatial technologies and chemical technology. The USDOL requires four program implementation areas that the evaluation team explored during document analysis, site visits, and interviews:⁴

1. **Curriculum selection, creation, and use.** How was the curriculum selected, used, or created?
2. **Program design and improvement and delivery methods.** How were programs and program design improved or expanded using grant funds? What delivery methods were offered? How was the program administratively structured? What support services and other services were offered?
3. **Assessment tools and processes.** Was an in-depth assessment of participants’ skills, abilities, and interests conducted, and how was it conducted? What assessment tools and processes were used? Who conducted the assessment? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided, and, if so, through what methods?
4. **Partner contributions.** What contributions did partners make? What factors contributed to partners’ involvement or lack of involvement? Which contributions from partners were most critical to the success of the program and which contributions had less of an impact?

³ A flipped classroom refers to introducing students to course material in advance of a class session; class time is then available to explore challenging concepts, address student questions, engage in active learning, and connect to “real life” situations (Stone, 2012).

⁴ See Appendix A.3 for the full site visit protocol.

H4H is delivering services and implementing structures according to these four implementation areas above. Thus, the evaluation approach taken here seeks to crosswalk the H4H strategies and key deliverables with the four USDOL-required areas of implementation to provide comprehensive and consistent information leading to sustainable practices and continuous improvement. As a consortium, the program strategies overlap as it relates to areas of program planning and development (see Table 1). The findings in this section reference and are organized by the four key program areas for operations and development spanning the project period of performance.

Table 1. Program Implementation Areas and Deliverables Used for Analysis

Program Implementation Areas of Inquiry and Key Deliverables	Research Questions from Evaluation Plan ⁵	Strategy
Curriculum Selection, Creation and Use <ul style="list-style-type: none"> • Career pathways in allied health, GIS, and chemical technology • Technology-based learning environments 	1. To what extent (and how) did the program use grant funds to develop or expanded curriculum as described in the proposal?	2 and 3
	2. Did the program use grant funds to implement online courses as described in the proposal?	
Program Design Improvements and Expansion <ul style="list-style-type: none"> • Career pathways in allied health, GIS, and chemical technology • Technology-based learning environments • Student support services • Faculty professional development/learning opportunities 	3. To what extent (and how) did the program use grant funds to hire required staff and personnel as described in the proposal?	1, 2, and 3
	4. To what extent (and how) did the program use grant funds to purchase equipment and supplies as described in the proposal?	
	5. To what extent (and how) did the program use grant funds to renovate facilities as described in the proposal?	
	6. To what extent (and how) did the program use grant funds to promote professional staff development as described in the proposal?	
	7. Did the program use grant funds to implement Heroes for Hire Success Centers as described in the proposal?	

⁵ The questions in the evaluation plan approved by the USDOL clarified the research questions that are mandated by the USDOL. The questions in this chart cover all the topics required in the program implementation analysis.

Program Implementation Areas of Inquiry and Key Deliverables	Research Questions from Evaluation Plan ⁵	Strategy
Assessment Tools and Processes <ul style="list-style-type: none"> • Student support services • Provision of college credit for previous work or military experience 	8. Did the program use grant funds to implement the intake and referral processes as described in the proposal?	1 and 2
Partner Contributions <ul style="list-style-type: none"> • Student support services • Prior learning assessment, transferability, and articulation 	9. Did the program use grant funds to develop or expand partnerships and collaborations as described in the proposal?	2 and 3
	10. Did the program promote transferability and articulation?	

1. Implementation Area 1: Curriculum Selection, Creation, and Utilization

The following implementation study questions are aligned with this primary area of inquiry:

1. *To what extent (and how) did the program use grant funds to develop or expand curriculum as described in the proposal?*
2. *Did the program use grant funds to implement online courses as described in the proposal?*

1.1 Career Pathways Development and Expansion

A core focus of the H4H project was the development of curricula and courses that bolstered career pathways connected to employment in each of the colleges’ service regions. In some cases, the curricula for the career pathways already existed, and therefore funds were used for curricula and course enhancement or for purchasing equipment that improved course and program delivery. Final implementation status was coded to represent the extent to which each institution met the associated pathway implementation, as indicated (measured as low, medium, or high). Fidelity outcomes of career pathways development fall into one of three implementation categories:

1. High Implementation: Career pathways development and expansion occurred as designed;
2. Partial Implementation: Career pathway development did not transpire as intended; or
3. Low Implementation: Career pathway development did not occur.

For each of the career pathways identified below, the appropriate category is indicated with a justification and discussion included.

At the onset of the H4H program, four general career pathways were identified by the three community and technical colleges involved: 1) Health Professions, 2) Health Information

Management (HIM), 3) Geospatial Science and Technology, and 4) Chemical Technology. Table 2 summarizes the implementation rating as described above.

Table 2. H4H Programs of Study, Credentials, Awarding Colleges, and Implementation Ratings by Pathway

Pathway	Program of Study	Credential	Awarding College	Implementation Rating
HIM	Health Information Management	AAS	Blue Ridge	High Implementation
	Medical Billing and Coding	Certificate	Blue Ridge	High Implementation
	Health Information Management	Certificate	Southern	Partial Implementation
Chemical Technology⁶	Chemical Operations Technician	Certificate	Blue Ridge	High Implementation
	Chemical Operations Technician	AAS	Blue Ridge	High Implementation
Health Professions	HIM (Health Informatics)	AAS	Mountwest	Low Implementation
	EKG – part of Patient Care Tech.	Certification	Mountwest	Low Implementation
	Phlebotomy – part of PCT	Certification	Mountwest	Low Implementation
	Paramedic Science	AAS	Mountwest	High Implementation
	Patient Care Technician (PCT)	Certification	Mountwest	Partial Implementation
	EMT	Certification	Mountwest	High Implementation
	HIT	AAS	Mountwest	High Implementation
	Certified Coding Specialist – part of HIT	Certificate	Mountwest	High Implementation
	Medical Scribe	Certificate	Mountwest	Low Implementation
	Healthcare Management	AAS	Mountwest	Not Applicable
Geospatial Science and	Applied Science	AAS	Mountwest	High Implementation
	ArcGIS Desktop	Certification	Mountwest	Partial Implementation
	ArcGIS Desktop Certification	Certification	Mountwest	Partial Implementation

⁶ During the project, Blue Ridge CTC “broadened” this pathway to “Laboratory Technology,” allowing them to connect to a larger number of occupations and employers.

Pathway	Program of Study	Credential	Awarding College	Implementation Rating
Technology (GST)	ArcGIS Desktop Developer Certification	Certification	Mountwest	Partial Implementation
	Web Application Developer Certification	Certification	Mountwest	Partial Implementation
	Enterprise Geodatabase Management Certification	Certification	Mountwest	Low Implementation
	Enterprise System Design Certification	Certification	Mountwest	Low Implementation
	Enterprise Administration Certification	Certification	Mountwest	Low Implementation
	Information Technology - Geospatial Science and Technology Concentration	AAS	Mountwest	High Implementation

Each of the three consortium colleges implemented one or more of these pathways, and created, modified, and/or improved specific curriculum required either to obtain industry accreditation, meet state or regional certification or accreditation requirements, or align with regional occupational demand. Each H4H career pathways implementation and curricula development is described next.

1.1.1 Health Professions

TAACCCT funds assisted Mountwest with improvements in the health professions career pathways. At the onset of the H4H program, the third-party evaluation team worked with Mountwest staff to identify ten health professions options. Updates on these options were documented in subsequent reports. However, during the latter half of the H4H period of performance, these options either did not materialize as H4H pathways or participant demand was low, so the options were not a focus.

1. **Health Information Management (HIM) was partially implemented** as part of the H4H grant. HIM was initially included in the grant application as an H4H pathway to be developed/expanded. Although staff were initially hired to develop the pathway, after further consideration, HIM was not part of the final implementation. However, Mountwest received a state grant for development of what was to become a modified version of the HIM, now known as the Health Informatics program. While H4H funds were used to identify initial staff, H4H funds did not contribute to final development of Health Informatics.

2. ***Patient Care Technician (PCT) was partially implemented*** as part of the H4H grant. It was developed as a 9-credit hour class and certification with a 60-hour internship requirement. Staff reported that the development of this curriculum was in response to industry demand for front-line healthcare workers who are flexible and can provide point-of-service assistance. However, prior to the fall semester in August 2017, Mountwest made the decision to discontinue the pathway in response to lack of student interest, and students undertaking the PCT pathway did not qualify for financial aid. Since that decision, a local hospital has requested resumption of the program, and Mountwest has agreed to enroll students this fall, meaning it is being sustained due to employer support.
3. ***Emergency Management Technician (EMT)/Paramedic Science was implemented*** as part of the H4H grant. EMT was an existing Associate of Applied Science (AAS) degree when H4H was initially implemented. The main enhancement to the curriculum was the purchase of the Ambulance Simulator, which allows participants to experience a virtual simulation of an accident or other type of response required by paramedics. The Ambulance Simulator has allowed Instructors to teach while also assessing competencies required to pass paramedic licensing exams. EMT and paramedic science faculty members also noted the indirect impact the Ambulance Simulator has had on marketing to potential new students, stating that “It’s flashy and people like it, so it’s always in the forefront of all the tours.” In addition to the Ambulance Simulator, grant funding purchased mannequins, paid for instructor time, and funded EMT and paramedic science faculty to attend a wide range of conferences, notably the National Association of Emergency Medical Service Educators (NAMSE), and the EMS Today and EMS World conferences.

Most of the participants entering the Paramedic Science pathway are existing EMTs in the field who are looking to upgrade skills and become paramedics, which requires mastery of higher skills, and jobs typically come with higher wages. Mountwest’s Paramedic Science program is three semesters, and curriculum is driven by state and national standards and regulations.

Another outcome as a result of H4H funding was the creation and teaching of a Community Paramedic Course, which was a single, non-credit course designed to work with providers, assisted living facilities staff, and others to teach ways to triage patients to prevent readmittance to hospitals. Enrollment was not high, and because it was not a core focus of curriculum enhancements, it was only offered one time.

4. ***Health Information Technology (HIT)*** is a 62-credit hour AAS pathway with main improvements consisting of (1) updating curriculum to meet national industry standards, and (2) embedding a new industry-recognized credential as part of the pathway. Using the national industry standards of the American Health Information Management Association (AHIMA), and its affiliate Commission on Certification for Health Informatics and Information

Management (CCHIIM)⁷, Mountwest continually ensured that its curriculum was updated with the latest medical coding terminology and implemented an enhanced, 40-hour Certified Coder certification. Faculty members interviewed as part of site visits noted that the H4H grant played a key role in purchasing new textbooks annually for the HIT program, a necessary and significant expense for medical terminology-based courses.

Further, Mountwest is CCHIIM-accredited, meaning participants finishing the HIT AAS degree can test for the industry-recognized Registered Health Information Technician (RHIT) certification or other AHIMA industry-recognized certifications. This CCHIIM accreditation is a critical component of Mountwest's career pathway because (1) the RHIT is an employer-recognized certification that qualifies individuals for higher-paying work, and (2) other colleges in the H4H consortium and in West Virginia are not CCHIIM-accredited. As such, health information students receiving associate degrees can also enroll at Mountwest and sit for the AHIMA certification tests. CCHIIM accreditation has very high standards (e.g., requiring two full-time health information faculty) and is therefore cost-prohibitive and onerous for some colleges to achieve.

5. **The Certified Coder certification** was initially a 30-hour certification, but Mountwest increased it to 40 hours to ensure participants would be able to work effectively in medical coding. In addition to revamping the curriculum for the coding certificate, staff noted the restructured alignment between lecture and lab. According to one staff member, *"We had a class in a lab and we aligned it all into one. They're not separate anymore. We've done that with two classes. We've aligned the lab with the actual lecture portion."* The improvements made to the coding certificate using H4H funds were seen as an important step in preparing students for local demand in healthcare coding.⁸

Therefore, a sustainable aspect of Mountwest's HIT pathway is the ability to serve students from other colleges in West Virginia, and help them realize opportunities for industry certification, through enrolling and testing in an AHIMA-accredited institution.

6. **Medical Scribe Certification (MSC) was not implemented** as part of the H4H grant. It was intended to be a new certification available through Mountwest. However, Mountwest did not implement, and there was not a demand for this certification by employers.
7. **Healthcare Management was not implemented** as part of the H4H grant.
8. **Nursing certification was not implemented** as part of the H4H grant. It was initially included in the grant application as an H4H pathway to be developed/expanded, but after

⁷ CCHIIM is an AHIMA commission dedicated to assuring the competency of professionals practicing health information management/technology.

⁸ This is particularly true following the announcement of a new VA medical center established in Huntington, West Virginia. The new medical center, according to staff, created 40 new coding positions in spring 2018 and were highly advertised by staff to coding students.

further consideration was not part of the final implementation. Mountwest did implement a new articulation agreement to a Bachelor of Science in Nursing (BSN); however, that articulation agreement activity occurred outside of the H4H program, and no nursing participants were included in the H4H program.

9. ***Phlebotomy and EKG certifications were not implemented*** as part of the H4H grant.

1.1.2 **Geospatial Science and Technology (GST)**

TAACCCT funds assisted Mountwest with improvements in the career pathways of Geospatial Science and Technology. GST is a new career pathway created by Mountwest using TAACCCT funds. The development of this pathway has realized great successes and experienced some challenges.

1. ***GST AAS IT degree program was implemented as intended.*** The applied science AAS program was never integrated into the grant. A key driver of the development of the GST program has been the efforts of the Geospatial Program Coordinator (GPC), who is also lead faculty member. Additionally, TAACCCT grant funds were instrumental in purchasing the technology needed to create and operate the GST AAS IT and certification programs. Examples of critical technology teaching infrastructure include drones that allow students to learn and use digital imaging and extract information and animation and gaming simulations and processes that expose students to real-world applications. Furthermore, all GIS and GST courses offered all curriculum components online to students. By hiring an external consultant who had already developed GIS courses online before the program started, the online course was offered to students during the first year of implementation. Despite the availability of the courses being offered online, both students and faculty recognized that it is a field that requires hands-on learning and one-on-one interaction between student and instructor. According to one individual, *“GIS is a lot easier to understand when you actually have somebody there to sort of walk you through it, answer any questions you might have about it. The online courses, I felt, were a bit less effective.”* In terms of sustainability of the GST pathway, Mountwest has recently received a \$220,000 state grant to further develop a Drone Technology program, which is an offspring of the GST program and may become the core program in this technology area.
2. In mapping of the GIS AAS degree pathway, ***seven certificate programs were included as certifications but only partially implemented:*** ArcGIS Desktop, ArcGIS Desktop Certification, ArcGIS Desktop Developer Certification, Web Application Developer Certification, Enterprise Geodatabase Management Certification, Enterprise Administration Certification, and Enterprise System Design Certification. The GPC created these seven GST courses in order to complete a full, two-year associate degree pathway. Despite the overall success of the GIS course implementation, it was noted that challenges in understanding the curriculum and materials used for program implementation took time to understand, as many materials including the syllabi were missing in the transition to the new GPC. Therefore, for students to obtain any of these certifications, they needed further education than corresponded to the H4H offered in this grant.

