Department of Labor

Strengthening Community Colleges (SCC) Grant

Round 1 Award

The Oregon Consortium for Strengthening Community Colleges Training Program

Final Evaluation Report

PREPARED AND PRESENTED BY

Pacific Research and Evaluation, LLC

Reporting Period: January 2021 – November 2024

Submitted January 31, 2025

Acknowledgement of Funding

Funding for this project is provided by a United States Department of Labor Strengthening Community Colleges Training Grant awarded in January 2021. The information in this report does not necessarily reflect the views or policies of the United States Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the United States Government.

Table of Contents

Executive Summary

The Oregon Consortium for Strengthening Community Colleges was awarded a Strengthening Community Colleges (SCC) training grant to create systemic changes to allow nine community colleges to collaborate around shared program areas and strengthen Advanced Manufacturing and Cybersecurity career pathways. Grant activities included the development of stackable credentials, micro-credentials, and a digital badging framework for employability skills, a focus on offering programs in a hybrid delivery format, the development of Integrated Education and Training (IET) programs, and the development of resources shared via an online repository. Led by Mt. Hood Community College, the consortium includes Central Oregon, Chemeketa, Clackamas, Lane, Klamath, Portland, Rogue, and Southwestern Oregon Community Colleges.

The consortium has formed important partnerships with the Oregon Higher Education Coordinating Commission (HECC), Workforce Talent & Development Board (WTDB), Oregon Workforce Partnership (OWP) and its nine Workforce Development Boards, and employers from both industry sectors throughout the state. The consortium aimed to build accelerated learning pathways in Advanced Manufacturing and Cybersecurity that brought evidence-based strategies to scale throughout the state using the following three strategies:

1. Investing in infrastructure to facilitate online and hybrid delivery of online CTE and increase access to the cybersecurity learning pathway;
2. Creating, promoting, and broadly offering stackable credentials, across the consortium, tied to employment and/or advancement (e.g., raise, promotion, etc.) that are responsive to emerging skill needs in the targeted industry sectors (advanced manufacturing and cybersecurity);
3. Aligning policy and procedure around issues of credit transfer, shared curricula, adoption of Open Educational Resources, and program governance.

Pacific Research and Evaluation (PRE) partnered with the Oregon Consortium to conduct a participatory evaluation to assess the consortium's efforts in developing and implementing the program and to understand the effects of the program on systems, industry partners, and students including the extent to which students are prepared to attain employment or advancement in advanced manufacturing. This evaluation endeavored to assess the consortium's progress toward their intended grant activities, outputs, and outcomes from a formative and summative lens using both qualitative and quantitative methodologies.

PRE conducted phone interviews with partners, as well as administered surveys with faculty/staff and students from four of the colleges. Findings from the quantitative and qualitative data emerged through a thematic analysis and have been shared with the Consortium Director to contextualize findings and with colleges participating in the surveys for continuous program improvement efforts. Findings from these data collection activities are provided in this final report and address the research questions.

Summary of Findings

- Although, the grant aims to offer courses in an online or hybrid format, surveyed students most commonly indicated that they prefer in-person courses. Despite this input, students—as well as faculty/staff—recognize that online and hybrid courses provide students access to programs.

- Students primarily use their personal computer and high-speed internet at home to participate in online and hybrid courses.

- Stackable credentials, micro-credentials, and badging opportunities were developed through collaboration between colleges and partners.

- Although a majority of faculty/staff reported that stackable credentials were being promoted through college websites, course catalogs, and marketing materials, few students reported learning about stackable credentials in these methods. Instead, students most commonly learned about stackable credentials from a faculty/staff member at the college.

- Both faculty/staff and students agree that stackable credentials are preparing them for employment in their industry. Credentials and badging provide students with tangible skills that they can demonstrate to employers including soft skills.

- Student survey respondents across both rounds of data collection who were aware of stackable credentials most commonly obtained one stackable credential.

- Faculty/staff survey respondents were aligning policies and procedures related to shared curricula, credit for prior learning, credit transfer, dual credit, and accelerated learning. These efforts were being facilitated by collaboration among consortium members.

- Surveyed colleges are engaging with a wide variety of partners, and in doing so, partners are most commonly assisting with informing curriculum, providing funding and support to students in the program, strengthening dual credit courses for high school students, hiring students, and being guest speakers at events.

- Partner involvement in the program is most commonly facilitated by the opportunity to collaborate on meaningful work within their communities, the ability to influence the outcome of their future workforce, and positive outreach from colleges.

- Students are overall satisfied with the program.

- Faculty/staff suggested an area for improvement is around hiring more instructors to sustain the growth of the program.

- Most students gain access to the program without taking prerequisite courses, placement tests, or having prior experience in the industry.

- Systems change across the consortium has included increased intentional collaboration with partners, as many faculty/staff members felt that they were more likely to engage in a direct line of communication as a result of grant activity. Systems change has also encompassed developing the employability skills badging framework and shared resources via an online repository.

- Obstacles that colleges are commonly experiencing to affect system change included slow or timely processes, faculty turnover, limited resources, and communication barriers.

- Some students have already gained employment in the industry since becoming involved in the program. Students also reported that they are more likely to pursue a career in the industry and obtain a local job because of their participation in the program.

- Faculty/staff, students, and partners all highlighted the program's ability to help students attain employment. There are several components of the program that support students in reaching this outcome such as the curriculum and resources informed by industry partners, opportunities to engage one-on-one with employers, hands-on learning opportunities, and high-quality technology that is applicable to the industry.

Evaluation Insights

1. Partnerships with a variety of external stakeholders are strong and an important aspect of this project. The consortium colleges and Consortium Director worked throughout the grant with a wide range of partners who supported the program with a number of activities including the development of stackable credentials, micro-credentials, and badging. Since these grant components—and others in which partners are involved—can impact participants' employability, partnerships are integral to supporting students to attain employment or advancement in their field. These partnerships were facilitated by strong communication, enthusiasm for the project, pre-existing connections, a desire to support the community, and a desire to enhance the skills of future employees.

2. A work group of consortium members and partners developed digital badges focused on employability skills. While faculty/staff and partners expressed excitement around badges, some expressed concern that employers would not recognize badges as something valuable during the hiring process. Despite this, students were optimistic that badges would prepare them for employment in their industry.

3. The Oregon Consortium made a lot of progress reaching or exceeding the target numbers for eight grant outcomes. For six of the outcomes, each of the two industries exceeded the target number. For one of the outcomes, one of the industries exceeded the target number. There is one outcome, where significant progress was made but was not be fully met by the end of Year 4, Quarter 4 of the grant.

4. Overall, the programs in both industry areas exceeded the target numbers of students completing credentials. This is promising given that students, faculty/staff, and partners are optimistic that the grant programs are preparing students for work in the industry.

5. Throughout the grant, the consortium progressed in developing stackable credentials and badges. Survey findings indicate that faculty/staff perceive students to be more aware of these opportunities than they are. Students typically learn about stackable credentials and badges through faculty/staff at their college, but for these credentials and badges to be useful to students they will need to become more aware of their availability. Thus, there may be room for colleges to further promote stackable credentials and badges to students.

6. An important component of this grant was to offer courses in hybrid and online formats. The consortium colleges did offer courses in these nontraditional formats, while also

providing in-person learning opportunities. Advanced Manufacturing student survey respondents at both timepoints and Cybersecurity student survey respondents in Round 1 indicated that in-person courses are actually their preference; however, the hybrid and online options were still important to many students in that they offered them flexibility to take courses while balancing work and family obligations.

Introduction

The Oregon Consortium for Strengthening Community Colleges Training Grant Program is a group of nine community colleges led by Mt. Hood Community College. The Consortium was awarded a Strengthening Community Colleges (SCC) training grant to focus on systemic changes to allow community colleges to collaborate around their shared program areas and strengthen Advanced Manufacturing and Cybersecurity career pathways. Pacific Research and Evaluation (PRE), headquartered in Portland, Oregon, provides evaluation services across the country and has extensive experience working with community colleges and state and federal grants. PRE has partnered with The Oregon Consortium to conduct a participatory evaluation to assess the consortium's efforts in developing and implementing the program and to understand the effects of the program on students and industry partners, including the extent to which students are prepared to attain employment or advancement in Advanced Manufacturing or Cybersecurity. This evaluation endeavors to assess The Oregon Consortium programs from a formative and summative lens using both qualitative and quantitative methodologies including surveys and interviews to explore the following evaluation research questions based on The Oregon Consortium's intended grant activities and outcomes. A full list of research questions and sub-questions is provided in the Methods section.