1.1.3 Health Information Management (HIM)

HIM career pathways incorporate options for participants at both Southern and Blue Ridge. Updates on these options were documented in subsequent reports. However, during the latter half of the H4H period of performance, these options at Southern were further incorporated at Mountwest.

Southern. The focus of Southern's curriculum development and implementation was the HIM pathway. The pathway did not exist prior to the TAACCCT program, thus its creation was an opportunity to align with national industry standards, though funding represented a significant investment in new curriculum.

1. Health Information Management pathway was partially implemented at Southern as intended. Southern designed a two-year HIM associate degree program, including a fully developed online HIM option. During the grant period of performance, Southern had two cohorts of students enter and complete the HIM program. However, during the final year of the grant period of performance, Southern made the strategic decision to integrate the HIM pathway curriculum and course development into two other college pathways: (1) Medical Assisting (MA), and (2) Health Care Professions (HCP). This will impact the sustainability of an associate degree-level program for obvious reasons.

Justifications for integrating courses and curriculum versus continuing an independent associate degree pathway include low projected enrollment, employment forecasting that recognizes a local labor market where positions are limited, unattainable accreditation requirements by AHIMA/CCHIIM, and redundant courses and pathways among the MA, HCP, Office Medical Administration, and the new HIM pathway. The Office Medical Administration pathway is also collapsing into the MA and HCP pathways. The AHIMA/CCHIIM accreditation standard that requires two full-time, credentialed faculty be maintained by Southern to offer industry-recognized credentials, such as the RHIT, renders the program financially non-viable due to projected student demand and employment opportunities in the community, according to Southern's analysis. Southern reports that 24 total students are projected to complete the HIM associate degree program during the grant period of performance.

Southern program staff report that faculty are in the process of integrating and updating the MA and HCP pathways with the appropriately developed HIM curriculum. Investments in both classroom and online course and curriculum development will be sustained through the MA and HCP pathways, and both pathways offer alternatives for employment in the community in hospitals, medical facilities, and doctors' offices.

To help students gain opportunities for receipt of AHIMA/CCHIIM credentials—particularly the RHIT—program participants are in the process on enrolling at Mountwest and testing for credentials while obtaining a second associate degree.

In addition to full associate degree tracks, Southern offers "Skill Sets," which are bundled courses that focus on job-specific skills. Skill Sets may be 12-16 credit hours, and certificates can be earned at 30 credit hours. These shorter-term training opportunities offer students a chance at expanded skills, new employment, or higher paying employment.

Southern staff recognize that employers may not fully recognize Skill Sets as meeting

minimum qualifications for entry into employment. However, the college is committed to working closely with employers to educate them about the potential benefits of these bundled courses.

Blue Ridge. Blue Ridge has also developed an associate degree-level HIM career pathway with the TAACCCT grant funds.

1. *Health Information Management (HIM) AAS degree pathway was implemented as intended.* Prior to the H4H program, Blue Ridge had a HCP Medical Billing and Coding general program that had not been upgraded to incorporate new best practices. The rationale for development of a full HIM pathway was to incorporate national standards and the provision of an up-to-date skilled workforce aligned with employers. Specifically, an important component to Blue Ridge's HIM pathway development was alignment with AHIMA/CCHIIM national industry standards and use of AHIMA/CCHIIM nationally-recognized industry credentials, including the RHIT certification. Prior to the end of the grant period of performance, Blue Ridge hosted AHIMA/CCHIIM on a required site visit. Blue Ridge is using leveraged funds to ensure that accreditation is reached, and the RHIT credential can be offered on a sustainable basis. Blue Ridge also has arranged with Mountwest for pathway participants to have an option of enrolling at Mountwest and testing for the RHIT credential.

2. *Medical Billing and Coding certificate was implemented as intended.* In addition to building the associate degree HIM pathway, Blue Ridge has developed a shorter "Certificate Degree for Medical Coding Specialist" pathway. Blue Ridge has tied this certificate directly to the occupational area of Medical Coding Specialists, who "review patients' records and assign alphanumeric codes for each diagnosis and procedure codes performed by the medical provider." This targeted, shorter-term training option directly addresses regional employers' needs for workers who can perform medical coding, but who may not need the full associate degree to obtain and retain employment.

Blue Ridge staff and faculty report they have received significant employer buy-in for the HIM program. According to faculty, employers provided significant feedback as part of the curriculum and course development process. Additionally, Blue Ridge conducted an employer feasibility study at the onset of the curriculum development process and found that employment opportunities did exist for an HIM-trained workforce. Employers also provide externship opportunities for participants to receive on-the-job exposure to HIM while in college. This form of "work and learn" provides comprehensive exposure and skill-building opportunities for participants.

1.1.4 Laboratory Technology

Laboratory Technology (LTEC), the second associate degree-level pathway, was originally identified as "Chemical Technology," but was modified to be the "Applied Laboratory Technology Program" pathway. An outreach flyer developed by Blue Ridge staff identifies five occupational roles that a Laboratory Technician conducts, including monitoring certain processes and maintaining laboratory instruments and equipment. In theory, the program

exposes participants to a wider array of occupations and skills, as well as developing the laboratory workers that employers demand.

1. *Laboratory Technology AAS degree was implemented as intended.*

Starting in 2014, Blue Ridge has developed the associate degree-level career pathway LTech, an expanded version of the original Chemical Technology pathway and was created due to employer feedback. Employers drove the development of the curriculum and program structure. Faculty and staff report that employers, such as Ecolab, and employer intermediaries, such as Leadership Berkeley, pressed Blue Ridge to develop a program that ensured both quality assurance and “hands-on” experience in the laboratory technician environment. The TAACCCT grant allowed Blue Ridge to be responsive to these demands.⁹

2. The *Chemical Technology certificate was implemented as intended.* The Chemical Technology certificate, CMCS, supports the LTech AAS career pathways at Blue Ridge which feeds into a general studies four-year Bachelor’s degree at Shepard University.

1.2 Online Course Delivery and Technology-Enabled Instruction

The most significant increase in capacity and capability, with regard to online course delivery from TAACCCT funding, came through the focus on implementation of Quality Matters (QM) due to professional development provided under the H4H project. The mission of Quality Matters is to:

“Promote and improve the quality of online education and student learning nationally and internationally through:

1. Development of current, research-supported, and practice-based quality standards and appropriate evaluation tools and procedures.
2. Recognition of expertise in online education quality assurance and evaluation.
3. Fostering a culture of continuous improvement by integrating QM standards and processes into organizational plans to improve the quality of online education.
4. Providing professional development in the use of rubrics, tools, and practices to improve the quality of online education.
5. Peer review and certification of quality in online education.”¹⁰

The Quality Matters implementation process signifies that Mountwest, Southern, and Blue Ridge all now possess the capacity to implement online courses that meet required standards.

Specifically, with regard to online course development at each of the three institutions, deliverables were met with some exceptions. At Mountwest, the GST program was developed as fully online and courses taught online. An online curriculum became crucial as the GPC moved outside a daily, commutable distance to Mountwest, so to continue the program and

⁹ Fortuitously, one large company built a major facility in the Blue Ridge service region during the grant period of performance which underscored the importance of this pathway.

¹⁰ <https://www.qualitymatters.org/why-quality-matters/about-qm>

participant progression, the GPC taught online and came to campus one day per week during the last year of the grant period of performance.

The HIT program at Mountwest is also fully online. However, the Paramedic Science program is not consistently available online and was admittedly not a faculty priority. A cohort of students from the Parkersburg area did take courses online, which allowed them to complete the program. Faculty reported challenges in capacity to teach, conduct outreach to employers and students, assist students with labs and simulations, and be available to teach online courses. Because most of the students work as EMTs, faculty face the additional pressure of accommodating work schedules, work requirements, and time commitments.

As Southern developed the HIM pathway, courses were created as both classroom and online. Although the program will not continue as a stand-alone HIM pathway, courses in the Health Professions pathway will have an online option, subject to faculty availability.

Blue Ridge's HIT and LTech pathways both have online components. While students have the option, the LTech program also has important in-person lab requirements so students can receive hands-on training. In both pathways, the online component works more effectively under a hybrid teaching model, than a stand-alone online.

1.3 Promising Practices: Pathway, Course, and Curriculum Development

Creating additional pathways like the GST program in a blended learning format at Mountwest utilized new and existing relationships, ultimately encouraging Pathway students to continue their education at other institutions. The newly created GIS program at Mountwest offers a new type of expertise that is applicable to varying career fields. The heightened importance of identifying future demands in drone technology was viewed by many staff members as critical, and according to one respondent, *"the amount of resources that were spent on the GIS program in the long run will probably be the most long-lasting."*

Embedded within the IT degree program, the GIS program offers a one-year certificate of completion after earning 30 credit hours, as well as an associate degree after completing 60 credit hours.¹¹ Additionally, there are three types of certifications offered, including desktop, developer, and enterprise, through the Environmental Systems Research Institute (ESRI), a leading GIS software company.¹² With the GIS program at Mountwest only offering desktop-compatible courses for students, the number of certifications feasible to be earned by students is limited to the desktop classification. Furthermore, within the desktop certification, there are three different experience levels (entry, associate, and professional) that are offered, with a recommended minimum of two years' experience prior to completing the entry-level desktop certification. According to one individual, *"The students in [GIS] can only possibly pass this one entry-level GIS certification because they're not even prepared [by the instructor], nor do we have the time to do all the other ones."* Despite the current limitations of earning more credentials in the GIS field, Mountwest has leveraged new and existing professional relationships in creating two-plus-two articulation agreements that foster further education by

¹¹ The GIS certificate of completion is not an official industry-accredited credential.

¹² <https://www.esri.com/en-us/home>

encouraging GIS students to attend four-year universities. Many staff members recognize that potential careers in GIS require four-year degrees, in addition to industry-recognized certifications. According to one respondent, *“In this area, geospatial jobs are not that prevalent. Really to get a job in GIS right now, you almost have to have a bachelor’s degree....If you come out with a Bachelor in Science in it you’re going to get a really good job.”*

All courses under the GIS program were developed to be offered online and supplemental to the more traditional in-class setting, which began in Fall 2016. To create the blended learning approach, H4H contracted with an external consultant who had already created video tutorials for GIS courses. According to one interview participant, *“He did all of the video lectures...the tutorials and everything else. That’s all of the online content that we have that we present to the students.”* Although the online components of the GIS program were fully offered to students, it was noted by one student that *“GIS is a lot easier to understand when you actually have somebody there to sort of walk you through it, answer any questions you might have about it....The online courses, I felt, were a bit less effective.”* To further benefit the GIS program, H4H funds were used to purchase and renovate a mobile GIS lab, which was used to house various types of equipment and drones used in the courses.

1.4 Challenges: Pathway, Course, and Curriculum Development

Some program planning did account for an understanding of industry credentialing requirements and overall occupational opportunities in the region.

Perhaps the greatest career pathway challenge was the implementation of Health Information Technology/Management programs at each of the three colleges. While curricula and courses were implemented well, many staff and faculty were not aware of onerous accreditation requirements by AHIMA/CCHIIM. In addition, an adequate labor market analysis was not conducted at the time of project development and the actual number of job opportunities in more rural labor markets made it hard to justify costs of program sustainability. For future program development, it will be critical that colleges understand how to conduct and indeed undertake the appropriate analysis regarding industry credentialing and alignment with labor demand.

Colleges have not consistently formalized business engagement strategies and operate programs without full and thorough employer commitment.

A constant challenge for workforce development professionals is whether to react to employer demand or balance reactivity with proactive approaches that anticipate employer demand and build anticipated talent pipelines. Mountwest’s GST program is an example of this challenge. Occupations at the associate degree-level in the Mountwest service region are sparse. Therefore, while building an important STEM pathway, Mountwest did not realize the labor market outcomes associated with building an in-demand pathway. At present, the GST program may be a more likely transfer program to Marshall University where a bachelor’s degree is needed for GST-related employment.

Further, Mountwest is faced with the challenge that it does not have institutional processes in place that make business engagement a continuous, consistent, and value-added activity. It is not clear who is ultimately responsible for business engagement and there do not seem to be any individual organizational performance metrics around this activity. As a result, some faculty

members may have relationships with particular employers, but the institution as a whole is unable to fully benefit from piecemeal relationships.

Southern's main challenge was a complete unawareness of AHIMA/CCHIIM accreditation requirements at the onset of the grant. As a result, program planning did not anticipate "running out of time" for participants to receive industry-recognized credentials, such as the RHIT. Leadership, staff, and faculty members must be realistic and strategic when considering education, training, and labor market outcomes, given that the region Southern serves has limited job opportunities.

Blue Ridge has a more mature and robust business engagement process in place. In addition, having some critical employers, such as Proctor and Gamble and EcoLab, within their service region has helped the college with pathway development and employment connections. The greatest challenge for Blue Ridge staff and faculty is that the capacity they have built exceeds current participant enrollment. Staff and faculty report they have slots for 90–100 students in the pathway at any time while current enrollment stands at approximately 46 students. Going forward, Blue Ridge staff hope to enroll 30–40 students per year and they expressed their belief that the community has the capacity to employ students at this rate.

1.5 Continuous Improvement and Program Recommendations

1. **Document decisions made on curriculum and career pathways implementation.** Each of the three institutions had varying degrees of "course corrections" with regard to pathway development and course/curriculum implementation. For instance, Mountwest has significantly bolstered its HIT, Paramedic Science, and GST career pathways, while others fell outside the scope of H4H or were not pursued at all. Southern conducted a cost-benefit analysis of the HIM pathway and decided to integrate developed courses into the HCP and MA programs. This analysis should be made transparent to the public and institution. Blue Ridge expanded the LTech pathway and developed easy-to-understand outreach materials so prospective students and the public understand what "LTech is." Going forward, each institution should improve transparency and develop or bolster communication mechanisms for why decisions on pathways and curriculum are made. At the onset of an initiative, each institution should ensure that appropriate diligence has been conducted regarding labor market analysis, industry credentialing requirements and alignment, and involvement of all impacted personnel in the vision and development of new programming.
2. **Implement employer partnership management and business engagement principles.** Mountwest should formalize a business engagement strategy and set of practices at the institutional level. A recurring theme was a lack of feedback from the business community regarding available jobs, direct ties to competencies and skills needed, and documentation at the institution of employer engagement activities. (Who is talking to whom and what type of relationship does Mountwest have with an employer?) Strategies and activities should be formalized as part of a workforce development and organizational structuring initiative.

Southern has a geographically limited employer base, so it is even more incumbent that they are involved in a continual process of labor market analysis and understanding of competencies needed by employers. For example, Southern staff are not certain that local

employers understand or recognize Skill Sets when presented by a prospective employee. As Southern realigns its HIM/MA/HCP pathways, Skills Sets, and credentials, it is important to inform and engage local employers in understanding the array of skills, competencies, and credentials provided to various students. This will assist in more seamless transitions to new or higher wage employment.

Blue Ridge has more mature business engagement practices in place but has a number of different staff engaging business without coordinating at times. For example, one employee works with employers to develop HIT externships, while another employee works with the same employer on career readiness and entry into employment. While they may be working with different staff at the employer, at the institutional level, Blue Ridge should consider implementing a customer relationship-management system to increase employee awareness of partnership activities.

3. ***Improve strategic management and communication around articulation among institutions.*** Mountwest providing an opportunity for articulation of their AHIMA/CCHIIM accreditation with Southern and Blue Ridge is a very positive example of institutional partners working to better opportunities for students. However, decisions were made at Southern without adequate program planning and communication with Mountwest, which led to student confusion and consternation. Improved program planning and communication in the future can mitigate the need for crisis management.
4. ***Finalize AHIMA/CCHIM accreditation process and understand future national industry accreditation and certification processes.*** Blue Ridge is committed to hosting the CCHIIM site visit and obtaining AHIMA/CCHIM accreditation, even using non-grant funds. This activity is critical to complete and is a core deliverable: Blue Ridge students can test for and receive the nationally-recognized RHIT certification. Institutions should begin processes to learn about and engage national industry associations in key program areas. As other grant opportunities are pursued, college staff and faculty will need to ensure they understand the opportunities, processes, and ramifications of partnering with business and industry partners and the processes those potential partners employ.

2. Implementation Area 2: Program Design Improvements and Expansion

The following implementation study questions are aligned with this primary area of inquiry:

1. *To what extent (and how) did the program use grant funds to hire required staff and personnel as described in the proposal?*
2. *To what extent (and how) the program use grant funds to purchase equipment and supplies as described in the proposal?*
3. *To what extent (and how) did the program use grant funds to renovate facilities as described in the proposal?*
4. *To what extent (and how) did the program use grant funds to promote professional staff development as described in the proposal?*

5. *Did the program use grant funds to implement H4H Success Centers as described in the proposal?*

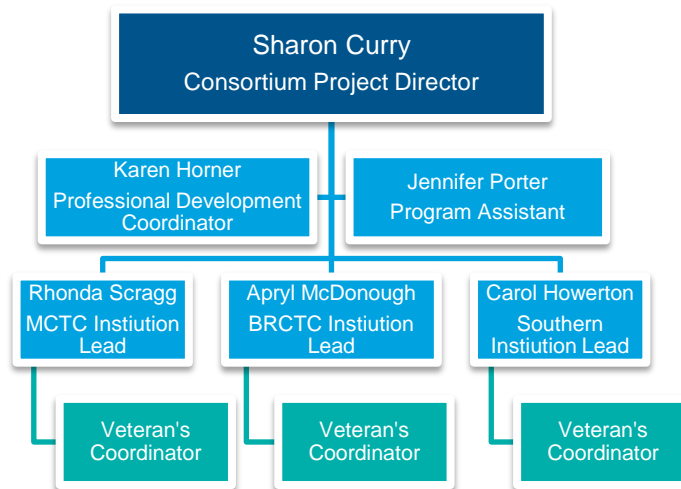
2.1 Required Staff and Personnel

At the consortium level, the H4H program funded a Consortium Director, a Professional Development Coordinator, and three Veterans Coordinators—one for each college. The Consortium Director managed overall program operations and reporting, the Professional Development Coordinator implemented professional development opportunities for staff and faculty, and the Veterans Coordinators focused on veterans' support services to facilitate persistence and completion rates for veterans. In addition to each institutional Veterans Coordinator, Mountwest hired a consortium-level Veterans Advisor. These positions were all hired in Year 1 of the grant period, and the Professional Development Coordinator focused on individual colleges' needs as well as those of the consortium as a whole, while the Veterans Coordinators developed service-delivery models and strategies for each institution and made community connections to support comprehensive veterans' services.

Each college had a consistent program structure and delivery design. This included being led by an Institutional Lead with faculty engaged in curriculum and course development serving as the foundational structure. During interviews, staff and faculty reported that they understood their roles and responsibilities and had a clear vision for the project. However, both Mountwest and Southern had significant staff turnover during the course of the grant period, including new Institutional Leads. Staff reported that neither college had a formal onboarding process that updated new staff on grant progress, grant deliverables, and performance expectations. As a result, new staff had to learn on the job, which led to confusion.

Consortium communication consisted of monthly conference calls, ad hoc conference calls for specific issues or topics, and annual meetings. A Consortium Steering Committee—a specific project deliverable—was never formed. While program staff employed under the grant indicated a strong understanding of the project design and activities and were kept current on information, other staff and faculty suggested that more communication would have been helpful. The project, specifically at Mountwest and Southern, could have been more of an “institutional effort” as opposed to a defined project operating within a certain part of the college.

Exhibit 2. Consortium-level Staff and Personnel



2.2 Equipment and Supplies

In line with the intent of the grant, appropriate equipment and supplies were purchased and used with a focus on addressing critical gaps in educational programming. In the H4H pathways, hands-on applied learning was an important element. As noted earlier, H4H colleges purchased equipment, such as the Ambulance Simulator and GST technology that has practical applications in the workforce and improved classroom learning. Grant funds were used for small renovations at Blue Ridge to improve classroom and lab space for Laboratory Technology to provide exposure to a wide array of instruments and lab techniques, and structural purchases like desks and chairs.

Blue Ridge created a computer lab for their HIM pathway which included: renovating of office space, purchasing of computer equipment and outfitting the lab with HIM software. This software was purchased specifically to align with the professional level software used in hospitals. Every state has a specific program used in hospitals and according to the program lead, “*West Virginia uses EPIC which is not something colleges can have so we had to buy a similar system that students can use.*” The purchase worked to help students learn how to use the EPIC advanced coding for outpatient and insurance services.

2.1 Professional Development

Throughout the H4H implementation period, the consortium had utilized monetary and other supports to provide consortium faculty and program staff with a variety of professional development. As part of the H4H evaluation, ICF staff conducted a document review to categorize and analyze 784 documents that were uploaded to Team Works by consortium staff at Mountwest, a secure online repository of grant materials. These documents helped provide an overview of the H4H consortium’s program implementation and effort in a variety of areas.

As shown in the Figure 1, the documents were classified into eight categories, representing various areas of H4H program implementation. More than a quarter (29%) of documents were time and expense records by H4H-funded positions, followed by meeting agendas and notes

(21%). The other category includes deliverable items such as extant data and financial records. Figure 2 shows the participation was highest amongst Mountwest faculty and staff (81%), followed by Blue Ridge (20%) and then Southern (15%).

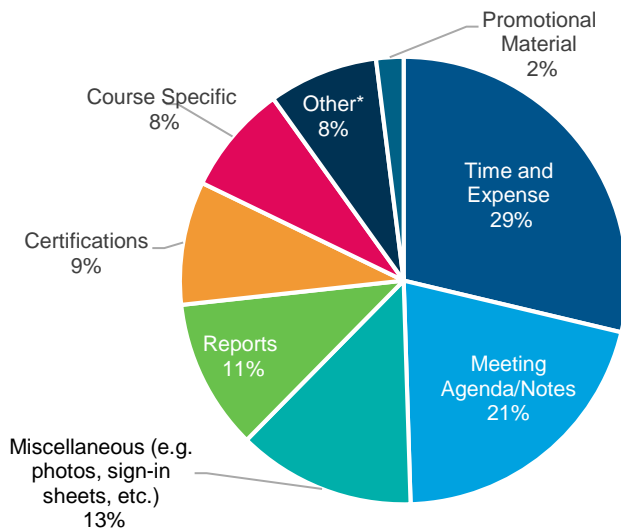


FIGURE 1. DOCUMENT REVIEW CATEGORIES

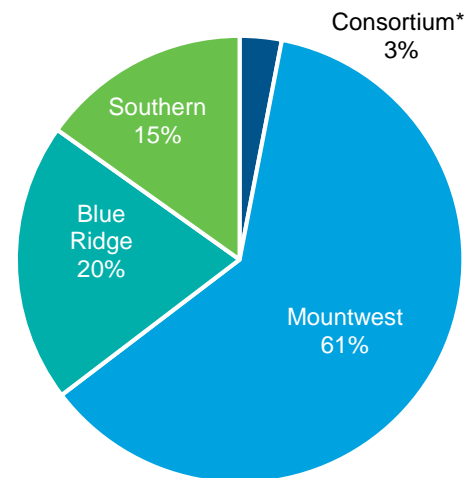


FIGURE 2. INSTITUTIONAL PARTICIPATION

A primary component of the document review includes the analysis of various professional development opportunities through the examination of evaluation forms completed by participants. H4H program staff collect evaluation forms following faculty and grant staff participation. Since the period of performance midpoint, the Professional Development Coordinator held a series of workshops and events with topics based on needs identified by consortium staff and faculty. Examples of professional development activities included:

- Implementation of Quality Matters into online curriculum standards and development;
- How to ensure quality of data and use effectively to measure results and provide feedback;
- How to use technology to impact programs and results;
- Incorporation of prior learning assessment; and
- Best practices in enhanced student success.

Participants who attended professional development events using grant funds were asked to complete conference report forms where they were asked to provide an overview of the event, as well as indicate one or more of the four topics that they could have learned

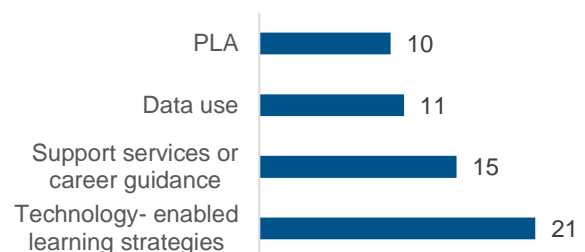


FIGURE 4. PROFESSIONAL DEVELOPMENT PARTICIPATION BY TOPIC

more information about.¹³ Of the 36 conference report forms collected, the most learned topic included technology-enabled learning strategies.

Many of the professional development opportunities were reported by participants as being useful in their daily responsibilities and to their institution. According to one respondent, *“It [EMS World Expo] aligned directly with the online course development component of the grant and our development of the community paramedic program [within the college].”* In addition to professional development topics that may already have an established process within institutions; other topics such as online and hybrid learning were also offered to faculty and grant staff. When asked how the UAV training will support their role within the college, one respondent said that it will help them *“offer more courses in an online and hybrid model, and to help them [respondent] serve as a backup for other instructors.”*

For some of the professional development trainings offered, particularly the CAEL and Quality Matters, participants earned certifications upon completion. According to the document review, 59 participants across the consortium earned a certificate, with more than half (53%) of those participants representing Mountwest, the lead institution.

2.2 H4H (Veterans) Success Centers

The initial concept of a physical “Success Center” evolved to incorporate service delivery strategies that were most effective in serving veterans. All three colleges provided physical space for veterans, but the Veterans Coordinators described these spaces as a “lounge” or small “resource center” where veterans can go for information or to take a break from daily activities.

As stated earlier, each college hired a Veterans Coordinator with specific responsibilities for serving veteran participants. Though each Coordinator ended up defining their own college-specific tasks and service-delivery strategies, activities can be categorized into one of three areas:

1. Assisting with financial aid benefits and paying for college;
2. Assisting with other community supports needed to progress in the career pathway; and
3. Assisting with prior learning assessment and gaining college credits based on military experience and skills acquisition.

Assisting with financial aid benefits and demystifying VA forms and processes has been a core role of the Veterans Coordinators. Often, a Veteran’s Representative will sit at a computer with a student and help to fill out forms and submit them online. This is a clear example of promoting access and persistence to education and training for veterans. At each of the three H4H colleges, financial aid and registration staff work closely with the Veterans Coordinator to coordinate enrollment and benefits for veteran students. This is certainly a process improvement as the Veterans Coordinators have become “one-stop shops” within the colleges for veteran students.

¹³ Topics include 1) data use, 2) prior learning assessment, 3) technology-enabled learning strategies, and 4) support services or career guidance.

Veterans Coordinators have assisted veterans with myriad issues beyond education and training and have served as links to additional community resources. At Southern, two community veterans' representatives indicated that having a single person to interact with at the college helped provide veterans with necessary services. Veterans Coordinators indicated housing, transportation, medical care (especially for Post-Traumatic Stress and other mental health issues), and other issues are coordinated through external organizations. Several college and community events and initiatives were held, including "Veteran Services Recognition Week" and "Today in History," along with supporting development of a Student Veterans Club. Veterans' Coordinators utilized a "Coins" initiative as a means to connect to a military tradition while honoring student success among veteran students.

At each of the three colleges, the Veterans Coordinator played a key role in helping veterans receive college credit for military experience. This effort was led by Mountwest where the Veterans Coordinator has created an Excel spreadsheet that crosswalks veterans' military transcripts with the college catalog. The Coordinator reviews a participant's military transcript and formally makes recommendations to the College Registrar for college credit articulation. At Southern, the Veterans Coordinator worked closely with his counterpart at Mountwest and, during the grant period of performance, became an active part of the review and credit recommendation process. At Blue Ridge, the Veterans Coordinator is not as involved in prior learning assessment, as Blue Ridge has very clear and seamless PLA processes in place, but she did ensure that veterans were accessing the process and receiving the help needed.

2.3 Promising Practices: Program Administration and Staffing

Professional development designed to create more efficient and effective service delivery was one of the cornerstones of the H4H program model. The Professional Development Coordinator spent the first half of the grant period identifying professional development needs from each of the three colleges and organizing professional development activities to address them. Based on continuous improvement recommendations made by the evaluation team, the Professional Development Coordinator designed a professional development plan and implemented strategic professional development activities.

As stated in interviews, this approach had a positive impact on the knowledge, skills, and abilities of staff and faculty. Some professional development activities were designed for consortium-level learning and development, while others were tailored to specific institutional needs. Overall the faculty who attended these conferences found them to be very helpful and worthwhile, with one faculty member mentioning, "We've had travel money before, but to really be able to travel to multiple conferences...with the implementation of the [H4H] grant, of the equipment, of the ability to travel and get continuing education, we've seen our enrollment increase, and our student success rate increase."

2.3 Challenges: Program Administration and Staffing

Grant staff were not always aware of their roles or performance outcomes. Due to turnover, particularly in the Institution Lead positions, institutionalization of procedures related to grant-funded projects did not materialize. Grant funded staff did not receive a briefing or

participate in any formal on-boarding process to learn about grant targets, current grant challenges, successes, outcomes expected, or expected deliverables. This caused confusion and delays in achieving certain deliverables.

Within colleges, communication and updates on the grant project with staff and faculty not directly involved in the project was lacking. An emerging theme from site interviews was that staff and faculty were not always aware of grant activities, progress, and accomplishments. Some felt that they were only contacted when a problem emerged.

Students participating in the Success Center activities were Veterans and most often not participants in an H4H pathway. This outcome made it challenging to assess the value of the Success Center as a key component for the defined intervention pathway. Thus, although veteran students and their dependents were direct recipients of the student support services offered, pathway students were less likely to be veteran or dependents.