Primary Research Questions	
RQ1.	What types of infrastructure did the consortium invest in to facilitate hybrid delivery of Advanced Manufacturing and Cybersecurity programs?
RQ2.	What stackable credentials have been created across the consortium?
RQ3.	How are consortium colleges aligning policy and procedures around issues of credit transfer, shared curricula, credit for prior learning, dual credit, accelerated learning, and adoption of Open Education Resources (OER) and program governance?
RQ4.	What contributions did each partner make?
RQ5.	To what extent was the program implemented as intended?
RQ6.	In what ways are systems changed due to the collaboration among colleges and between colleges and employees?
RQ7.	What role did the program play on student outcomes?

Through its partnership with The Oregon Consortium, PRE has sought to build meaningful relationships with project stakeholders, use a participatory approach when engaging in evaluation activities, identify facilitators and barriers to implementing the proposed project

while considering the state and individual college context, assess what efforts have been made to develop and implement the program, and determine the role of faculty, staff, and partners in these efforts.

Background

The Oregon Consortium for Strengthening Community Colleges Training Program is administering an Accelerated Learning Pathways project focused on systemic changes that allow consortium colleges to collaborate around their shared program areas and strengthen career pathways in Advanced Manufacturing and Cybersecurity. Led by Mt. Hood Community College, the consortium also includes Central Oregon, Chemeketa, Clackamas, Lane, Klamath, Portland, Rogue, and Southwestern Oregon Community Colleges. These nine colleges are located across the state in Southern Oregon, the Willamette Valley, Central Oregon, the Oregon Coast, and the Portland Metro Area. These colleges serve students in both rural communities and those in urban areas. The program does not target a specific demographic of students, but potential participants will vary across the nine colleges in that five colleges are urban and four are rural. Table 1 below demonstrates the colleges that are involved in the consortium and the industry area of focus.

Table 1. Members of the Oregon Consortium and associated program areas

Consortium Colleges	Advanced Manufacturing	Cybersecurity
Mt. Hood CC	✓	✓
Central Oregon CC	✓	✓
Chemeketa CC		✓
Clackamas CC	✓	
Lane CC	✓	
Klamath CC	✓	✓
Portland CC	✓	
Rogue CC	✓	
Southwestern Oregon CC	✓	

When there was a shift to online and virtual operations due to the COVID-19 pandemic, the Oregon Consortium saw an opportunity to transform Advanced Manufacturing and Cybersecurity through online and hybrid delivery methods. The consortium is taking a systems approach to integrate best practices in instructional delivery across curriculum. Individual consortium members have pilots and institution-level initiatives in Integrated Education and Training (IET), short-term certifications and stackable credentials, hands-on training, Open Education Resources (OER), and teams with expertise in instructional design, assessment, and

equity-driven support programs. The Oregon Consortium is leveraging these established efforts of consortium members and increasing coordination with partners such as the Oregon Higher Education Coordinating Commission (HECC), WTDB, seven Workforce Development Boards, and employers from both industry sectors throughout the state. These efforts aim to build accelerated learning pathways in Advanced Manufacturing and Cybersecurity that brings evidence-based strategies to scale throughout the state using the following three strategies:

1. Investing in infrastructure to facilitate online and hybrid delivery of online CTE and increase access to the cybersecurity learning pathway;
2. Creating, promoting, and broadly offering stackable credentials, across the consortium, tied to employment and/or advancement (e.g., raise, promotion, etc.) that are responsive to emerging skill needs in the targeted industry sectors (Advanced Manufacturing and Cybersecurity);
3. Aligning policy and procedure around issues of credit transfer, shared curricula, adoption of Open Educational Resources, and program governance.

The subsequent sections of this report include the Methods and Analysis, Program Overview, Summary of Activities and Outputs, Findings, Evaluation Insights, and Conclusion. The Program Overview describes in more detail the program's purpose, personnel, and plan. The Summary of Activities and Outputs section lays out the grant project activities, intended outcomes, targets, and progress toward reaching the targets, in addition to laying out a summary of the program output data. The Methods section describes the data collection methods used to evaluate the grant project thus far. The Findings section lays out the findings across all data collection activities and is organized by the research questions guiding the evaluation. The Evaluation Insights section highlights key takeaways from the evaluation and provides some recommendations. The Conclusion section summarizes the report and discusses limitations and implications moving forward.

Methods & Analysis

This report is structured around seven main evaluation research questions, each with a set of sub-questions. Table 2 below lists these research questions and sub-questions along with the method used to evaluate each question.

Table 2. Research questions and evaluation methods

Evaluation Question/Outcome	Evaluation Method
RQ1: What types of infrastructure did the consortium invest in to facilitate hybrid delivery of Advanced Manufacturing and Cybersecurity programs?	Staff surveys
RQ1a: How have the infrastructures facilitated access to the Advanced Manufacturing and Cybersecurity learning pathway?	Staff surveys Student surveys
RQ1b: What are the strengths and weaknesses of the infrastructures?	Staff surveys Student surveys
RQ2: What stackable credentials have been created across the consortium?	Staff surveys
RQ2a: What was the process for developing these stackable credentials?	Staff surveys Partner interviews
RQ2b: What was the process for developing badging and micro-credentialing opportunities?	Staff surveys Partner interviews
RQ2c: How were employer partners or other stakeholders involved in this process?	Staff surveys Partner interviews
RQ2d: In what ways are these stackable credentials responsive to emerging skill needs in the targeted sectors?	Staff surveys Partner interviews
RQ2e: How are stackable credentials being promoted? Are students aware of these credential offerings?	Staff surveys Student surveys
RQ2f: How are the stackable credentials preparing students for employment or advancement in Advanced Manufacturing and Cybersecurity?	Staff surveys Student surveys Partner interviews
RQ2g: How are badging and micro-credentialing enhancing student career readiness?	Staff surveys Student surveys Partner interviews
RQ2h: What other methods are being utilized to prepare students for employment or advancement in Advance Manufacturing and Cybersecurity?	Staff surveys Student surveys Partner interviews
RQ3: How are consortium colleges aligning policy and procedures around issues of credit transfer, shared curricula, credit for prior learning, dual credit, accelerated learning, and adoption of Open Education Resources (OER) and program governance?	Staff surveys

Evaluation Question/Outcome	Evaluation Method
RQ3a: What barriers has the consortium faced in aligning these policies and procedures?	Staff surveys
RQ3b: What efforts have facilitated the alignment of policies and procedures?	Staff surveys
RQ3c: What efforts are being made to sustain newly aligned policies and procedures, as well as new programming?	Staff surveys
RQ4: What contributions did each partner make?	Partner interviews
RQ4a: Which factors from partners were most critical to the grant program?	Partner interviews
RQ4b: What factors contributed to partners' involvement?	Partner interviews
RQ4c: Had partners had previous relationships with the college(s), and if so, how has their involvement changed through the grant?	Staff surveys Partner interviews
RQ4d: How are partners accepting badging and micro-credentialing programs in the workforce?	Partner interviews
RQ4e: In what ways has the consortium increased coordination with workforce agencies?	Staff surveys Partner interviews
RQ5: To what extent was the program implemented as intended?	Staff surveys
RQ5a: How did program activities change over time?	Staff surveys
RQ5b: To whom did the consortium direct program efforts? How was this determined?	Staff surveys Student surveys Partner interviews
RQ5c: How is the consortium ensuring equitable access to programs?	Staff surveys Student surveys
RQ5d: How are instructors engaging in instructional practices focused on equity in access?	Staff surveys
RQ5e: What implementation efforts did the consortium struggle with?	Staff surveys
RQ6: In what ways are systems changed due to the collaboration among colleges and between colleges and employers?	Staff surveys Partner interviews
RQ6a: How are the colleges building relationships and facilitating shared learning throughout the grant to strengthen career pathways in Advanced Manufacturing and Cybersecurity?	Staff surveys
RQ6b: What are examples of barriers that colleges are commonly experiencing to effect system change? How are these being overcome collectively?	Staff surveys
RQ6c: What do successes and areas for growth look like in terms of communication between colleges and employers?	Staff surveys Partner interviews
RQ7: What role did the program play on student outcomes?	Staff surveys Student surveys

Evaluation Question/Outcome	Evaluation Method
RQ7a: What implementation efforts were most effective at playing a role in student outcomes?	Staff surveys Student surveys
RQ7b: In what ways are students prepared to attain employment or advancement in Advanced Manufacturing/Cybersecurity?	Staff surveys Student surveys

To answer these questions PRE administered surveys with students and faculty/staff at the nine colleges at two timepoints for each college, as well as conducted interviews with a sample of partners in Years 2/early Year 3 and 4. Prior to data collection activities in Year 2, data collection instruments were developed in collaboration with the Consortium Director to address research questions. As part of the participatory approach to this evaluation, PRE highlighted data collection instruments during a consortium-wide meeting and invited consortium members to review the instruments over the course of a couple of weeks and then provide feedback. As such, the instruments were updated based on input from members of the consortium. Following the first iteration of survey administration, PRE collaborated with the Consortium Director to update survey instruments to ensure they were appropriately addressing research questions. In addition to faculty/staff surveys, student surveys, and partner interviews, PRE conducted quarterly surveys with college leads focused on grant outcomes. Each data collection activity is described in more detail below. To analyze quantitative survey data, PRE used SPSS to conduct descriptive statistics. Qualitative data from open-ended survey questions and interviews were analyzed by coding for themes with a focus on findings that address research questions.