Connecting veterans' services to impact proved difficult. Significant progress was admittedly made in defining the role of the Veterans Coordinators, and they each undertook many positive activities on behalf of, and with, veterans. However, there is little data or documentation as to which activities actually produced positive outcomes beyond anecdotal evidence. As a result, when making decisions on sustainability of practices to serve veterans and the future roles of the Veterans Coordinator, college executives have access little to no data with which to base decisions.

The Consortium Steering Committee was never formed. A deliverable of the grant was to form a Consortium Steering Committee. While not a key determinant of the ultimate success of the H4H project, having the Committee would have fostered enhanced communication among stakeholders at each of the three colleges.

2.4 Continuous Improvement and Program Recommendations

1. ***For future grant-funded projects, have processes and communication mechanisms in place to utilize upon award.*** Colleges should think of each grant project as a hub of innovation whereby new processes, programs, and/or policies can be tried and tested and successful ones sustained. However, in order to implement effectively and timely, each college should ensure it has the human resources, onboarding, and communication mechanisms and expectations in place for new personnel to “hit the ground running.” College administration should incorporate formal reporting mechanisms so grant project leadership can provide periodic updates to the entire Cabinet and promote communication throughout the institution.
2. ***Develop outcomes and performance metrics for veterans' staff.*** The focus on serving veterans is a good example of needing to connect activities to outcomes—to be able to assess what service interventions (if any) had the most meaningful impact to veterans. Further, the approach to serving veterans could be applied to other target populations, so it is important to have the data to conduct cost-benefit analyses (or other analyses) that may improve service delivery. As colleges continue employing veterans' staff, they should seek

to isolate the most impactful activities to improve efficiency in serving veterans and use lessons learned in serving other target populations.

3. **Implement ongoing professional development.** The professional development plan and associated activities had a positive impact on staff and faculty work and allowed the colleges to implement Quality Matters and PLA. Therefore, professional development has sustainable impacts beyond the grant period of performance. Colleges should continue professional development processes that continue similar positive impacts.

3. Implementation Area 3: Assessment Tools and Processes

The following implementation study question is aligned with this primary area of inquiry:

1. *Did the program use grant funds to implement the intake and referral processes as described in the proposal?*

3.1 Intake, Referral, and Assessment

Intake processes for the three colleges were straightforward and included procedures for non-veterans and veterans. For non-veterans, each college had a designated H4H career pathways advisor. Mountwest specifically tasked a single advisor who met with all students enrolled in HIT, HCP, and GST. Students enrolled in those career pathways were screened for TAACCCT eligibility and were entered as participants upon eligibility verification. If a veteran, the participant was referred to the Veterans Coordinator for further follow-up and assistance with class registration, prior learning assessment, and financial aid. Blue Ridge instituted a similar process. Academic counselors assigned to the H4H career pathways helped participants enroll in programs and progress. All veterans were served by the Veterans Coordinator who provided holistic services. At Southern, given a relatively smaller student body and a single pathway, staff worked directly to recruit people into HIT. Southern grant staff, however, were stationed at satellite campuses and consequently did not have many participants to serve. Meanwhile, other staff were serving participants with academic counseling at the main campus in Logan. This created inherent inefficiencies in serving participants and underutilization of grant staff.

For the final year of the grant, Blue Ridge had additional career counseling grant-funded resources. A career counselor hired under the Round 3 TAACCCT grant transitioned to serving H4H participants during the final year and assisted participants with resume writing, interviewing skills, and referrals to employers. In most instances, faculty provided the main career counseling and outreach to employers on behalf of participants (particularly at Mountwest and Southern). As participants were close to finishing programs, faculty would provide insights and help on how to obtain employment upon completion of the career pathway. However, at Mountwest and Southern, specific outcomes around occupational attainment were a shared expectation, not a specific focus on any one person's job.

Each of the three consortium colleges prioritized implementation of PLA, and this was one of the significant outcomes of the H4H project. The H4H Project Manager at Blue Ridge was also the lead for implementation of PLA at Blue Ridge, as well as coordinated efforts throughout the entire West Virginia system. Blue Ridge focused on expansion of recognized methods of

awarding credit for prior and experiential learning. Likewise, Mountwest continued and improved upon a policy that allows faculty to both award and apply credit for prior learning that can dramatically accelerate time to completion for participants. Southern also implemented PLA, but at a more rudimentary level.

Consistent with new and continuing PLA policies and procedures, all three colleges focused providing credit to veterans through evaluation of military transcripts and application of appropriate credit on the college transcript. These policies and processes will continue after the grant and are examples of sustainable practices that positively contribute to student success.

3.2 Promising Practices: Intake and Assessment

Veterans’ intake efforts were expanded through the use of Heroes funding and program efforts. Veterans Coordinators at Southern and Blue Ridge reported improved strategies and networking opportunities through the consortium veterans’ learning community. Through this network and sharing of strategies such as green zone training and “one stop’ servicing, Blue Ridge and Southern coordinators served at least 150 veterans during the grant cycle, using new strategies gained from the grant’s veteran recruitment and intake efforts.

Blue Ridge reported serving 93 veteran students with current semesters falling between Fall 2015 and Spring 2018. Table 3 shows the demographic background of these 93 students served, where nearly three quarters were male, more than two-thirds were White, nearly 90% were not Hispanic, and 50% were Pell eligible. None of these students reported having a disability.

Table 3 provides some descriptive statistics on several variables for these same students, including their mean age of 36 (with a minimum of 18 and maximum of 59), the mean GPA and number of credit hours they had at enrollment, and the latest cumulative GPA and credit hours available. We can see that GPAs remained stable from enrollment until current, while the mean number of credit hours increased substantially.

Table 3. Student Descriptive Statistics

Measure	n	n Missing	Mean	Median	Minimum	Maximum
Age	93	0	36.2	33.0	18.0	59.0
Enrolled GPA	86	7	2.45	2.67	0.00	4.00
Enrolled Credit Hours	86	7	8.5	9.0	0.0	19.0
Cumulative GPA	90	3	2.40	2.58	0.00	4.00
Cumulative Credit Hours	90	3	31.3	23.5	0.0	104.0

Blue Ridge veteran students enrolled in a wide array of degree programs, the most popular being HCP (n=13), following by LIBA (n=12) and CYBR (n=7). Eighteen (20%) of the 93 students reported a secondary major where LIBA was the most popular (n=7). Thirty-seven (39.7%) were reported to have already graduated from at least one degree program during the current semester of data available (or prior to that time). Fifteen of the 37 students graduated

from the Board Of Governors Associate (BOGA) and/or the General Education (GENS) program, with the remaining students graduating from an array of programs (Note: some students graduated from two programs on the same date).

Blue Ridge also provided a longitudinal file of degree completion data, which included listing of multiple degrees in the same semester, including the attainment of certificates. Of the 56 students that graduated, 24 completed an Associate of Applied Science (AAS), 4 completed the Associate of Arts (AA), 4 completed an Associate of Science (AS) degree, and 24 earned a certificate. Of those credentials, BOGA and GENS were the programs most frequently completed (with 16 BOGA AAS credentials and 18 GENS certificates).

Southern provided data points for 78 veteran students and, out of these, 26 students graduated, and each was classified into a separate veteran status—60 were Active Wartime or Campaign Badge veterans, 2 were not a protected veteran, and 16 were protected veterans. Nineteen of the 78 were enrolled in the Healthcare Professional AAS program, followed by 14 in the University Transfer AA degree program and 8 in the Nursing AA degree program. Of the 26 students who graduated, 5 completed the Nursing AAS degree program, 4 completed the Information Technology AAS degree program, 3 completed the University Transfer AA degree program, and 3 more completed the Health Care Professional AAS degree program.

3.3 Challenges: Intake and Assessment

Career service activities were not formalized. While participants received help preparing for jobs, this activity was not systemically coordinated within an institution. Further, none of the colleges had a formal relationship with, or used, Workforce West Virginia and employment resources. This was reportedly often due to difficulties establishing a role for Workforce West Virginia and having them follow through in that role.

Up-front skills assessments were not utilized. Colleges typically utilized a standard test such as Accuplacer, ACT, or SAT as a barometer of college preparedness. However, these tests are more adept at demonstrating math and literacy competency, not specific workforce skills or aptitudes for certain jobs. The selection and deployment of a recognized workforce competency test or instrument may have helped colleges assess participant preparedness for certain pathways and career fields.

3.4 Continuous Improvement and Program Recommendations

1. **All three H4H colleges should build upon positive progress made with prior learning assessment.** Each college made significant strides in the implementation of, and use of, PLA as a tool for student success. Professional development time and resources were dedicated to the endeavor. H4H colleges should continue the progress, implement better tracking, and seek to be peer mentors or help implement PLA as a West Virginia community and technical college system moving forward.
2. **Develop a focus and process for career services.** Blue Ridge has a focused Career Services Coordinator who is meeting with employers, working to create job opportunities, counseling students, and coordinating with faculty. This more formalized approach to career

services could be broadened and utilized at all H4H colleges. Resources could be focused on career pathways that lead to occupational opportunities in communities.

3. ***Better coordination with Workforce West Virginia regarding participant skills assessment and employment assistance is appropriate.*** The public workforce system in each state typically offers assessments and employment assistance. Tools such as Test for Adult Basic Education (TABE) and ACT WorkKeys are often seen as beneficial, especially when linked to a career readiness certification. H4H colleges and others should continue to explore positive, working relationships with Workforce West Virginia and explore economies of scale regarding employment services or other student assistance where systems and services can be leveraged and not duplicative.

4. Implementation Area 4: Partner Expansion and Collaboration

The following implementation study questions are aligned with this primary area of inquiry:

1. *Did this program use grant funds to develop or expand partnerships and collaborations as described in the proposal?*
2. *Did the program promote transferability and articulation?*

4.1 Partnership Expansion and Collaboration and Articulation

Mountwest has examples of partner contributions and engagement, but, as stated earlier, these partnerships are not actively managed, tracked, and results are not logged through a formalized relationship management process. Examples of positive partnership efforts include:

- **Marshall University.** Mountwest signed a new articulation agreement with Marshall enabling students of the Geospatial Science and Technology program to transfer to a Bachelor's-level pathway. This particular achievement stemmed from the GPC leveraging her contacts at Marshall University by contacting her old GIS professor at Marshall University. Additionally, multiple public presentations at civic meetings and employer work locations were held, as well as on-campus presentations to employers and educators concerning the new program. Mountwest received Federal Aviation Administration (FAA) approval for use of the drones for instruction, and the GPC trained for FAA approval through a commercial process since the FAA does not have specific certification for educators. While a robust GST program was created at Mountwest, the development of occupational opportunities directly tied to the AAS degree has been a challenge. Though job families increasingly use geospatial technology, Mountwest has not been able to develop a concrete job pipeline within its regional labor market. Hence, the articulation to Marshall is important, as it affords students an opportunity to gain additional education and training with greater promise of higher-paying employment than would be the case with an AAS degree.
- **Employers.** Mountwest staff conducted employer engagement activities, such as gaining curriculum feedback through Employer Advisory Committees. Concurrently, individual faculty members in various program areas communicated with employers to gain insights and provide program updates. However, Mountwest lacked a systemic method for

accounting and tracking employer engagement; thus, the impact of employers on the H4H program remains challenging to measure.

- **Southern and Blue Ridge.** As consortium lead, Mountwest assumed responsibility for managing the grant project and, over time, the college's leadership progressed as well. Examples of improved consortium coordination, led by Mountwest, include veterans' services and coordination, professional development coordination, and sharing of best practices (e.g., PLA).
- **Community College of the Air Force (CCAF).** Mountwest staff worked with the CCAF to provide an opportunity for 14 veterans to enroll at Mountwest and obtain their Board of Governors degree.

Blue Ridge developed partnerships that provided participants with a broader array of services. Key relationships through the H4H project include:

- **Veterans Administration (VA).** Blue Ridge staff coordinated closely with the local VA to ensure that veterans received benefits they were entitled to. Referrals from Blue Ridge to the VA were conducted when appropriate for individual veterans.
- **Workforce West Virginia.** Blue Ridge and local workforce system provider Workforce West Virginia coordinated career services for participants. For instance, both Blue Ridge and Workforce WV provided referrals for career fairs hosted by each organization. Each organization is participating in the Martinsburg's Chamber of Commerce Workforce Development Committee and heard directly from employers on needed programs and services.
- **Employers.** Blue Ridge's H4H TAACCCT application resulted from working with local employers to develop career pathways and curricula in Laboratory Technology and Health Information Management. Blue Ridge faculty and staff reported that these partnerships grew and increased in importance, owing to occupational expansion and new employers moving to the Martinsburg area. Employers screened and hired candidates, provided input into curriculum development, and provided feedback on technology changes.

Southern established ongoing healthcare employer partnerships, including hospitals, ambulance companies, home health providers, and hospice care providers.

- **Employers.** Southern incorporated transcription skills into curricula because prospective employees needed to document patient records thoroughly and completely. Southern developed the labs and courses in alignment with industry standards and local employer requirements for a skilled workforce.
- **Veterans Community Organizations,** Southern strengthened relationships with Veterans Community Organizations due to improved communication and understanding of available resources for veteran students. Housing assistance, transportation, and medical care are areas where veterans were referred to community organizations for services.

4.2 Promising Practices: Partnership Expansion and Collaboration

As new degree and certificate programs were developed and expanded, the colleges needed to continue to establish transfer and articulation agreements to baccalaureate degree and other programs which include the transfer of PLA. Regarding the relationship between Mountwest and

Southern, an articulation agreement was established between the two institutions specifically for the Health Information Technology (HIT) pathway. This agreement was particularly useful for Southern as a HIT program did not exist prior to H4H, whereas Mountwest's HIT program has already been implemented for thirty years. Mountwest, however, had greatly improved upon the Medical Coding certificate, which is embedded in the HIT program, and according to one respondent, *"completely revamped the coding certificate under this grant [H4H]."* With an increased demand for Medical Coding in the area surrounding Mountwest, in large part due to a new VA office opening in the local community, faculty and students alike viewed the revisions to the Medical Coding certificate as being timely for a high-demand in the field.

In Fall 2015, Southern utilized a portion of their consulting budget by inviting a Mountwest HIT instructor to help design and implement their own HIT program. Following the initial collaboration in creating Southern's HIT program, discussions between the two institutions on HIT implementation took place as needed throughout the duration of grant implementation. During the Spring 2018 semester, Southern HIT students had transferred to Mountwest using the articulation agreement as Southern was consolidating their HIT and Medical Assisting programs. Faculty at both Mountwest and Southern had varying views on the ease of transitioning these students, but everyone interviewed agreed that all students were transferred successfully.

At Mountwest, resources were spent in refining the already established HIT program. According to one interview participant, *"We aligned our curriculum. We had a class in a lab and we aligned it all into one. They're not separate anymore. We've done that with two classes."* Additionally, it was noted that H4H purchased new medical coding text books every year, which helped in creating curriculum. As one participant stated, *"with the code being updated yearly, the [text] books are updated yearly."*

4.3 Challenges: Partnership Expansion and Collaboration

Colleges have not consistently formalized business engagement strategies and operate programs without full and thorough employer commitment. As stated earlier in this report, business engagement activities are not formally documented, including curriculum development activities, as well as donations, job placement, and skill assessments. This level of documentation is critical to foster the business partnerships with companies who often have turnover of human resource contacts and outreach specialists.

Relationship with Workforce West Virginia could be improved. H4H colleges should continue exploring how services and supports could be better coordinated with Workforce West Virginia both at the institutional and consortium levels.

4.4 Continuous Improvement and Program Recommendations

1. **Research and pursue articulation opportunities in Laboratory Technology.** There are currently no direct articulation options to a four-year major similar to Laboratory Technology. Articulation is an opportunity for Blue Ridge to explore as they build out the program further—perhaps an alignment with an out-of-state university could be established.

2. **Institutionalize business outreach services aligned to labor market data.** As stated earlier, each college could assess current overall business engagement policies and processes and look to build improvements in conducting and tracking engagement activities. Additionally, colleges could seek to utilize labor market information and have resources available to track employment projections, employment trends, and skills and competencies needed for those jobs.

IV. H4H Outcomes and Impacts

We present results under three sections: (1) Demographics of Student Participation, (2) Cohort 1, Cohort 2, and Cohort 3 Longitudinal Student Outcomes and (3) Pathway and Non-Pathway Student Comparison Outcomes.

1. Demographics of Student Participation

Student Demographics. By the end of March 2018, the H4H colleges enrolled a total 444 students across the consortium. Of those enrolled, 428 had demographics captured in the database, most identified themselves as white (90%) and female (62%—see Table 4). Students ranged in age from 18 to 63 with nearly 38% of students between the age range of 22-29. Of the data collected, 5% of enrolled students indicated TAA-eligible status (see Table 4)

Table 4. Student Demographic Characteristics as of March 2018

Student Demographic Characteristic	Percentage of Students	Student Demographic Characteristic	Percentage of Students
Race (n=428)		Age (n=428)	
American Indian or Alaska Native	0	18-21	6.1
Asian	0.5	22-29	37.6
Black or African American	3.8	30-39	26.2
Multi/Other	1.4	40-49	18.2
Native Hawaiian or Other Pacific Islander	0	50+	11.9
Unreported	3.7		
White	89.8		
Ethnicity (n=428)		Veteran (n=428)	
Hispanic	1.4	Yes	4.7
Non-Hispanic	93.9	No	94.6
Unreported	4.7	Missing	0.8
Gender (n=428)		TAA Eligible (n = 428)	

Female	61.9	Yes	0
Male	38.1	No	5.4
		Missing	94.6

Source: Student Tracking Data

2. Student Participation in Degree and Certificate Programs

Program Enrollment. Student enrollment numbers reflect the full implementation of expanded and created pathways at all three colleges. These numbers also reflect delays that occurred earlier on in the grant implementation, particularly delays that have occurred at Southern. The delay in enrollment at Southern is attributed to a staggered implementation of their Health Information Management (HIM) program, which was created under the H4H program and is the only program offered at Southern under the grant. Due to the HIM curriculum being developed one semester at a time at Southern, challenges regarding student schedules and curriculum completion arose, limiting overall enrollment at that institution. Of the 444 students enrolled in the H4H program pathways, Mountwest’s EMT/Paramedic Science pathway had the highest percentage of student enrollment (42.3%), followed by Health Information (37.6%). See Table 5.

Table 5. Student Enrollment

Pathway Enrollment	Percentage of Students			
	Overall Program Enrollment (n=444)	Mountwest Community College (n=292)	Blue Ridge Community College (n=116)	Southern Community College (n=36)
HIT/ HIM (AAS)	37.6%	21.6%	58.6%	100.0%
Emergency Management Technician (EMT) / Paramedic Science (AAS)	42.3%	64.4%	0.0%	0.0%
Certified Coding Specialist (Certificate)	9.0%	13.7%	0.0%	0.0%
Chemical Technology/ LTech (AAS)	3.8%	0.0%	14.7%	0.0%
Chemical Technology/ CMCS (Certificate)	7.0%	0.0%	26.7%	0.0%
Information Technology (AAS)	0.2%	0.3%	0.0%	0.0%

Source: Student Tracking Data

Note: Total percentages may not total exactly 100% due to rounding.

3. Student Participation by Program Goals

The H4H program technical proposal included consortium-wide targets (outputs) pertaining to program enrollment, program completion, and subsequent employment. Across all institutions, the grant has a target of enrolling 227 unique participants and having 152 participants complete a Heroes for Hire program of study across three cohorts of H4H participants (Cohort 1 n=63; Cohort 2 n=60; Cohort 3 n=104). Progress toward program outputs was assessed by analyzing student data compiled by program coordinators at each college.

Table 6: H4H Program Outcome Measures for Numbers of Targeted and Actual Participants

Outcome Measures	Status	Year 1	Year 2	Year 3	Year 4	Total
1. Total Unique Participants Served	Target	63	60	104	N/A	227
	Actual	131	391	450	N/A	972
2. Total Number of Participants Completing a TAACCCT-funded Program of Study	Target	17	58	77	N/A	152
	Actual	18	53	30	N/A	101
3. Total Number of Participants Still Retained in Their Program of Study or Other TAACCCT-Funded Program	Target	26	19	26	N/A	71
	Actual	0	129	381	N/A	510
4. Total Number of Participants Completing Credit Hours	Target	63	60	104	N/A	227
	Actual	122	171	116	N/A	409
5. Total Number of Participants Earning Credentials	Target	22	61	83	N/A	166
	Actual	18	66	32	N/A	116
6. Total Number of Participants Enrolled in Further Education After TAACCCT-funded Program of Study Completion	Target	16	30	47	N/A	93
	Actual	16	53	30	N/A	99
7. Total Number of Participants Employed After TAACCCT-funded Program of Study Completion	Target	26	49	59	10	144
	Actual	0	10	36	12	58
8. Total Number of Participants Retained in Employment After Program of Study Completion	Target	23	42	54	8	127
	Actual	0	19	109	34	162
9. Total Number of Those Participants Employed at Enrollment (Incumbent Workers) Who Received a Wage Increase Post-Enrollment	Target	14	19	35	7	75
	Actual	0	205	265	49	519

Comparing the targets presented in Table 6 with actual observed outcomes we can see that for Outcome 1, the H4H program has served a greater number of unique students in each year.

For Outcome 2, we can see that the program fell short of TAACCCT-funded program completion targets. Some of this may be due to delayed program implementation or less-than-expected enrollment in programs.

The H4H program has served a greater number of unique students in each year.

For program retention targeted in Outcome 3, the H4H program again exceeded the targets. As we can see, as of Year 4 a substantial number of students were still in a TAACCCT-funded Pathway program.

Outcome 4 focused on the total number of participants completing credit hours. Again, it appears the H4H program exceeded the target, as a substantial number of students completed at least some credit hours while enrolled in a Pathway program.

However, examining Outcome 5 we see again that that H4H did not meet the target focused on earning credentials. This aligns with the results associated with Outcome 3, though Outcome 5 is more comprehensive as it includes both AAS degree and certificate attainment.

The data in Table 6 above for Outcome 6 (students enrolled in continuing education after completion of their program) suggest that the H4H program was successful in meeting its target. This is noteworthy, given that overall the program struggled to meet Outcomes 2 and 4 related to program completion. Despite that fact, those students that did complete a program appear to be continuing their education and pursuing some other credential.

Records obtained from Workforce West Virginia¹⁴ allowed us to estimate values for Outcomes 7 through 9. Students contributing to Outcome 7 were identified by whether they completed a Pathway degree or certificate program and were subsequently employed. Outcome 8 was determined in a similar manner, but relaxed the criterion that students had to complete a Pathway program. Thus, if students completed any credential and was subsequently employed they were counted toward Outcome 8. Finally, Outcome 9 presented the most challenging calculation. If students were found to be employed at the time of enrollment, remained employed after they enrolled in college, *and* earned a larger salary post-enrollment compared to salary at the time of enrollment, they counted toward Outcome 9.

4. Longitudinal Student Outcomes in Pathway Programs

Our first set of analyses compares the academic, completion, and employment outcomes obtained from cohort group students across time and institution.

¹⁴ Records from Workforce West Virginia were provided for each quarter of each year. In addition, total wages paid by the employer was provided for identified students (e.g., a student was paid \$10,000 during quarter 1 of 2015). To link wage information to the current H4H database, the average wage paid by employers was calculated across quarters 1 and 2 and again for 3 and 4 to represent semesters. Note also that in an attempt to standardize, all wages were converted to an hourly rate, based on an assumption of full-time employment (multiply the quarter's wages by 4 then divide by 2080 hours/year). We acknowledge a level of inaccuracy in this calculation but feel this is the most equitable representation of wages earned given that WFWV data did not include hours worked (i.e., to accurately calculate hourly wage).

Characteristics of Cohort Students. To better understand how well the project met its student participation goals, the report revisits the initial targets for the treatment group which includes characteristics of three cohorts of Heroes for Hire participants. Table 7, below, provides the counts and percentages of demographic characteristics for Pathway cohort groups. In general, the distribution across student characteristics by cohort are reasonably close. Though not shown in the table, the mean age of Pathway students for Cohort 1 was 35.5 (median=33.0), Cohort 2 was 33.8 (median=30.5) and Cohort 3 age was 30.7 years (median=27).

Table 7. Descriptive Statistics of Pathway Cohort Groups

Demographic	Pathway Students					
	Cohort 1		Cohort 2		Cohort 3	
	n	%	N	%	n	%
Gender						
Female	146	64.6	104	61.9	30	60.0
Male	80	35.4	64	38.1	20	40.0
Race						
Non-White	24	10.6	16	9.5	4	8.0
White	202	89.4	152	90.5	46	92.0
Ethnicity						
Unreported	12	5.3	8	4.8		
Not Hispanic/Latino	211	93.4	157	93.5	50	100.0
Hispanic/Latino	3	1.3	3	1.8		
ESL						
Unreported	31	13.7	58	34.5	27	54.0
No	194	85.8	110	65.5	23	46.0
Yes	1	0.4				
Veteran Status						
Unreported	181	80.1	86	51.2	23	46.0
No	45	19.9	78	46.4	27	54.0
Yes	.	.	4	2.4	.	.
Institution						
Blue Ridge	31	13.7	58	34.5	27	54.0
Mountwest	181	80.1	88	52.4	23	46.0
Southern	14	6.2	22	13.1		
Total	226	50.9	168	37.8	50	11.3

Educational Goals. At the time of enrollment, the H4H consortium administered student intake surveys gathering data on student demographics, employment background, and educational goals. The terminology used to indicate a student’s current education level and what education level they aspire to earn is divided into three types: 1) the **highest education** indicates the student’s highest education level at the time of their enrollment, 2) the **first educational goal** is

the certificate or degree they aspire to earn as the next step in their education, and 3) **the ultimate educational goal** is what they expect to earn at the end of their student career.

Table 8. Students' Stated Educational Goals

Education Goals	Percentage of Students	Number of Respondents
First Educational Goal		
Vocational/Skill program or certification	19.1%	84
Associate Degree	74.7%	328
Bachelor's Degree	0.0%	0
Ultimate Educational Goal		
Vocational/Skill program or certification	5.6%	24
Associate Degree	49.1%	209
Bachelor's Degree	6.6%	28

Source: Student Intake Data based on students first academic year of available data

Note: Total percentages may not total exactly 100% due to non respondents.

As shown in Table 8, of the 439 respondents, a majority (74.7%) of students in H4H programs indicated that their first educational goal at the time of enrollment was an associate degree. Another 19.1% of students expect to earn a certification as their first educational goal through the H4H program, but no respondents expected to continue to earn a bachelor's degree. Nearly half (49.1%) of students had an ultimate goal prior to enrolling in the H4H program of an associate degree and only 6.6% expected to continue to earn a bachelor's degree as their ultimate goal. This most likely indicates that most students plan to enter the workforce after completing their H4H degree program.

Pathway student enrollment over time. Table 9 reflects the unique number of Pathway students in each cohort enrolled at each institution.¹⁵ Due to a short delay at Southern in the initial implementation, Mountwest and Blue Ridge had the largest number of students in Cohort 1, totaling 222 with only a few additional students being added at Southern in Spring 2016. All three institutions had enrollees in Cohort 2, totaling 168 Pathway students. Southern had no students enrolled for the final Cohort 3, however, Blue Ridge and Mountwest had enrollees totaling 50 Cohort 3 students beginning their pathway studies in the 2017-18 academic year.

Table 9. Enrolled Students by Year and Institution

	Cohort 1 F15-S16	Cohort 2 F16-S17	Cohort 3 F17-S18
Institution	Pathway	Pathway	Pathway
Blue Ridge	31	58	27
Mountwest	181	88	23
Southern	14	22	

¹⁵ The unduplicated count refers to the fact that students present in both the fall and spring semesters of an academic year could potentially be counted twice. For purposes of reporting, if a student was present in both semesters, they are counted only once in the academic year. If a student was in a Pathway program in a Fall semester but not in the Spring, the student is still counted as enrolled in a Pathway (or Non-Pathway) program for that academic year.

Total	226	168	43
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Academic Progress. Table 10 provides the mean cumulative Grade Point Average (GPA) and mean cumulative credit hours earned by Pathway students at each institution in each cohort. Here again we had to account for duplication and used cumulative values for the last semester of data available for each student to ensure the latest GPA and credit hours were incorporated into the summaries. The data show a fair amount of variability among cohorts, though this is to be expected given the substantial differences in sample size associated with each cohort.

Table 10. Cumulative GPA and Credit Hours by Year and Institution

Institution	Cohort	Variable (cumulative)	n	n Missing	Mean	SD	Min	Max
Blue Ridge	1 F15-S16	GPA	28	3	3	0.85	0	4
		Credit Hours	28	3	50.74	30.89	0	106
	2 F16-S17	GPA	52	6	2.61	1.35	0	4
		Credit Hours	52	6	29.62	26.03	0	106
	3 F17-S18	GPA	26	1	2.68	1.55	0	4
		Credit Hours	26	1	24.09	27.56	0	115.1
Mountwest	1 F15-S16	GPA	181	0	2.84	0.96	0	4
		Credit Hours	181	0	50.08	31.87	0	168
	2 F16-S17	GPA	88	0	2.58	1.15	0	4
		Credit Hours	88	0	35.76	21.87	0	90
	3 F17-S18	GPA	23	0	2.06	1.2	0	3.81
		Credit Hours	23	0	25.09	24.53	0	97
Southern	1 F15-S16	GPA	14	0	2.93	0.64	1.25	3.81
		Credit Hours	14	0	86.71	53.37	7	210
	2 F16-S17	GPA	22	0	2.76	1.03	0	3.89
		Credit Hours	22	0	56.36	42.61	0	179
	3 F17-S18	Not Applicable						

Certificates Earned. A primary measure of success for the H4H program is the number of participants earning certificates and obtaining employment over the life of the program. For students in the pathway program, we tracked certificate status by cohort or institution to determine how many Pathway students earned credentials. Overall, the consortium certificate completion rates were similar for the first two cohorts and as expected, the degree completion is higher for the first cohort at 22%. Of consortium cohorts, Southern’s Cohort 1 group held the highest rate of degree completion at 43% percent.