Quarterly Performance Outcomes Survey

At the conclusion of each grant quarter, leads from the consortium colleges were invited via email from the Consortium Director to complete an online survey about progress made addressing each grant outcome by industry sector. The survey responses supported the Consortium Director with Department of Labor (DOL) reporting and provided context to evaluators regarding progress addressing outcomes. The outcomes comprised in the survey are listed in the previous section, Summary of Activities & Outputs.

Partner Interviews

PRE conducted phone and video conferencing interviews with partners between November 2022 and February 2023 (Year 2) and again between March and May 2024 (Year 4). Evaluators invited consortium members to suggest partners to participate and utilized the Quarterly Performance Outcomes Survey to determine potential participants as well. The Consortium Director and representatives from colleges sent an email alerting partners about upcoming

interviews and PRE followed up by sending an email invitation to register to participate in the phone interview. In Year 2, a total of nine partners were invited to participate and seven completed interviews. In Year 4, a total of 18 partners were invited to participate and nine completed interviews. Interviewees included industry partners, as well as representatives from a high school, HECC, WTDB, and Clackamas Workforce Partnership. Interview participants were asked about the grant activities they have been focused on and their experience with those activities, the consortium's role in preparing students for employment, factors contributing to their involvement, and overall strengths and challenges of the project. The interview questions are provided in **Appendix A.**

Faculty/Staff & Student Surveys

PRE administered surveys to faculty/staff and students at each of the nine colleges at two timepoints for each college. As noted in the evaluation plan, the surveys were initially administered at four colleges during the initial survey implementation due to budget limitations; the four colleges were selected due to being further along in grant implementation. PRE planned to administer the surveys in fall 2022 toward the end of Year 2; however, after meeting with representatives from each college individually in early fall 2022, it was determined that each of the four colleges would benefit from administering in winter 2023 (early Year 3) for such reasons as to ensure there were enough students in the program to participate in the survey, to obtain IRB or Institutional Research department approval, and to avoid other institutional surveys or college breaks. The winter 2023 surveys were administered between January and February 2023. Surveys were administered to the remaining five colleges later in Year 3 in October and November 2023. All surveys administered in Year 3 are referred to in this report as Round 1 of survey administration.

PRE administered another round (Round 2) of surveys to three colleges in spring 2024 between April and May and to the six remaining colleges in fall 2024 in October. The breakdown of survey administration by round is detailed in the Table 3 below:

Table 3. Survey administration by Round

Consortium Colleges	Round 1 Timing	Round 2 Timing
Mt. Hood CC	Winter 2023 (early Year 3)	Spring 2024 (early Year 4)
Central Oregon CC	Fall 2023 (late Year 3)	Fall 2024 (late Year 4)
Chemeketa CC	Fall 2023 (late Year 3)	Fall 2024 (late Year 4)
Clackamas CC	Winter 2023 (early Year 3)	Spring 2024 (early Year 4)
Lane CC	Fall 2023 (late Year 3)	Fall 2024 (late Year 4)
Klamath CC	Fall 2023 (late Year 3)	Fall 2024 (late Year 4)

Consortium Colleges	Round 1 Timing	Round 2 Timing
Portland CC	Winter 2023 (early Year 3)	Spring 2024 (early Year 4)
Rogue CC	Winter 2023 (early Year 3)	Fall 2024 (late Year 4)
Southwestern Oregon CC	Fall 2023 (late Year 3)	Fall 2024 (late Year 4)

For all rounds of survey administration, PRE evaluators met with representatives from individual colleges to determine the best method for administering surveys. Depending on the school, online surveys were sent via email directly from PRE, via email directly from the colleges, or shared via a link on Learning Management Systems or in class. Potential respondents received reminder emails, and the survey deadline was extended for colleges when needed in order to increase responses. PRE encouraged college leads to invite all students currently enrolled in the grant-funded program to participate in the student survey, while colleges were encouraged to invite all faculty/staff involved in the grant-funded program to participate in the faculty/staff survey. One school in Round 1 gave their students the option to complete the survey via paper-pencil format provided by PRE. Additional information about survey respondents is provided below.

Faculty/Staff Respondent Background

The faculty/staff survey was completed by 49 respondents in Round 1 of survey data collection and 40 respondents in Round 2 of data collection. In Round 1 of data collection, 35 respondents represented the Advanced Manufacturing industry and 14 represented the Cybersecurity industry. In Round 2 of data collection, 28 respondents represented the Advanced Manufacturing industry and 12 represented Cybersecurity. The breakdown of respondents by college is provided in Table 4 below. It was difficult for evaluators to obtain the number of potential participants the survey was shared with; therefore, response rates are not available.

Table 4. Associated college of faculty/staff survey respondents (N = 49, N = 40)

Consortium College	Round 1 % (n)	Round 2 % (n)
Central Oregon CC	18.4% (n = 9)	27.5% (n = 11)
Chemeketa CC	8.2% (n = 4)	5.0% (n = 2)
Clackamas CC	18.4% (n = 9)	12.5% (n = 5)
Klamath CC	14.3% (n = 7)	10.0% (n = 4)
Lane CC	4.1% (n = 2)	2.5% (n = 1)
Mt. Hood CC	6.1% (n = 3)	17.5% (n = 7)
Portland CC	16.3% (n = 8)	15.0% (n = 6)
Rogue CC	10.2% (n = 5)	7.5% (n = 3)
Southwestern Oregon	4.1% (n = 2)	2.5% (n = 1)

The faculty/staff respondents who completed the survey were most commonly instructors in both Rounds 1 (53.1%) and 2 (57.5%). The respondents who selected "other" reported the following roles: academic lab specialist, adjunct instructor, admin assistant II, CIS instructional specialist, success coach, admin assistant CIS, community outreach and events, computer science lab coordinator, Cybersecurity and Networking program lead, grant development, program director, program lead, and support staff.

Table 5. Role of faculty/staff survey respondents (N = 49, N = 40)

Role	Round 1 % (n)	Round 2 % (n)
Instructor	53.1% (n = 26)	57.5% (n = 23)
Career counselor	4.1% (n = 2)	0.0% (n = 0)
Academic advisor	14.3% (n = 7)	7.5% (n = 3)
Industry outreach coordinator	8.2% (n = 4)	7.5% (n = 3)
Grant implementation faculty/staff	16.3% (n = 8)	22.5% (n = 9)
Grant lead	6.1% (n = 3)	2.5% (n = 1)
Dean or other administrator	18.4% (n = 9)	10.0% (n = 4)
Other	10.2% (n = 5)	27.5% (n = 11)

Respondents also shared when they became involved with the grant with the following breakdown of faculty/staff by year.

Table 6. Faculty/Staff survey respondents by year they became involved with the grant (N = 48, N = 40)

Year Involvement Began	Round 1 % (n)	Round 2 % (n)
Prior to Year 1 (Grant development)	12.5% (n = 6)	15.0% (n = 6)
Year 1 (2021)	50.0% (n = 24)	7.5% (n = 3)
Year 2 (2022)	25.0% (n = 12)	22.5% (n = 9)
Year 3 (2023)	12.5% (n = 6)	35.0% (n = 14)
Year 4 (2024)	0.0% (n = 0)	20.0% (n = 8)

The table below demonstrates the activities related to the SCC grant project in which respondents have been involved. Based on these responses, faculty/staff were directed to follow up questions related to their activities of involvement. Over three-quarters (75.5%) of faculty/staff survey respondents in Round 1 and nearly 60% (57.5%) of faculty/staff survey

respondents in Round 2 reported working with external partners. Round 1 survey respondents also commonly reported being involved in the development of stackable credentials (53.1%) and digital badges (34.7%), as well as aligning policy and procedures (34.7%). Over one-third (37.5%) of Round 2 survey respondents cited involvement in aligning policy and procedures.