At least half of H4H cohort students who completed a degree gained employment.

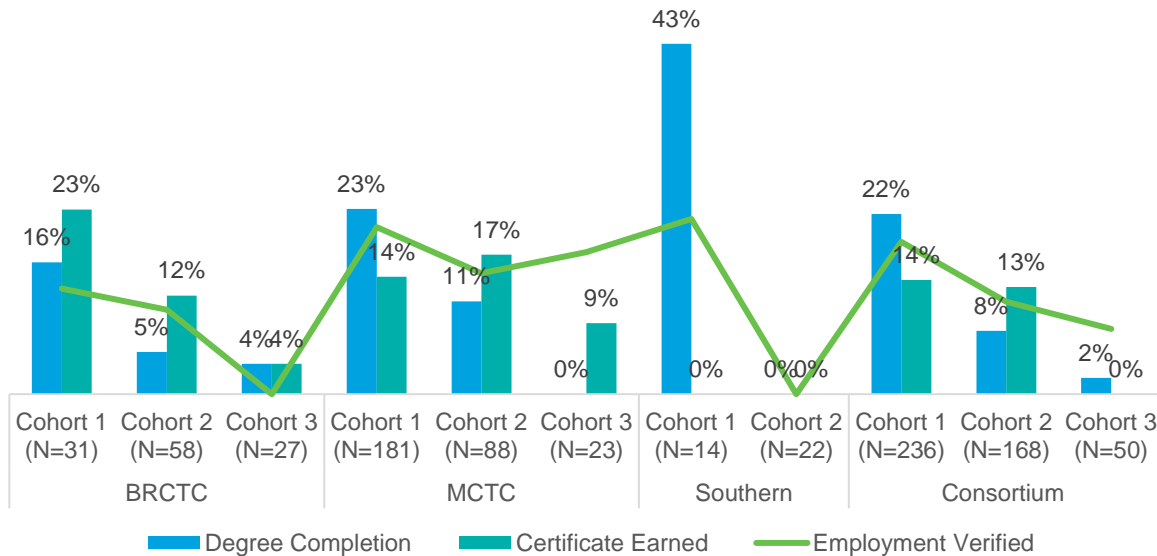


FIGURE 5. PERCENTAGE OF COMPLETERS BY COHORT AND INSTITUTION

Of those Southern degree completers, we verified employment for 50%. We also found that more than 75% of Cohort 1 students at Blue Ridge and Mountwest who earned degrees were employed. Nearly one-fourth of Cohort 1 students at Blue Ridge earned certificates, the highest percentage across the consortium for all three cohorts (see Table 11 and Figure 5).

Table 11. Degree Completion, Certification, and Employment by Institution

Institution	Cohort Group	N Total	Degree Completion	Certificate Earned	Employment Verified
Blue Ridge	1 F15-S16	31	5	7	4
	2 F16-S17	58	3	7	6
	3 F17-S18	27	1	1	
Mountwest	1 F15-S16	181	41	26	37
	2 F16-S17	88	10	15	13
	3 F17-S18	23		2	4
Southern	1 F15-S16	14	6		3
	2 F16-S17	22			
	3 F17-S18				

College Transfer and Retention. Pathway students were tracked across time, by cohort, to determine how many remained in their initially designated Pathway program, and how many transferred within their respective institution into a different program (see Table 12).

Table 12. Collect Transfers after Initial Program Completion

Institution	Cohort Group	N Total	Students Retained W/in Pathway	Students Transferred W/in school	Student Transfer to WV Institution
Blue Ridge	1 F15-S16	31	23	8	1
	2 F16-S17	58	53	5	
	3 F17-S18	27	17		
Mountwest	1 F15-S16	181	171	10	5
	2 F16-S17	88	52	34	5
	3 F17-S18	23	23		
Southern	1 F15-S16	14	13	1	
	2 F16-S17	22	22		
	3 F17-S18				

Most H4H Pathway Cohorts were retained within pathway major.

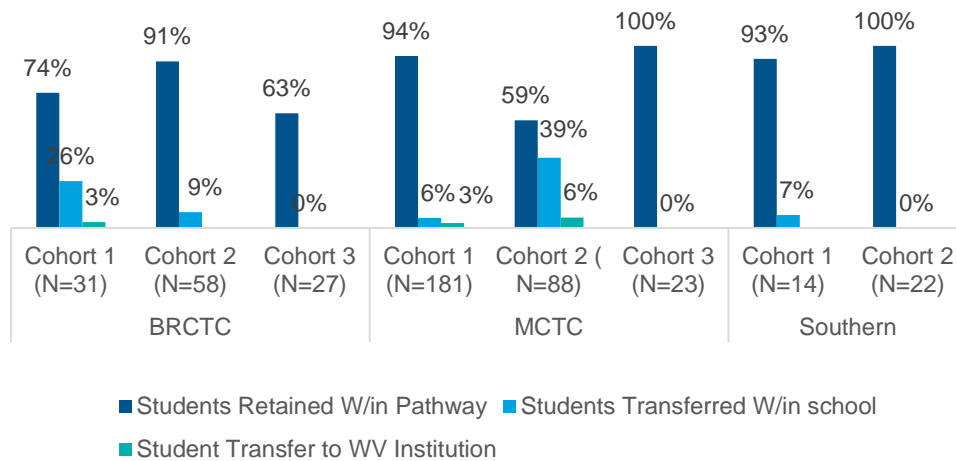


FIGURE 6. PERCENTAGE OF COHORT STUDENTS RETAINED

Additionally, we examined how many students, based on National Student Clearinghouse data, transferred to another West Virginia institution after their last valid record at one of the H4H institutions. For H4H pathways, nearly all three cohorts show students were retained in a pathway. For Mountwest, the percentage of students who transferred outside a pathway increased with Cohort 2 to 39% compared to 6% with Cohort 1. For Blue Ridge, this number decreased by seventeen percentage points. Southern cohort students showed the smallest change, a decrease of seven percentage points from the first cohort to the second.

Student Support Service Use. Students had access to career/academic counseling sessions through program advisors, student support center, and career services. When applicable, institutions provided the number of counseling sessions attended and the number of minutes (in 15-minute intervals) accessed by each student in each semester. Note that limited data was a significant problem in the database for these variables. As such, caution should be exercised in extrapolating these results. To report accurate results for each academic year, the total number of sessions attended and minutes spent in counseling was calculated for each student across all their semesters. Table 13 provides the average count of sessions and total time spent in sessions by institution and cohort group. Note that while program leads reported that all pathway students participated in prior learning assessment as part of intake, ICF received no student level data on the use of any prior learning credits or if any were awarded.

Table 13. Sessions and Hours of Student Support Provided by Year and Institution

Institution	Academic Year	Counseling Variable	n	n Missing	Mean	SD	Min	Max
Blue Ridge	F15-S16	Sessions	27	4	3.78	7.91	1	42
		Hours	26	5	1	0	1	1
	F16-S17	Sessions	24	34	3.54	6.28	1	24
		Hours	16	42	1	0	1	1
	F17-S18	Sessions	0	27
		Hours	0	27
Mountwest	F15-S16	Sessions	26	155	8.34	6.27	1	24
		Hours	26	155	4.08	3.13	0.5	12
	F16-S17	Sessions	28	60	5.56	3.24	1	14
		Hours	28	60	2.77	1.62	0.5	7
	F17-S18	Sessions	12	11	2.74	1.88	1	7
		Hours	12	11	1.39	0.93	0.5	3.5
Southern	F15-S16	Sessions	14	0	18.21	4.56	5	22
		Hours	14	0	4.57	1.22	1	6
	F16-S17	Sessions	22	0	15.18	6.71	4	20
		Hours	22	0	4.05	1.33	2	5
	F17-S18	Sessions	0	0				
		Hours	0	0				

5. Comparison Study

5.1 Methodology

The comparison study further examines the impact of the H4H program using a comparison-cohort evaluation design. Participating students who make up the treatment group were not randomly assigned because all students who apply to the program are accepted and enrolled in a grant-funded program of study to receive new or enhanced educational training, ruling out the

ability to conduct a true experimental design. The pool of comparison students was drawn from the same three colleges participating in H4H and was comprised of individuals with the same chronological entry point to similar programs of study who presumably have not benefited from the grant-funded curriculum, resources, or student support services.

Much social science research is conducted absent the gold standard design of random assignment for practical or ethical reasons (Boruch, R, 1997; Shadish et al., 2002). Comparisons between groups in observational data can lead to erroneous conclusions if the groups are unbalanced with respect to potential confounders (Li, Zaslavsky & Landrum, 2014). Matching units in different groups to reduce imbalance among pre-treatment confounders (Stuart, 2010) is an increasingly popular method for improving causal inferences when using observational data (Ho et al., 2007; Morgan & Winship, 2014; Thoemmes & Kim, 2011). Propensity score matching (PSM; Rosenbaum & Rubin, 1983) is the most developed and popular method among applied researchers (King, G. & Nielsen, R., 2016; Pearl, 2010). We utilize this matching method by ‘predicting’ the likelihood of membership in the treatment (pathway) group versus the control (comparison pathway) group based on a list of covariates deemed theoretically important. The innovation of propensity score statistical methods is to develop a single score that encapsulates multiple pre-intervention (in our case college entry-level) observed characteristics, instead of requiring a one-to-one match of each characteristic, simplifying matching by reducing the number of pre-intervention variables into one single score, the propensity score.

Model. The formula for estimating the propensity score (i.e., probability that a unit is assigned to the treatment versus control group) can be written as

$$P_{tx} = \frac{1}{(1 + e^{-X\beta})}$$

where P_{tx} is the probability of receiving treatment given X , where X is one or more confounding predictor variables and $\beta(s)$ are logistic regression parameter(s) representing the relationship between the confounding variables in X and the binary outcome of treatment or control (Holmes, 2014). In this instance, we are estimating the probability that a student was enrolled in a pathway program (or not, i.e. enrolled in a comparison pathway) utilizing a number of demographic and background characteristic variables. These variables included:

- Institution*
- Semester (Fall and Spring)*
- Academic year*
- Age (in groups as < 30, 30-40, 40-50 and 50+)
- Gender
- Race (in groups as White or Other)
- Ethnicity (in groups as Not Hispanic/Latino, Hispanic/Latino, Unreported)
- English as a 2nd Language (ESL; grouped as Yes, No, or Missing)
- Enrollment status (at earliest record grouped as Full-time, Part-time, or No)
- Students With Disabilities (SWD; grouped as Not Disclosed, No, or Yes)
- Veteran Status (grouped as No, Yes, or Unreported)
- Pell Grant Eligibility (grouped as No, Yes, or Unreported)

- Trade Adjustment Assistance (TAA) Eligibility (grouped as No, Yes, or Do Not Know)

Note the variables marked with an asterisk were included in the propensity formula and specified to be exact matches. Thus, for a treatment (Pathway) student to be matched to a comparison (Non-Pathway) student, both students had to be from the same institution and be present in the database for the first time in the same semester and academic year (e.g., Fall 2015). Comparison pathways were chosen by the institution because they shared similar credential granting options for potential students.

Nearest-neighbor matching (Ho et al., 2011) was utilized where the best control matches for each individual in the treatment group were identified using a specified (logit) distance measure, where those with the largest distances were matched first. We explored conducting nearest-neighbor matching both with and without replacement, where the former allows for the same control unit to be matched to multiple treatment units.

Limitations. Despite the increased internal validity achieved by using propensity score matching versus unadjusted statistical comparisons, the method does have an upper limit on its ability to yield adequately matched groups. The fact that Mountwest and Southern both had more Pathway than Non-Pathway students enrolled over the course of the project presented the first matching problem. With an inadequate pool of comparison students, we were unable to find a match for each Pathway student without conducting matching with replacement (where a particular comparison student can be matched to more than one treatment student). Nearest-neighbor with replacement allowed us to identify more adequate matches for more Pathway (treatment) units ($n=451$) but uses a smaller number of Non-Pathway students ($n=171$). Alternatively, using the same method without replacement identifies an adequate match for a smaller number of Pathway units ($n=296$), but makes use of more Non-Pathway students ($n=296$). The overall mean distance between matched units was smaller when matching with replacement, suggesting a more comparable comparison group.

Demographic Characteristics of Treatment and Comparison Groups. Table 14 provides the counts and percentages of demographic characteristics for Non-Pathway and Pathway groups resulting from the matching routine described above, using unduplicated and duplicated counts for the Non-Pathway group. The Unduplicated column reflects the reduction of the resulting matched set so that a matched control student was only present in the counts one time. As an example, we can see that the Non-Pathway, Unduplicated comparison group is comprised of 63.2% female students, while the Pathway treatment group is comprised of 63.0% female students. When we examine the Duplicated Non-Pathway group, it is comprised of 63.4% female students because some female students, having been matched to multiple treatment students, are now represented in the counts more than once. In general, the distribution across student characteristics between Non-Pathway and Pathway are reasonably close. Not shown in the table, the mean age of Pathway students was 34.23 (median of 32) while the Non-Pathway mean age was 31.24 years (median of 27).

Table 14. H4H Student Demographic Characteristics

Demographic Characteristic	Non-Pathway				Pathway	
	Unduplicated		Duplicated		n	%
	n	%	N	%		
Gender						
Female	108	63.2%	286	63.4%	284	63.0%
Male	63	36.8%	165	36.6%	167	37.0%
Race						
Non-White	20	11.7%	37	8.2%	48	10.6%
White	151	88.3%	414	91.8%	403	89.4%
Ethnicity						
Unreported	38	22.2%	142	31.5%	127	28.2%
Not Hispanic/Latino	127	74.3%	302	67.0%	318	70.5%
Hispanic/Latino	6	3.5%	7	1.6%	6	1.3%
ESL						
Unreported	68	39.8%	117	25.9%	117	25.9%
No	88	51.5%	308	68.3%	307	68.1%
Yes	15	8.8%	26	5.8%	27	6.0%
Veteran Status						
Unreported	61	35.7%	209	46.3%	209	46.3%
No	107	62.6%	237	52.5%	231	51.2%
Yes	3	1.8%	5	1.1%	11	2.4%
Institution						
Blue Ridge	68	39.8%	117	25.9%	117	25.9%
Mountwest	90	52.6%	298	66.1%	298	66.1%
Southern	13	7.6%	36	8.0%	36	8.0%
Total	171	27.5%	451	72.2%	451	72.2%

Academic Progress. To obtain meaningful outcomes related to academic progress, the results (the treatment and control indicators) of the propensity-score matching had to be merged into the longitudinal data file. The results below reflect the average, accumulated GPA, and credit hours for Non-Pathway and Pathway students *up through* their continued enrollment in an appropriate program. Thus, if a student had GPA data for four semesters beginning in Fall 2015 through Spring 2017 but transferred into a program of study after the Fall 2016 semester not affiliated with a Pathway or Non-Pathway comparison program, then their cumulative GPA as of Fall 2016 was used in the analysis. Also note that these results are *weighted*, meaning that the initial number of Pathway and Non-Pathway units were equivalent (n=451), because some Non-Pathway units are represented multiple times in the analytic file. As we can see below, the Non-Pathway students had a mean cumulative GPA of 2.75 and 41.1 cumulative credit hours, while the Pathway students had a mean cumulative GPA of 2.70 and cumulative credit hours of 43.1. These differences were compared inferentially, making use of a Wilcoxon signed-rank test for the comparison of medians as the distributions of both GPA and Credit Hours were negatively

skewed. The GPA comparison revealed no significant difference between Pathway and Non-Pathway ($Z=.62$, $p=.54$, Effect size=.02) groups, while the comparison for Credit Hours found that the Pathway median number of Credit Hours was significantly higher than those for Non-Pathway students ($Z= -2.21$, $p=.03$, Effect size=.07; Pallant, 2007).

Table 15. Academic Progress in Treatment and Comparison Groups

Institution	Variable (cumulative)	n	n Missing	Mean	SD	Min	Max
Non-Pathway Comparison	GPA	409	42	2.75	1.08	0	4
	Credit Hours	410	41	41.09	37.46	0	208
Pathway Treatment	GPA	438	13	2.70	1.11	0	4
	Credit Hours	435	16	43.11	32.62	0	210

Program Graduation and Completion. Program enrollment and completion was based on the categorization of student majors supplied by each respective institution. Initial program enrollment was identified using each student’s earliest semester data. Completion information was obtained by looking across each student’s longitudinal record to identify graduation information that aligned with the program enrollment.

The rate (percentage) of completion varies widely across programs and institutions. The largest number of completion occurs for Pathway students at Mountwest, where 28.7% of 171 Health IT/Management students completed a degree (and 9 others received a certificate). The lowest rate, excluding those that are 0%, was the 48.9% rate among students in the Certified Coding program. Overall, the completion rates for Mountwest and Southern Pathway programs were higher than they were for the Non-Pathway comparison programs. Conversely, the completion rates for Blue Ridge Pathway programs was lower than it was for the Non-Pathway comparison programs. An inferential comparison of the completion rates between matched groups (Pathway rate=20.2, Non-Pathway=12.2) found the rates to be significantly different ($X^2=10.59$, $p=.00$), in favor of the Pathway group.

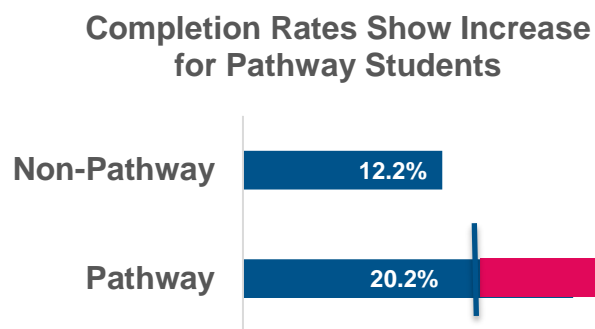


Table 16. Completion Rates by Program for Matched Groups

Program	Program	Enroll	Compl. N	Compl. %
Health Care Professional	Non-Pathway	13	2	15.4%
Allied Health Occupations	Non-Pathway	11	0	0.0%
CMCS	Pathway	25	2	8.0%
Certified Coding Specialist	Pathway	45	22	48.9%
Chemical Technology	Pathway	16	1	6.3%
Health IT/Management	Pathway	171	49	28.7%
Health Science	Non-Pathway	196	22	11.2%
IT-Geospatial	Pathway	4	1	25.0%
IT non-GIS	Non-Pathway	44	5	11.4%
MECH	Non-Pathway	42	6	14.3%
Medical Assisting	Non-Pathway	143	20	14.0%
Paramedic Science	Pathway	190	16	8.4%
Pharmacy Tech	Non-Pathway	2	0	0.0%
Total	Pathway	451	91	20.2%
	Non-Pathway	451	55	12.2%
	Total	902	146	16.2%

Table 17 provides the distribution of students across their cumulative GPA (categorized) as well as the average GPA, by program. Note that this table is based on the 902 students identified as part of the propensity-matching process. Student programs were identified based on their initial program enrollment and the GPA data is based on the student’s last available record when they were still enrolled in an appropriate program (i.e., if the student transferred out of their initial program into an entirely different program not part of a Pathway/Non-Pathway program, subsequent GPA information would *not* be included). A total of 88 students did not have a valid cumulative GPA in their last semester when they were enrolled in an appropriate program. Collapsed across programs, we see the mean cumulative GPAs for Pathway (2.70) and Non-Pathway (2.75) students were relatively similar. A Wilcoxon signed-rank test for the comparison of medians ($Z=.62$, $p=.54$, effect size=.02) was non-significant.

Table 17. Percentage of Matched Pathway/Non-Pathway Students by GPA Range and Degree/Credit Training Program

Group	Program	Enroll	4.0	3.0-3.9	2.0-2.9	1.0-1.9	0.0-0.9	Missing	Mean
Non-pathway	Health Care Professional	13	0.0%	84.6%	15.4%	0.0%	0.0%	0.0%	3.43
	Allied Health Occupations	11	0.0%	54.5%	0.0%	0.0%	45.5%	0.0%	1.99
	Health Science	196	12.8%	42.9%	19.4%	21.9%	3.1%	0.0%	2.86
	IT non-GIS	44	4.5%	15.9%	29.5%	4.5%	4.5%	40.9%	2.71
	MECH	42	9.5%	35.7%	16.7%	19.0%	4.8%	14.3%	2.72
	Medical Assisting	143	0.7%	36.4%	28.7%	11.9%	9.8%	12.6%	2.59
	Pharmacy Tech	2	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	2.38

Pathway	CMCS	25	12.0%	32.0%	16.0%	12.0%	20.0%	8.0%	2.37
	Certified Coding Specialist	45	24.4%	53.3%	20.0%	2.2%	0.0%	0.0%	3.38
	Chemical Technology	16	18.8%	43.8%	0.0%	6.3%	18.8%	12.5%	2.72
	Health IT/Management	171	7.6%	55.0%	22.2%	4.7%	5.8%	4.7%	3.03
	IT-Geospatial	4	0.0%	50.0%	25.0%	0.0%	0.0%	25.0%	3.22
	Paramedic Science	190	1.1%	28.4%	44.2%	11.6%	14.7%	0.0%	2.29
Total		451	7.1%	38.8%	22.8%	15.5%	6.4%	9.3%	2.75
		451	7.1%	41.9%	30.2%	7.8%	10.2%	2.9%	2.70
		902	7%	40%	26%	12%	8%	6%	2.73

6. Student Continuing Education and Employment Outcomes

The H4H training programs were designed to help veterans, dislocated, and under-employed workers receive training in various healthcare and information technology fields across the state of West Virginia. Workforce participation is monitored throughout students’ time in the H4H program through data collected by the three colleges at enrollment.

Success in Earnings. Wage information was obtained from Workforce West Virginia and was standardized by converting all quarterly wages to semester salaries by multiplying a quarter’s earnings by 4, then collapsing across quarters into semester by taking the average across quarters. Students’ initial salaries were identified as the reported wages they were making during the earliest semester for which we have data and they are in a Pathway program. The maximum salary reflects the maximum earned by students in a semester *after* their initial semester. Thus, the maximum value *could* reflect a wage at a job they were working while enrolled in college and before they completed their program.

Table 18 below provides basic descriptives of the salaries at both the initial enrollment and post-enrollment time points, including the mean, median, minimum and maximum values by program. The ‘n test’ column reflects the number of records included in an inferential comparison of initial to post-enrollment wages (i.e., the number of students with valid values at both points). The difference is the mean difference calculated as post-enroll wage minus initial wage, and the two columns labelled ‘(t) p’ and ‘(NP) p’ reflect the p-values associated with the parametric paired t-test and the non-parametric Wilcoxon signed-rank test. The non-parametric test was conducted given the non-normally distributed wage distribution as a sensitivity check. In all instances, both tests yielded the same conclusions (i.e., when $p < .05$ the difference is statistically significant), and Cohen’s d effect sizes were calculated for dependent t-tests. **The wages increased significantly for students in the Certified Coding Specialist, Health IT/Management and Paramedic Science programs**, as well as the overall test collapsed across programs. The corresponding effect sizes fall into the “Large” effect size designation labels, suggesting these differences are practically meaningful. Note however, the lack of significance noted for the large effect seen with Chemical Technology, resulting from low statistical power given the small sample size with valid data at both time points.

Table 18. Salaries at Initial Enrollment and Post-enrollment by Program

Program	Timepoint	n	n Missing	Mean	Median	Min	Max	n test	Difference	(t) p	(NP) p	d
CMCS	Initial	15	16	\$ 10,271.15	\$ 6,667.76	\$ 288.76	\$ 28,099.88	11	3103.00	0.158	0.206	.668
	Post-Enroll	13	18	\$ 15,818.45	\$ 16,249.70	\$ 880.28	\$ 39,391.44					
Certified Coding Specialist	Initial	24	21	\$ 22,272.97	\$ 20,277.85	\$ 3,931.76	\$ 51,638.14	23	4919.40	0.004	0.002	.959
	Post-Enroll	27	18	\$ 26,703.13	\$ 28,571.68	\$ 2,706.92	\$ 53,360.76					
Chemical Technology	Initial	12	5	\$ 17,963.11	\$ 17,841.06	\$ 202.24	\$ 48,640.00	11	12546.30	0.132	0.054	1.83
	Post-Enroll	14	3	\$ 29,085.50	\$ 24,585.01	\$ 4,026.48	\$ 131,475.00					
Health IT/Management	Initial	95	79	\$ 16,037.17	\$ 12,701.40	\$ 128.68	\$ 55,090.36	78	5937.10	0.000	0.000	.75
	Post-Enroll	101	73	\$ 21,412.23	\$ 17,421.04	\$ 156.00	\$ 106,374.28					
IT-Geospatial	Initial	1	3	\$ 10,817.87	\$ 10,817.87	\$ 10,817.87	\$ 10,817.87					
	Post-Enroll	3	1	\$ 9,736.39	\$ 6,847.50	\$ 2,240.00	\$ 20,121.68					
Paramedic Science	Initial	155	35	\$ 28,230.12	\$ 29,551.06	\$ 759.60	\$ 87,789.70	150	7098.40	0.000	0.000	.777
	Post-Enroll	162	28	\$ 34,633.85	\$ 35,676.16	\$ 2,070.24	\$ 87,948.92					
Total	Initial	302	159	\$ 22,563.55	\$ 19,083.29	\$ 128.68	\$ 87,789.70	274	6651.30	0.000	0.000	.752
	Post-Enroll	320	141	\$ 28,551.09	\$ 26,605.44	\$ 156.00	\$ 131,475.00					

Success in Credit. By the end of the grant cycle, 461 students had enrolled in the H4H program in an appropriate Pathway program. Of those, only 39 students had a valid cumulative GPA during the last semester they were enrolled in an appropriate program. The distribution of these cumulative GPAs (categorized) and the average GPA are shown in Table 19. The table shows the lowest mean GPA was in the Chemical Technology program and the highest was among the Certified Coding Specialist program. Take note that the IT-Geospatial program only included 4 students.

Table 19. Percentage of Pathway Students by GPA Range and Degree/Credit Training Program

Program	Number of Enrolled Students	4.0	3.0-3.9	2.0-2.9	1.0-1.9	0.0-0.9	Missing	Mean
CMCS	31	16.1%	32.3%	12.9%	12.9%	16.1%	9.7%	2.53
Certified Coding Specialist	45	24.4%	53.3%	20.0%	2.2%	0.0%	0.0%	3.38
Chemical Technology	17	17.6%	41.2%	0.0%	5.9%	23.5%	11.8%	1.70
Health IT/ Management	174	8.6%	54.0%	22.4%	4.6%	5.7%	4.6%	3.05
IT-Geospatial*	4	0.0%	50.0%	25.0%	0.0%	0.0%	25.0%	3.22
Paramedic Science	190	1.1%	28.4%	44.2%	11.6%	14.7%	0.0%	2.29
Total	461	7.8%	41.4%	29.7%	7.8%	10.2%	3.0%	2.71

* Enrollment in IT-Geospatial should be viewed tentatively. Geospatial students are enrolled in the IT program overall and were only identified as Geospatial in an open-ended cell within provided data files. Interpretation of these notes involved subjective coding into this program, reflecting inaccurate enrollment.

Student Employment Status. Table 20 displays the employment characteristics for Pathway students at each institution at two time points: (a) each student’s initial semester of data available when they were enrolled in an appropriate Pathway program and (b) the last semester when a valid entry was available for each indicator when a student was still enrolled in a Pathway program. Note that missing data was a significant problem in the database for these variables, as Blue Ridge was missing initial employment data on 78.7% of records, Mountwest was missing 65.4% and Southern was missing 16.7%. As such, caution should be exercised in extrapolating these results. Regarding Southern, at the time of the final site visit in July 2018 cohort students were not yet awarded the HIM degree available through the Mountwest partnership agreement. Thus, students were still waiting on degree completion, which may have staggered their employment outcomes. Overall employment data across institutions, while it shows a 7 percentage point decrease, were gathered from Workforce West Virginia in Summer 2018 and only provide data through 6 months prior to retrieval. Moreover, a follow-up data retrieval would be useful for the consortium to understand its most recent employment outcomes.

Table 20. Employment Characteristics of H4H Enrolled Students at Initial and Last Enrollment

Institution	Time	Number of H4H Enrolled Students	Unemployed	Underemployed: Part-Time at Skill Level	Underemployed: Full-Time Below Skill Level	Dislocated Worker	TAA Eligible
Blue Ridge	Initial	127	2.4%	1.6%	0.0%	0.0%	8.7%
	Last		3.1%	0.0%	1.6%	0.0%	0.8%
Mountwest	Initial	298	6.4%	3.7%	1.0%	1.3%	0.3%
	Last		6.0%	3.7%	5.0%	1.3%	0.3%
Southern	Initial	36	30.6%	0.0%	5.6%	0.0%	0.0%
	Last		55.6%	0.0%	5.6%	0.0%	0.0%
Total	Initial	461	11.9%	5.2%	4.8%	1.7%	3.0%
	Last		18.7%	5.2%	5.6%	1.7%	3.0%

Student Continuing Education. Making use of [National Student Clearinghouse](#) (NSC) data we were able to identify what educational institutions students might be attending in semesters after their latest records in the current H4H database. We first removed records from the NSC data associated with information we already had (i.e., record confirming a student’s enrollment in one of the three H4H institutions). Subsequently, what remained were records from semesters that we currently do not have. Table 21 shows in the rows which H4H institutions students attended (again totaling 461) by whether they completed some program (an AAS degree or certificate) and in the columns are the institutions that students attended at a later time point. Clearly, for the majority of Pathway students in the database, there are no subsequent NSC data available. Under 10% of students at Blue Ridge and Southern were again enrolled in their respective colleges, and more than 83% of Southern students subsequently enrolled in Mountwest (5 of 6 students that completed a program at Southern). Under 4% of students at Blue Ridge and Mountwest subsequently enrolled in another academic institution other than one of the three H4H colleges.