Table 7. Activities in which faculty/staff survey respondents are involved (Ns vary)

Consortium College	Round 1 % (n)	Round 2 % (n)
Developing and revising stackable credentials	53.1% (n = 26 of 49)	27.5% (n = 11 of 40)
Developing micro-credentialing	24.0% (n = 6 of 25)	9.1% (n = 1 of 11)
Developing digital badges	34.7% (n = 17 of 49)	24.2% (n = 8 of 33)
Aligning policy and procedures around issues of credit transfer, shared curricula, credit for prior learning, dual credit, accelerated learning, Open Education Resources, and/or program governance	34.7% (n = 17 of 49)	37.5% (n = 15 of 40)
Working with external partners (e.g., employers, workforce development, HECC, etc.) outside of my college and the other Oregon Consortium colleges to administer grant activities	75.5 (n = 37 of 49)	57.5% (n = 23 of 40)
None of the above	8.0% (n = 2 of 25)	25.0% (n = 10 of 40)

Student Survey Respondent Background

The student survey was completed by 147 respondents in Round 1 of data collection and 153 respondents in Round 2 of data collection. In Round 1 of data collection, 107 students were participating in Advanced Manufacturing programs, while 40 were in Cybersecurity programs. There were similar numbers of students in each program in Round 2, in which 114 students were participating in Advanced Manufacturing and 39 were participating in Cybersecurity programs. The breakdown of respondents by college is provided in Table 8 below. It was difficult for obtain the number of potential participants the survey was shared with; therefore, response rates are not available.

Table 8. Affiliated college of student survey respondents (N = 147, N = 153)

Consortium College	Round 1 % (n)	Round 2 % (n)
Central Oregon CC	17.0% (n = 25)	19.6% (n = 30)
Chemeketa CC	5.4% (n = 8)	1.3% (n = 2)
Clackamas CC	18.4% (n = 27)	2.0% (n = 3)
Klamath CC	18.4% (n = 27)	19.6% (n = 30)
Lane CC	6.8% (n = 10)	5.2% (n = 8)
Mt. Hood CC	10.2% (n = 15)	5.2% (n = 8)
Portland CC	5.4% (n = 8)	11.9% (n = 18)
Rogue CC	4.8% (n = 7)	26.1% (n = 40)
Southwestern Oregon	13.6% (n = 20)	9.2% (n = 14)

Table 9 and Table 10 provide timeframes in which students started to take classes in their programs. Some students were asked to select a grant year (Table 9), while others were asked to select a timeframe (Table 10).

Table 9. Grant year that student survey respondents started classes in the program (N = 76, N = 84)

Timeframe	Round 1 % (n)	Round 2 % (n)
Prior to Year 1 (2020)	3.9% (n = 3)	1.2% (n = 1)
Year 1 (2021)	11.8% (n = 9)	2.4% (n = 2)
Year 2 (2022)	30.3% (n = 23)	6.0% (n = 5)
Year 3 (2023)	53.9% (n = 41)	28.6% (n = 24)
Year 4 (2024)	0.0% (n = 0)	61.9% (n = 52)

Table 10. Timeframe that student survey respondents started classes in the program (N = 57, N = 69)

Consortium College	Round 1 % (n)	Round 2 % (n)
Prior to Fall 2020	15.8% (n = 9)	1.4% (n = 1)
Fall 2020 – Summer 2021	12.3% (n = 7)	1.4% (n = 1)
Fall 2021 – Summer 2022	29.8% (n = 17)	2.9% (n = 2)
Fall 2022 – Summer 2023	42.1% (n = 24)	10.1% (n = 9)
Fall 2023 – Spring 2024	0.0% (n = 0)	81.1% (n = 56)

Program Overview

Program Purpose

The Oregon Consortium targeted two industries that are expected to have increasing overlap in automation in the future. Both Advanced Manufacturing and Cybersecurity provide opportunities throughout Oregon for community colleges to produce skilled workers who meet growing industry demands. Throughout the state, there are gaps between job openings and the number of available graduates tied to in-demand Advanced Manufacturing and Cybersecurity occupations. Consortium members determined this need by collaborating with state labor market information specialists to compile employment and wage information. Despite differences in geography, consortium members shared a need to utilize virtual and hybrid delivery models to rapidly train and get people working quickly. Thus, one of the intended impacts of the SCC project in Oregon is to increase the number of students who will attain employment and/or career advancement (e.g., salary increase, promotion, etc.) in Advanced Manufacturing or Cybersecurity. Through the grant, the nine colleges came together to share resources and best practices, drive systems change and implement digital badging as a method for students to demonstrate employability skills to employers.

Consortium Roles & Structure

As the lead of the consortium, MHCC hired a Consortium Director to oversee the coordination of the college partnership structure and to work collaboratively with the identified grant partners such as the HECC, the Oregon WTDB, and regional workforce boards. Through the grant, MHCC also hired a Business Partnership Coordinator to collaborate with industry partners and support consortium colleges around employer engagement best practices. This role helped facilitate employer focus groups about digital badging employability skills and collaborating with colleges to identify key employers for the badging work. The Oregon Consortium includes partnerships with the Oregon HECC, WTDB, nine Workforce Development Boards, and employers from both industry sectors throughout the state. Further, each college has personnel dedicated to implementing grant activities. Representatives for each college—along with external partners and grant personnel—participate in individual meetings with the Consortium Director and committees focused on various grant activities such as badging, stackable credentials, and policy alignment. Initially, the Consortium Director facilitated consortium-wide monthly meetings; however, due to varying schedules, it was difficult to get

representatives from all colleges in attendance consistently, so these meetings were removed in favor of the meetings at the individual college level.

The consortium also hired a consultant from the Digital Credentials Institute (DCI) at Madison College to assist with developing and piloting an Employability Skills Badging Framework. The consultant has over a decade of experience helping colleges design digital badging frameworks for employability skills. DCI has developed a robust portfolio of best practices to support organizations developing new credentials and badges. As a leader of the digital badge movement, DCI issues 150,000 badges annually and has issued badges to individuals in all 50 states and 125 different countries.

Program Plan

The Oregon Consortium set the goal of enhancing existing programs in Advanced Manufacturing and Cybersecurity in response to labor needs, adapting the pathways to increase stackable credentials that are offered in a hybrid format and align directly to the regional workforce needs and are WIOA funding eligible, transferrable to another consortium college, or eligible to be counted as credit for prior learning. In Oregon, stackable credentials are short-term certificates embedded into larger, credit-bearing certificates and/or degrees. The short-term, embedded credentials lead to a higher-level educational credential and build an individual's qualifications to help them move along a career pathway or up a career ladder to potentially higher paying jobs. Similarly, the consortium programs may encompass micro-credentialing, which are short, focused credentials designed to provide in-demand skills and experience that are stackable and can provide a pathway to a certificate or full degree. Micro-credentials were developed and offered at one of the consortium colleges.

The Oregon Consortium developed an Employability Skills Badging Framework (referred to as badging). The consortium partnered with the consultant at Digital Credentials Institute (DCI) at Madison College, industry employers, HECC, WTDB, regional workforce boards, and K-12 stakeholders to develop the framework, which awards digital badges that symbolize skills and accomplishments to verify to employers that potential employees have obtained necessary skills and achievements. The efforts to develop the badging framework also have the potential to serve as the foundation for badging statewide.

Students were further supported with career preparation through the development of programs that are WIOA-funding eligible. Programs that meet these requirements allowed students in the programs to access services such as job search assistance, workforce preparation, and career development, as well as classroom and work-based learning opportunities.

The consortium also aimed to increase the number of employers who are strategic partners. Partner involvement encompassed providing work-based learning opportunities, contributing expertise to strengthen career pathways, contributing equipment to strengthen career pathways, developing curriculum, mapping skills, validating for stackable credentials and badging, and other supports as needed. Thus, the efforts of partners contributed to participant career preparation.

Another noteworthy activity of the consortium was an investment in infrastructure to facilitate online and hybrid delivery of the courses. To support these efforts, five of the colleges purchased NCSIMUL software for their manufacturing programs to help simulate various manufacturing machines virtually. This allowed students to practice on the machines virtually before using them in a live setting. This software helped the colleges deliver in the hybrid/online format while also allowing students to practice skills virtually before using a live machine. The consortium also developed programs that have credit for prior learning (CPL) or are transferrable to other institutions. These grant components supported participants by making program entry and participation accessible and streamlined.

An additional grant component focused on developing a portal for sharing effective models among consortium members. The consortium contracted with Skills Commons to serve as the online repository for this work. The consortium's project leadership team worked to develop templates and processes for the colleges to get trained to post and to seek approval to post. Colleges can share curricula, syllabi, related program materials, integrated education training, contextualized remediation approaches, short-term certification, pre-apprenticeships, and new programs/certificates in order to learn from one another.

A logic model identifying this program's complete list of inputs, activities, outputs, outcomes, and impact is located in **Appendix B.** The consortium also created an approved Grant Project Work Plan that is referenced in this report as well, particularly the Summary of Activities & Outputs section that follows.

Summary of Activities & Outputs

Grant Activities

The following table provides the grant activities as listed in the logic model (located in **Appendix B**); the Oregon Consortium has completed all seven grant activities (as indicated below with a green checkmark).

Grant Project Activities	Complete
1. Invest in infrastructure to facilitate online and hybrid delivery of courses.	✓
2. Create stackable credentials across consortium colleges in Advanced Manufacturing and Cybersecurity.	✓
3. Promote stackable credentials.	✓
4. Engage employers as strategic partners.	✓
5. Get commitment from sector employers to provide work-based learning (WBL) opportunities.	✓
6. Develop a portal for sharing effective models amongst consortium members.	✓
7. Develop programs that are WIOA-funding eligible, have credit for prior learning (CPL), or are transferrable.	✓

Program Outputs

Appendix C provides the outputs listed in the program workplan as they pertain to the grant objectives. The Oregon Consortium has fully addressed all 37 outputs in which they were tasked to address. The table in Appendix C also demonstrates the consortium's progress toward adhering to the implementation timeline. The consortium was initially behind because the Consortium Director role was hired in July 2021, five months after the grant was awarded in February 2021; however, the consortium got back on track and addressed outputs on the anticipated timeline.

Progress Toward Outcomes

The Oregon Consortium has made great progress toward its project outcomes to address the four core elements of the SCC grant, including 1) Sector Strategies and Employer Engagement, 2) Career Pathway & Accelerated Learning Strategies, 3) Strategic Alignment to Workforce Development System, and 4) Innovative Systems Change - Accelerated Learning Pathways. The core element and its associated outcome, target, and status are described below. Status updates in the sections below were gathered from Quarterly Performance Outcomes Survey findings (described further in Methods) through Year 4, Quarter 3 and a tracking spreadsheet shared by the Consortium Director.

Sector Strategies & Employer Engagement

- **Outcome 2a: Growth in the number of sector employer partners that progress from "advisor" towards full "strategic partners."**

  - *Description:* "Advisor" employers participate on industry advisory boards for CTE programs only. "Strategic partner" is defined as employers who contribute resources such as expertise or equipment to strengthen career pathways, and participate in curriculum development, skill mapping, and validation, particularly for stackable credentials and badging components.

  - *Target:* 49 additional strategic partners for Advanced Manufacturing and six additional strategic partners for Cybersecurity by the end of the grant.

  - *Status:* The Oregon Consortium has exceeded its target for both industries. The Advanced Manufacturing program areas have 60 additional strategic partners, while Cybersecurity has 22 additional strategic partners.

- **Outcome 2b: Growth in the number of sector employers committing to bettering work-based learning opportunities, which includes one or more of the following:**
  - Provide work-based learning for consortium students
  - Interview/hire program completers
  - Advance incumbent workers in salary/title upon credential completion

  - *Description:* Baseline number reflects existing employers consortium-wide who already have demonstrated this commitment either through past practice or a letter (on file). The target number will be measured by the number of additional letters of commitment to work-based learning opportunities by sector employers consortium-wide.

- *Target*: 53 additional Advanced Manufacturing partners and five additional Cybersecurity partners by the end of the grant.

- *Status:* The consortium has exceeded the goal of five additional Cybersecurity partners by increasing the numbers to 21. Consortium members reported 45 additional partners in Advanced Manufacturing, which is under projection.

Career Pathway Programs and Accelerated Learning Strategies

- **Outcome 3a: Increase the number of stackable credentials that are fully developed and implemented for hybrid.**

  - *Target:* 25 additional stackable credentials for Advanced Manufacturing and eight additional for Cybersecurity by the end of the grant.

  - *Status:* The Oregon Consortium exceeded this outcome for Advanced Manufacturing, which has developed 47 stackable credentials for hybrid delivery, and for Cybersecurity, which has developed and implemented 28 stackable credentials for hybrid delivery.

- **Outcome 3b: Increase availability of stackable, industry-certified credentials that align directly to the regional workforce at each consortium institution.**

  - *Description: Baseline number reflects total number of stackable credentials consortium-wide.*

  - *Target*: 49 additional credentials for Advanced Manufacturing and four additional credentials for Cybersecurity by the end of the grant.

  - *Status:* The Oregon Consortium exceeded this outcome for Cybersecurity by adding 23additional credentials and for Advanced Manufacturing with 55 credentials.

Strategic Alignment with the Workforce Development System

- **Outcome 4a: Increase the number of certificate programs that are either WIOA-funding eligible, or eligible to be counted as credit for prior learning and/or transferrable to another consortium college.**

  - *Description:* Each college will conduct an internal review of its policies and procedures related to credit for prior learning, transferability, and WIOA-eligibility to increase the number of programs that have these features. Baseline reflects programs that are either WIOA-funding eligible, have credit for prior learning in place, or are transferable (documented through articulation agreements).

- *Target*: 31 additional certificate programs for Advanced Manufacturing and nine additional certificate programs for Cybersecurity by the end of the grant.

- *Status:* The Oregon Consortium exceeded this outcome for Cybersecurity by adding 12 additional certificate programs and for Advanced Manufacturing by adding 47 additional certificate programs.

- **Outcome 4b: Partnering community colleges share effective models to expand offering in Advanced Manufacturing and Cybersecurity students.**

  - *Description:* "Sharing" means posting curricula, syllabi, and any related program material to the consortium portal. Models include: integrated education and training, contextualized remediation approaches, short-term certification, pre-apprenticeships, as well as new programs/certificates, etc.

  - *Target*: 22 additional shared models for Advanced Manufacturing and two additional shared models for Cybersecurity by the end of the grant.

  - *Status:* The Oregon Consortium has far exceeded the target for each program area with 114 additional shared models for Advanced Manufacturing and 118 additional shared models for Cybersecurity.

Innovative Systems Change – Accelerated Learning Pathways

- **Outcome 5a: Enhance credit for prior learning and align credit transfer policies to increase number of students who attain a credential consortium wide.**

  - *Description:* Baseline number represents the number of courses in Advanced Manufacturing and Cybersecurity that consortium colleges awarded credit for in academics in year 2019-2020 consortium-wide. Target represents increase from mid-academic year 2020-2021 through the end of the grant (mid-academic year 2024-2025)

  - *Target*: 40 additional courses in Advanced Manufacturing and 15 additional courses in Cybersecurity by the end of the grant.

  - *Status:* The consortium has not met this target despite efforts to work closely with new Credit for Prior Learning Coordinators. While Advanced Manufacturing has awarded 34 additional courses, Cybersecurity has awarded seven additional courses.

- **Outcome 5b: Increase the number of students completing two or more credentials in a program pathway.**

- *Description:* Baseline represents total number of students consortium-wide that have completed a program that has two or more credentials embedded in the program's pathway. Target represents that increase in number of students who complete a program that has two or more credentials. The increase can be due to either an expansion in student enrollment in programs, or an increase in program offerings, or a combination thereof. The increase in program offerings reflect the expansion linkages to bridge programs, CTE and work-based learning.

- *Target*: 260 additional students for Advanced Manufacturing and 42 additional students for Cybersecurity.

- *Status:* The Oregon Consortium exceeded the target for this outcome with 598 students completing an Advanced Manufacturing program and 53 students completing a Cybersecurity program.

Findings

The findings presented below emerged through thematic analysis of the qualitative and quantitative data gathered from interviews with partners and surveys with faculty/staff and students. Findings are organized by research question and each of the seven primary research questions have a sub-set of questions that are addressed and summarized in the key findings box presented at the top of each section. Survey findings are also presented by round with both program areas combined.

Because the survey was updated between Round 1 and Round 2 and because there were some variations in the survey based on preferences from individual colleges, there are some instances in the section that follows where survey items vary. As such, in some cases, there are only a handful of respondents who were presented with an item.

PRE values developmental and collaborative evaluation and the continuous sharing of evaluation data with program stakeholders for program improvement purposes. To this end, data at the college level has been shared with representatives of each of the colleges. The final version of the final evaluation report will be shared with all nine colleges as well.

RQ1. What types of infrastructure did the consortium invest in to facilitate hybrid delivery of Advanced Manufacturing and Cybersecurity programs?