Table 21. Student Continuing Education Rates Based on NSC Data

Institution	Completed	Enrolled	Blue Ridge	Mountwest	Southern	Other Institution	No NSC
Blue Ridge	Yes	36	0.0%	0.0%	0.0%	5.6%	94.4%
	No	91	8.8%	0.0%	0.0%	3.3%	87.9%
	Total	127	6.3%	0.0%	0.0%	3.9%	89.8%
Mountwest	Yes	81	0.0%	0.0%	0.0%	3.7%	96.3%
	No	217	0.0%	0.5%	0.0%	1.8%	97.7%
	Total	298	0.0%	0.3%	0.0%	2.3%	97.3%
Southern	Yes	6	0.0%	83.3%	16.7%	0.0%	0.0%
	No	30	0.0%	3.3%	6.7%	0.0%	90.0%
	Total	36	0.0%	16.7%	8.3%	0.0%	75.0%
Total	Yes	123	0.0%	4.1%	0.8%	4.1%	91.1%
	No	338	2.4%	0.6%	0.6%	2.1%	94.4%

V. Program Sustainability and Recommendations

This report has outlined the implementation and outcomes of a short-term college-based program to promote career readiness and work transitions for veterans in West Virginia. The issue of work transitions will not disappear; however, with the grant period of performance, veterans and other adults will continue to face unemployment, underemployment, and skill mismatches (between training and employer requirements) in this geographic area. In this connection, the H4H program and others like it would do well to consider the lessons this report proffers in terms of sustainability.

1. This evaluation identified that partnerships between consortium colleges, other organizations, and the workforce development system in West Virginia lacks systematic processes and procedures. A 2017 report in the state (WorkEd Consulting, 2017: 10)¹⁶ described that “positive, value-added partnerships are lacking throughout West Virginia, and when a relationship is in place, it is typically transactional, meaning that it is part of a short-term initiative or grant-funded program, and when the personalities and/or funding ends, the partnership ends too.” In response, the consortium could undertake a comprehensive approach to strengthening partnerships with collaborating organizations, as well as developing institutional processes by which partnership activities are organized and communicated across the consortium.
2. All three colleges employed focused approaches to providing program services to veterans. Though the approaches detailed in the implementation section of this report differ in some ways, it is still true that each site provided enhanced pathways and curricula designed to provide job-specific training and skills, as well as other support services for participating students. Future consortia (or, indeed, individual sites) that target veterans for work-related training and support would do well to take a similarly focused approach.
3. It was mentioned previously that a sustainable aspect of Mountwest’s HIT pathway is the ability to serve students from other colleges in West Virginia and help them realize opportunities for industry certification through enrolling and testing in accredited institutions. Other colleges could employ this model, not necessarily by each college independently building internal capacity to serve students from other colleges, but by coordinating enrollment, assessment, and accreditation roles among participating colleges.
4. One of the colleges evaluated here (Mountwest) experienced a lack of feedback from the business community regarding available jobs, direct ties to competencies and skills needed, and documentation at the institution of employer engagement activities. Another college (Southern) is hampered by a geographically limited employer base. These types of challenges are likely to be shared by other colleges that would attempt similar career readiness training programs. Therefore, it follows that colleges (or groups of colleges) require a coordinated method of interacting and sharing information with the business

¹⁶ WorkEd Consulting. (2017). *West Virginia Bridging the Gap TAACCCT Round 3: Community and Technical College and Workforce System Collaboration Study*. Paper prepared for Bridging the Gap Consortium. Grant Number TC-24977-13-60-A-54.

community. Strategies and activities should be formalized as part of a workforce development and organizational structuring initiative.

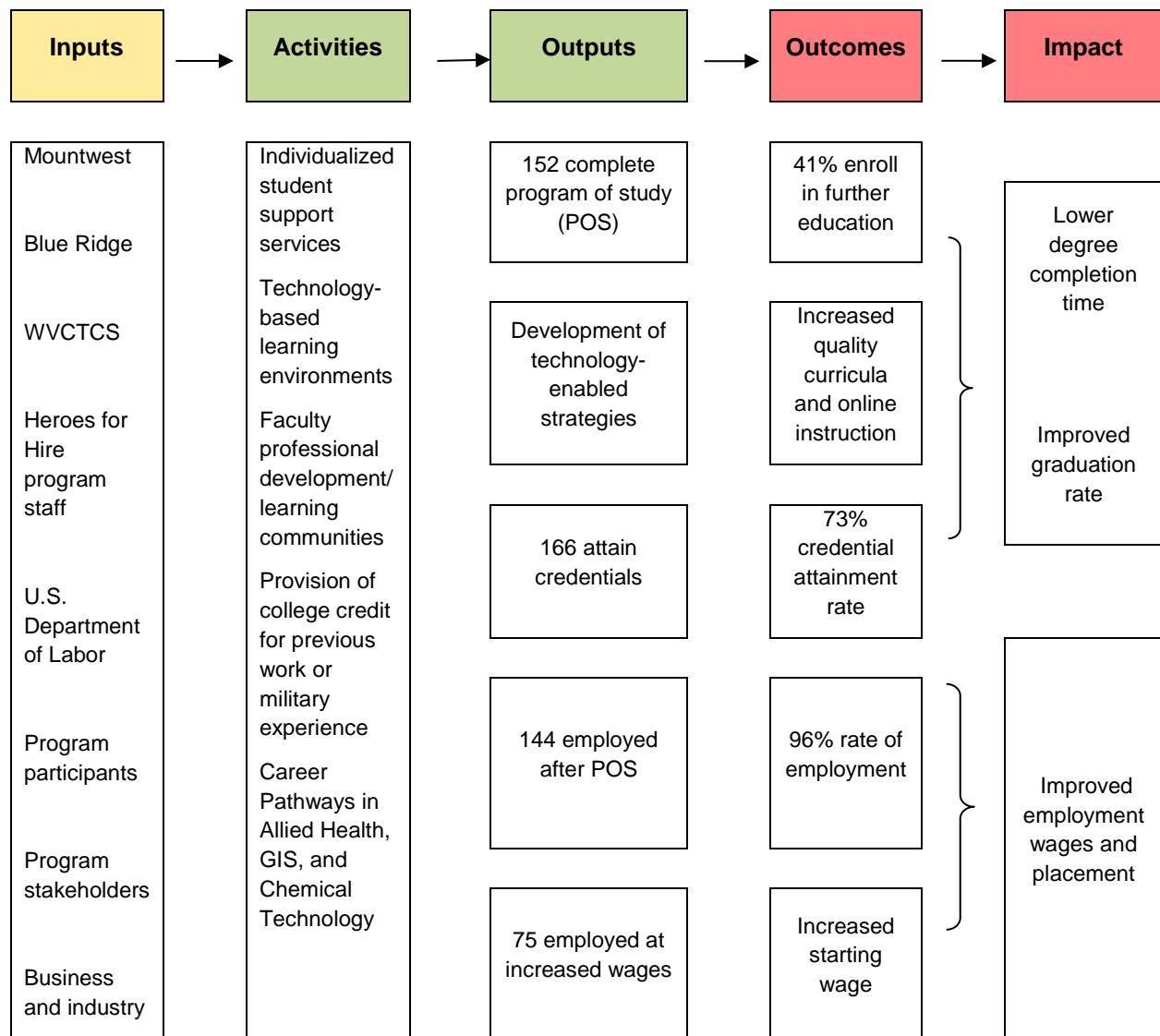
5. As specified in the report, a positive aspect of the H4H program was professional development opportunities provided for implementing staff. The professional development plan and associated activities reportedly had a positive impact on staff and faculty work and allowed the colleges to implement Quality Matters and PLA. As such, similarly structured professional development has the potential to have continued impacts beyond the grant period of performance. Colleges should continue professional development processes that continue similar positive impacts.
6. Programs like H4H could benefit from better coordination between colleges and Workforce West Virginia regarding participant skills assessments and employment assistance. The public workforce system in each state typically offers assessments and employment assistance. Assessments such as TABE and Work Keys are often seen as beneficial, especially when linked to a career readiness certification. H4H colleges and others should continue to explore positive, working relationships with Workforce West Virginia and explore economies of scale regarding employment services or other student assistance where systems and services can be leveraged and not duplicative.

Appendices

A.1 Evaluation Design and Methodology

The ICF team’s evaluation for the program implementation and outcomes is guided by conceptualizing how effects are likely to be realized through the *Heroes* program through the development of a logic model. The logic model presented in Exhibit A.1 maps out the specific inputs/resources, program implementation activities, and intended outputs, outcomes, and impact of the program that were to be delivered.

Exhibit A.1 Heroes for Hire Program Logic Model



Assumptions: 1. Processes and activities may change and have effects on project outputs and outcomes. 2. Evaluators will monitor changes in participation as a result of project processes and activities across each cohort and types of students.

External Factors: Other activities and programs of study at the three colleges, employment conditions, industry outlooks, etc.

A.2 Outcomes Evaluation

The ICF team’s evaluation for the program outcomes is guided by the evaluation questions and mixed data collection approach. Table A.1 shows specific evaluation questions, data sources and collection strategies guiding the evaluation study.

Table A.1. Outcomes/Impact Evaluation Questions, Data Collection Methods, and Data Sources

Evaluation Question	Data Collection Method	Data Sources
1. How many unique participants were served through the grant?	Student data tracking system	Treatment students
2. How many program participants completed a TAACCCT-funded program of study?	Student data tracking system	Treatment students
3. How many participants were still retained in their program of study at the end of the grant period? How many participants entered but did not complete a TAACCCT-funded program of study?	Student data tracking system	Treatment students
4. How many participants completed credit hours with a passing grade?	Student data tracking system	Treatment students
5. How many participants earned credentials through the grant-funded program of study?		
6. How many participants who completed a grant-funded program of study enrolled in further education? How many of these participants enrolled in subsequent grant-funded degree or certificate programs?	Student data tracking system	Treatment students
	National Student Clearinghouse Student Tracker Service	Continuing education data on treatment and comparison students
7. How many participants who completed a grant-funded program of study were employed after program completion?	West Virginia Department of Labor's Center for Workforce Research and Information	Unemployment insurance wage records
8. How many participants who completed a grant-funded program of study and were employed after program completion retained that employment for six months and one year after program completion?		
9. How many participants were employed at the time of program enrollment? How many participants who were employed at enrollment received a wage increase after program completion?	Student enrollment documentation	Treatment students
	West Virginia Department of Labor's Center for Workforce Research and Information	Unemployment insurance wage records

A.3 Site Visit Interview Protocol

HEROES FOR HIRE (TAACCCT ROUND 4) PROGRAM EVALUATION

SITE VISIT PROTOCOL

Purpose of Visit

The external evaluation team members from ICF International/WorkED Consulting are conducting a site visit to Blue Ridge Community and Technical College, Mountwest Community and Technical College, and Southern West Virginia Community and Technical College, for the purpose of gathering qualitative data as part of the third-party evaluation of the TAACCCT-funded *Heroes for Hire* program. Qualitative data will be gathered using by the following questionnaire through group interviews/facilitated discussions with program leaders, faculty, and staff.

As outlined in the *Heroes for Hire* evaluation plan, the Fall 2015 site visit will be focused on gathering the information necessary to conduct a strengths, weaknesses, opportunities, and threats (SWOT) analysis for the purpose of identifying “*operational strengths and weaknesses of [the] project after implementation.*” This SWOT analysis will form the core of an *Early Implementation Report* that the evaluation team will provide to the *Heroes for Hire* program leaders to report on early implementation successes and correct any issues that have arisen.

Instructions to Interview Facilitator:

Convey to each participant as they join the conversation about the confidentiality protections: (1) *your participation is voluntary; (2) you can decline to answer any questions; (3) the information will be held in confidence by the evaluation team; (4) audio recordings and transcript data will be maintained in secure areas; and (5) please respect others' privacy by not sharing any information outside of the meeting.*

Data Collection Questionnaire

Throughout this informal discussion group, we will ask you some questions about program implementation across five focus areas: (1) curriculum development (review, use, and selection); (2) program design, delivery, and administration; (3) assessment tools and processes; (4) partner contributions; and (5) consortium membership.

CURRICULUM DEVELOPMENT

1. What new curriculum is being produced through the Heroes for Hire program?
2. Is curriculum being developed differently than originally proposed? If so, why?
3. Describe the process for new curriculum development at Blue Ridge/Mountwest/Southern.
4. What is the process in place for curriculum development?
5. Who is responsible for curriculum development?
6. Have curriculum development staff been hired? Why or why not?
7. Describe any differences between online vs. classroom curriculum being developed.
8. Has an employer feedback process been developed prior to new curriculum implementation? Feel free to elaborate.
9. Are curriculum development timelines being met? Why or why not?
10. Is there anything else we should know about the curriculum development process?

PROGRAM DESIGN, DELIVERY, AND ADMINISTRATION

1. Do staff and faculty have a clear understanding of the vision and goals for the program?
2. What is the status of position hiring?
3. Is the administrative structure being implemented as originally conceived? If not, what modifications are being made?
4. What are the roles of each program staff member?
5. Are there any conflicting roles or confusion of roles?
6. How has the veterans' outreach and service function been implemented structurally?
7. Do veterans' staff have a clear understanding of their roles and responsibilities?
8. What are the accountability measures for each staff and faculty involved in the project?
9. For online course development, what is the organizational relationship between program staff and IT staff?
10. Is both online and classroom course development on schedule for implementation?
11. Is there anything else we should know about the program design, delivery, and administration?

ASSESSMENT TOOLS AND PROCESSES

1. Describe the process that veterans' counselors and other counselors use for intake and counseling.
2. Do veterans' counselors and other counselors have a common understanding of the intake and counseling process?
3. Describe the "screening interview" process.
4. What assessments are being used to document participant skills?
5. Are any external partners using assessment instruments on participants?
6. What is the referral process from the local workforce system to the program?
7. How are participant competency and skills attainment being measured?
8. How is Prior Learning Assessment (PLA) being implemented?
9. Is there anything else we should know about assessment tools and processes?

PARTNER CONTRIBUTIONS

1. What partner contributions have or will be utilized by the college?
2. What financial or in-kind contributions are partners making?
3. Are ITAs being provided for any non-TAA participants? How are GI Bill resources being utilized on behalf of eligible veterans participants?
4. How are partners working together to document and assess education and employment outcomes for participating students?
5. What do you believe your partners would say are the vision and goals of the program?
6. How do you envision the program being sustained after the grant is over?
7. What ongoing communication tools and techniques are being utilized with partners?
8. How are employers being engaged and utilized for the benefit of the program?
9. Are community partners providing any supportive services? If so, what are they?
10. Is there anything else we should know about partner contributions

CONSORTIUM MEMBERSHIP

1. Tell me about how the college decided to participate in the Heroes for Hire program as one of three consortium colleges.
2. Who were the key players involved?
3. Have there been any issues or changes that have arisen since making the decision to join/lead the consortium?
4. Is there anything else we should know about the college's membership in the consortium?