Key Findings

- Although, the grant aims to offer courses in an online or hybrid format, surveyed students most commonly indicated that they prefer in-person courses. Despite this input, students—as well as faculty/staff—recognize that online and hybrid courses provide students access to programs.
- Students primarily use their personal computer and high-speed internet at home to participate in online and hybrid courses

Course modalities varied across colleges in the consortium, as shown in Table 10, below. Central Oregon Community College offered the following course formats, Remote –

Synchronous, Online – Asynchronous, Remote/Online, In-person/Online, and Remote/In-person, while the remaining colleges offered courses in Online, Hybrid/HyFlex, and In-person formats. Rogue Community College offered a lab format, as well. Portland Community College did not collect data related to course format options and preferences in Round 2 of survey administration.

Faculty/staff members from Central Oregon Community College (N = 9) in Round 1 of data collection most commonly cited Online – Asynchronous (77.8%) and In-Person/Online (77.8%) as course formats that were offered in their programs. In Round 2 of data collection, over 60% (63.6%) of faculty/staff members from Central Oregon Community College (N = 11) shared that their programs offered courses in an In-Person/Online format.

Across the consortium, approximately 80% (80.0%, N = 40) of faculty/staff members in Round 1 data collection cited the in-person modality as the type of course format offered in their programs, while over 60% (62.1%, N = 29) of those in Round 2 of data collection shared that their programs offered courses in a hybrid format. This may signify that as the grant progressed, colleges enhanced infrastructure to offer courses in a hybrid format. Regarding faculty/staff members representing Rogue Community College, over half of respondents in Round 1 (60.0%, N = 5) and all respondents in Round 2 (100%, N = 3) indicated that their programs offered a lab course format (Table 11).

*Table 11. Faculty/staff survey: Type of course format offered in the program (Ns vary)**

Course Formats		
Online		
	Round 1	**Round 2**
Online	40.0% (n = 16 of 40)	37.9% (n = 11 of 29)
Remote – Synchronous (Central Oregon only)	55.6% (n = 5 of 9)	9.1% (n = 1 of 11)
Online – Asynchronous (Central Oregon only)	77.8% (n = 7 of 9)	54.5% (n = 6 of 11)
Remote/Online	55.6% (n = 5 of 9)	18.2% (n = 2 of 11)
Hybrid		
Hybrid	57.5% (n = 23 of 40)	62.1% (n = 18 of 29)
In-person/Online (Central Oregon only)	77.8% (n = 7 of 9)	63.6% (n = 7 of 11)
Remote/In-person (Central Oregon only)	44.4% (n = 4 of 9)	27.3% (n = 3 of 11)
In-person		
In-person	80.0% (n = 32 of 40)	55.2% (n = 16 of 29)

Course Formats		
Lab (Rogue only)	60.0% (n = 3 of 5)	100% (n = 3 of 3)

*Respondents could select more than one option.

Faculty/staff from the surveyed colleges reported that they have adopted various types of infrastructure to facilitate online and hybrid delivery of courses including online learning programs, videos, changing Learning Management Systems (LMS), and other, as shown in Table 12, below. Respondents across the consortium who selected "other," shared the following types of infrastructure to help facilitate online and hybrid course formats: training/certifications for instructors teaching online for the first time, remote accessible labs (e.g., NetLab), Learning Management Systems (e.g., Blackboard, Canvas, etc.), Zoom, and third-party software.

*Table 12. Faculty/staff survey: Type of infrastructure adopted by colleges to facilitate online and hybrid deliveries**

Infrastructure		
Online		
	Round 1 (N = 16)	**Round 2 (N = 29)**
NCSIMUL	6.3%	0.0%
Videos	68.8%	54.5%
Changing LMS	18.8%	18.2%
Online learning programs	62.5%	54.5%
Other	18.8%	0.0%
Hybrid		
	Round 1 (N = 23)	**Round 2 (N = 18)**
NCSIMUL	13.0%	16.7%
Videos	56.5%	44.4%
Changing LMS	13.0%	22.2%
Online learning programs	39.1%	38.9%
Other	47.8%	16.7%
Central Oregon Community College – Remote *(Note: All were Cybersecurity faculty/staff)*		
	Round 1 (N = 5)	**Round 2 (N = 1)**
NCSIMUL	0.0%	0.0%
Videos	60.0%	100%
Changing LMS	20.0%	0.0%
Online learning programs	40.0%	100%
Other	20.0%	100%
Central Oregon Community College – Online *(Note: Respondents were Advanced Manufacturing and Cybersecurity faculty/staff)*		

Infrastructure		
	Round 1 (N = 7)	Round 2 (N = 6)
NCSIMUL	28.6%	0.0%
Videos	71.4%	66.7%
Changing LMS	14.3%	0.0%
Online learning programs	42.9%	66.7%
Other	0.0%	50.0%
Central Oregon Community College – In-person/Online *(Note: Respondents were Advanced Manufacturing and Cybersecurity faculty/staff)*		
	Round 1 (N = 7)	Round 2 (N = 7)
NCSIMUL	14.3%	0.0%
Videos	28.6%	71.4%
Changing LMS	14.3%	0.0%
Online learning programs	42.9%	42.9%
Other	14.3%	42.9%
Central Oregon Community College – Remote/Online *(Note: All were Cybersecurity faculty/staff)*		
	Round 1 (N = 5)	Round 2 (N = 2)
NCSIMUL	0.0%	0.0%
Videos	60.0%	0.0%
Changing LMS	20.0%	0.0%
Online learning programs	60.0%	0.0%
Other	20.0%	50.0%
Central Oregon Community College – Remote/In-person *(Note: Respondents were Advanced Manufacturing and Cybersecurity faculty/staff)*		
	Round 1 (N = 4)	Round 2 (N = 3)
NCSIMUL	0.0%	0.0%
Videos	50.0%	33.3%
Changing LMS	25.0%	33.3%
Online learning programs	50.0%	0.0%
Other	25.0%	33.3%

*Respondents could select more than one option.

Table 13 demonstrates that across Rounds 1 and 2 of the grant, students who attended Central Oregon Community College most commonly accessed courses in an online – asynchronous format (52.0%, N = 25) or an in-person/online format (52.0%, N = 25). Those who attended Rogue Community College were most likely to receive instruction in a lab format (85.7%, N = 7),

while all other students across the consortium most commonly accessed courses in-person (63.9%, N = 122).

In Year 4 of the grant, nearly 70% (66.7%, N = 30) of students who attended Central Oregon accessed courses in an in-person/online format, while students across all other colleges in the consortium most commonly accessed courses in an in-person format (71.4%, N = 105).

*Table 13. Student Survey: Type of format used to access courses (Ns vary)**

Course Formats Used by Students		
Online		
	Round 1	**Round 2**
Online	15.6% (n = 19 of 122)	27.6% (n = 29 of 105)
Remote – Synchronous (Central Oregon Community College only)	24.0% (n = 6 of 25)	16.7% (n = 5 of 30)
Online – Asynchronous (Central Oregon Community College only)	52.0% (n = 13 of 25)	43.3% (n = 13 of 30)
Remote/Online (Central Oregon Community College only)	24.0% (n = 6 of 25)	23.3% (n = 7 of 30)
Hybrid		
Hybrid	42.6% (n = 52 of 122)	63.8% (n = 67 of 105)
In-person/Online (Central Oregon Community College only)	52.0% (n = 13 of 25)	66.7% (n = 20 of 30)
Remote/In-person (Central Oregon Community College only)	12.0% (n = 3 of 25)	10.0% (n = 3 of 30)
In-person		
In-person	63.9% (n = 78 of 122)	71.4% (n = 75 of 105)
Lab (Rogue Community College only)	85.7% (n = 6 of 7)	57.5% (n = 23 of 40)

*Respondents could select more than one option.

Advanced Manufacturing students who attended a program at Central Oregon Community College most commonly preferred the in-person/online course format (48.0%, 63.3%) across both rounds of data collection, while Cybersecurity students who attended Central Oregon

Community College most commonly preferred the online-asynchronous course format (Table 14).

Table 14. Central Oregon Community College Student Survey: Preferred type of course format (Ns vary)

Central Oregon students' preferred type of course format		
Online		
	Round 1 (N = 25)	Round 2 (N = 30)
Remote – Synchronous	0.0%	3.3%
Online – Asynchronous	40.0%	20.0%
Remote/Online	8.0%	3.3%
Hybrid		
In-person/Online	48.0%	63.3%
Remote/In-person	4.0%	10.0%

Rogue Community College also offered a slightly different set of course formats with the additional option of lab. Preferences for their Advanced Manufacturing students are provided below with in-person the preference in both rounds (Table 15).

Table 15. Rogue Community College Student Survey: Preferred type of course format (Ns vary)

Rogue students' preferred type of course format		
Online		
	Round 1 (N = 7)	Round 2 (N = 40)
Online	0%	2.5%
Hybrid		
Hybrid	0%	30.0%
In-person		
In-person	57.1%	50.0%
Lab	42.9%	17.5%

Students who attended a program at a college other than Central Oregon Community College and Rogue Community college most commonly preferred the in-person format, which aligns to the format in which they most commonly accessed grant-funded courses. (Tables 16). Specifically, Advanced Manufacturing students in both rounds and Cybersecurity students in Round 1 preferred the in-person format. In Round 2, Cybersecurity students preferred the hybrid format closely followed by in-person.

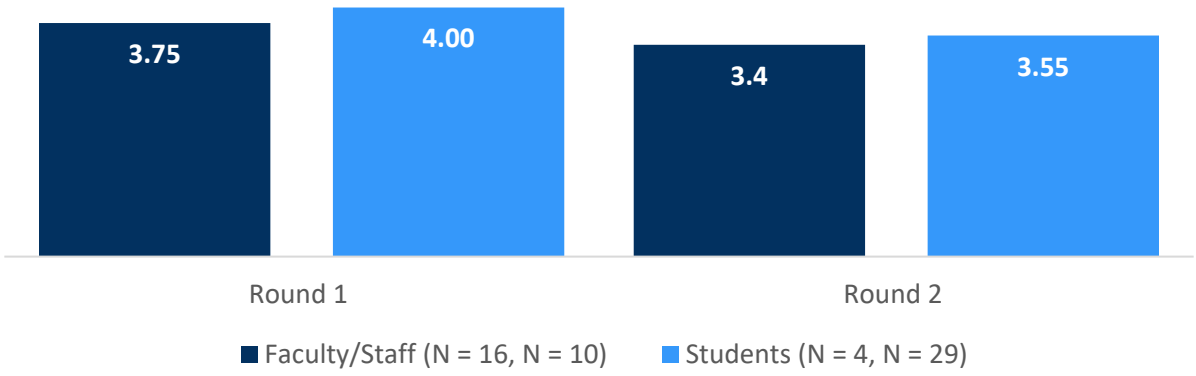
Table 16. Student Survey: Preferred type of course format (Ns vary)

Students' preferred type of course format		
Online		
	Round 1 (N = 115)	Round 2 (N = 65)
Online	3.5%	3.1%
Hybrid		
Hybrid	22.6%	32.3%
In-person		
In-person	73.9%	64.6%

RQ1a. How have the infrastructures facilitated access to the Advanced Manufacturing and Cybersecurity learning pathway?

Across Round 1 and Round 2 of data collection, faculty/staff survey respondents were neutral or agreed that the online format provided students with access to the program. Students in Round 1 of survey data collection agreed that the online format provided them with access, while Round 2 student survey respondents were neutral or agreed (Figure 1). Faculty/staff survey respondents further expressed that the online modality provided students with more flexibility to take courses and increased availability of courses.

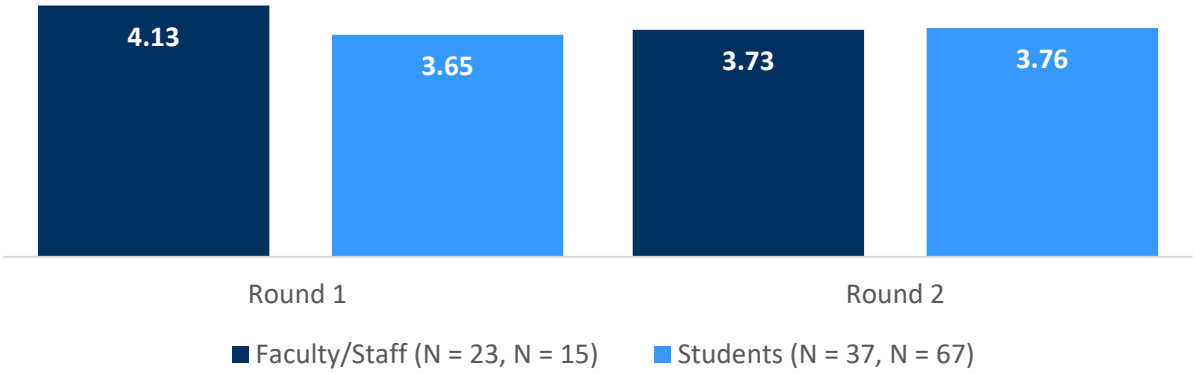
Figure 1. Average rating of online format providing access to program (1 = Strongly Disagree, 5 = Strongly Agree)



Across Rounds 1 and Round 2, faculty/staff rated the hybrid format slightly higher than the online format by agreeing or strongly agreeing that the hybrid format provided students with access to the program (Figure 2). In Round 2, faculty/staff were more likely to feel neutral or agree that the hybrid infrastructure provided students with access to the program. Students

across both rounds of data collection felt neutral or agreed that the hybrid format provided them with access to their programs.

Figure 2. Average rating of hybrid format providing access to program (1 = Strongly Disagree, 5 = Strongly Agree)



Central Oregon Community College had different naming conventions for course modalities than other colleges in the consortium; responses to these items for Central Oregon are provided in Appendix D.

RQ1b. What are the strengths and weaknesses of the infrastructures?

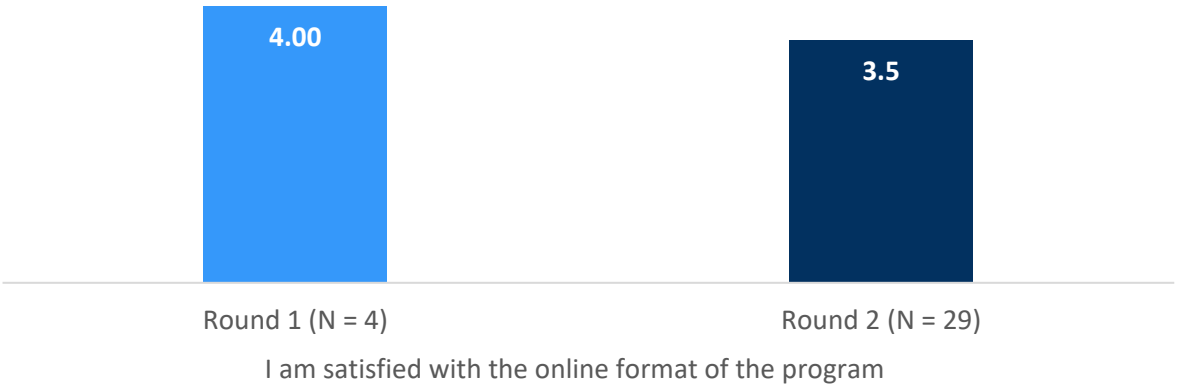
Online

All students (100%, N =4) taking an online course in Round 1 of data collection and nearly all students (96.6%, N = 29) taking an online course in Round 2 of data collection reported that they had access to the technology they needed to take the course (Figure 3), and a majority (Round 1: 100%, N = 4, Round 2: 93.1%, N = 29) used their personal computer to take the course. Further, all students in Round 1 and over three-quarters (79.3%) of students in Round 2 utilized high-speed internet at their home to participate in an online course.

Student survey respondents in Round 1 of data collection agreed that they were satisfied with taking classes fully online, while students in Round 2 of data collection felt neutral or agreed that they were satisfied with the online format. Students felt that the strengths of the online delivery model most commonly included the flexibility for students to take the course wherever they wanted and the high level of accessibility of the course format and course materials. Additional student-identified strengths included the ability for them to successfully navigate school/life balance while taking the course, the ability of the course to prepare them for the workforce, and overall course organization. Areas where the online course format could be improved, based on student feedback, included only implementing the online modality when

learning does not require hands-on practice, better organization, increased one-on-one interaction with instructors, and more recorded lectures.

Figure 3. Average rating of satisfaction with online format, Ns vary (1 = Strongly Disagree, 5 = Strongly Agree)



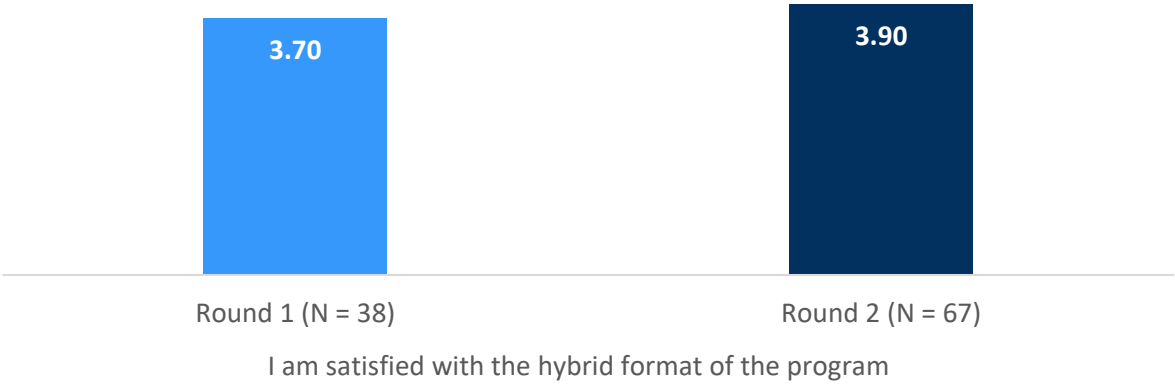
Faculty/staff survey respondents (N = 22) most commonly shared that strengths of the online delivery model included the flexibility for students to work at their own pace (n = 15) and the increased accessibility of the program for students who are unable to attend traditional classes (n = 7). Areas where the online format could be improved according to faculty/staff, most commonly included increased opportunities for engagement in online courses (n = 11 of 19), such as virtual labs, student projects, and one-on-one time with instructors.

Hybrid

Almost all (Round 1: 94.6%, N = 37, Round 2: 95.5%, N = 67) student respondents across both rounds of data collection who had taken a hybrid course through the program had access to the technology they needed to take their courses in a hybrid format. Across both rounds of data collection, students primarily used their personal computer to take courses. In Year 2 of the grant year, over one-third of students (35.5%, N = 31) cited using their phone to complete their hybrid courses. More than three-quarters of students in Round 1 (81.6%, N = 38) and Round 2 (86.6%, N = 67) used high-speed internet at home to take their courses.

Across both rounds of student survey data, respondents taking courses in the hybrid format were neutral or agreed that they were satisfied with the hybrid format of the program (Figure 4).

Figure 4. Average rating of satisfaction with hybrid format, Ns vary (1 = Strongly Disagree, 5 = Strongly Agree)



Student survey respondents (N = 77) elaborated on their experience with the hybrid format. These students most commonly reported the strengths of the hybrid format as the flexibility to work in a self-paced environment (n = 33) and the balance between receiving hands-on instruction and being able to complete other coursework online (n = 19). Other strengths included less time needed to commute to the community college (n = 10) and the ability to navigate school/life balance (n = 11).

When asked about the strengths of the hybrid delivery model, faculty/staff responses (N = 36) on the survey were similar to the positive feedback regarding the online delivery model, in which faculty/staff most commonly highlighted the flexibility and accessibility for students from all backgrounds to attend class. Faculty/staff members also felt like the hybrid delivery model allowed students the opportunity to receive hands-on instruction when attending class in-person, while also providing the opportunity for students to complete necessary coursework online.

Areas of improvement for the hybrid delivery model, according to students (N = 62), included more hands-on opportunities, efforts to fix software or program issues experienced by the students, increased communication with the instructors, and better online organization of courses.

Per faculty/staff survey respondents (N = 31), areas of improvement for the hybrid delivery model most commonly included more hands-on or work-based opportunities for students, more hybrid classes made available for students, and instructional design support for faculty members to improve their courses. There were also concerns from faculty members related to students having difficulty succeeding in hybrid classes, to which they felt that students should be self-motivated to be able to participate in hybrid classes.

RQ2. What stackable credentials have been created across the consortium?

Key Findings

- Stackable credentials, micro-credentials, and digital badging opportunities were developed through collaboration between colleges and partners.
- Although a majority of faculty/staff reported that stackable credentials were being promoted through college websites, course catalogs, and marketing materials, few students reported learning about stackable credentials in these methods. Instead, students most commonly learned about stackable credentials from a faculty/staff member at the college.
- Both faculty/staff and students agree that stackable credentials are preparing them for employment in their industry. Credentials and badging provide students with tangible skills that they can demonstrate to employers including soft skills.
- Student survey respondents across both rounds of data collection who were aware of stackable credentials most commonly obtained one stackable credential.

Faculty/staff survey respondents in the consortium were asked to share the stackable credentials that were created or revised through the grant. Information from Round 1 and Round 2 of survey data collection is available in the table below.

Table 17. Stackable credentials created or revised through the grant

Advanced Manufacturing

- Machine Tool Technology Pathway (Clackamas Community College)
  - CNC Operator Career Pathways Certificate (CPCC)
  - Machine Tool Technology Certificate
  - Machine Tool Technology Associate of Applied Science Degree (AAS)
- Pre-Trades for Advanced Manufacturing (Portland Community College)
- Maritime Shipfitter and Welder Career Pathways Certificate (CPCC) (Portland Community College)
- Maritime Welding CPCC (Portland Community College)
- Welding Assistant Career Pathways Certificate (Southwestern Oregon Community College)
- Pipefitting CPCC (Southwestern Oregon Community College)

- Welding Technician CPCC (Southwestern Oregon Community College)
- Quality Assurance Credential (Central Oregon Community College)
- Manufacturing Machining Technician Pathway (Central Oregon Community College)
    - CNC Machine Operator 1-year Certificate
    - Manufacturing Technician Career Pathways Certificate (CPCC)
    - Manufacturing Technician Associate of Applied Science Degree (AAS)
- Manufacturing Tech AAS (Rogue Community College)
    - Computer Aided Design Career Pathways Certificate (CPCC) (,)
    - CPC Computer Numerical Control Technician CPCC
    - Manual Machinist CPCC

- Robotics (Clackamas Community College)
- Pre-apprenticeship course for welding, machining, and mechatronics (Portland Community College)
- CNC Pathway (Rogue Community College)
- Machine Tooling CPC (Southwestern Oregon Community College)
- Computer Aided Design Career Pathway Certificate (Klamath Community College)
- Mechanical Design Solid Modeling Career Pathway Certificate (Klamath Community College)
- Titans of CNC Certifications (Lane Community College)
- HAAS Operator Certifications (Lane Community College)
- AutoDesk Certifications (Lane Community College)
- CNC Lathe Operator Certificate (Lane Community College)
- Entry Level Trades Worker Certificate (Lane Community College)
- PLC Control Specialist Certification (Portland Community College
- College credit for the Pre-Trades program (Portland Community College)
- College credit for the IET program (Portland Community College)
- Integrated Metal and Machine Tool Technologies Pathway (Mt. Hood Community College)
    - Machine Tool Operator Certificate
    - Machinist Certificate
    - Mechatronics: Maintenance Technician Certificate
    - Machine Tool Technology: Integrated Metals AAS

Cybersecurity

- CompTIA Cysa+ Certification (Central Oregon Community College)
- Computer Information Systems (CIS) Associate of Applied Science Degree (Central Oregon Community College)
    - CIS 1-year Certificate of Completion (CCI)
    - CIS 1-year Certificate of Completion Computer Aided Drafting (CCI – CAD)
    - CIS AAS Option Computer Aided Drafting (CAD)
    - Cybersecurity Career Pathways Certificate (CPCC)

    - CIS AAS Option Cybersecurity and Networking
    - CIS AAS Option Web Development
    - Associate of Science Transfer Degree Computer Science (ASOT)
- ISC2 Certification (Central Oregon Community College)
- Secure Network Technician Certification (Klamath Community College)
- Computer Support Technician Certification (Klamath Community College,
- Computer System Fundamentals Certification (one year certification) and Career Pathway (less than one year certification) (Klamath Community College)
- Programming Pathway Certification (Chemeketa Community College)
- Cybersecurity Pathway (Mt. Hood Community College)
    - Bachelor of Applied Science: Cybersecurity
    - Networking and Security Operations Associate of Applied Science (AAS)
    - Penetration Testing Degree (AAS)
    - Secure Network Technician Certificate

RQ2a. What was the process for developing these stackable credentials?

Faculty/staff survey respondents most commonly shared that collaboration with industry partners and colleagues was an integral part of developing stackable credentials. For example, faculty members often sought input from industry partners to better understand skills that would enhance employability of the students in their programs. Further, faculty and staff collaborated among each other and with their administrative teams to develop stackable credentials that would align with their curricular goals and academic regulations set by their colleges. A couple survey respondents noted that they were also required to obtain approval from the state of Oregon to develop stackable credentials

RQ2b. What was the process for developing badging and micro-credentialing opportunities?

Similar to the collaboration that faculty/staff respondents spoke about regarding the development of stackable credentials, faculty/staff who worked on developing badging and micro-credentialing most commonly shared that the process involved collaborating with faculty members across the consortium and seeking input from industry partners. Many faculty/staff survey respondents cited attending regularly scheduled meetings with members of the grant consortium work group to develop badges that would best serve industry needs. As a result of incorporating badging, students were given opportunities to build employable “soft skills” that would increase their chances of acquiring a job within their designated industry. The 21 digital Badges that were developed included,

- Basic Communication Knowledge Badge

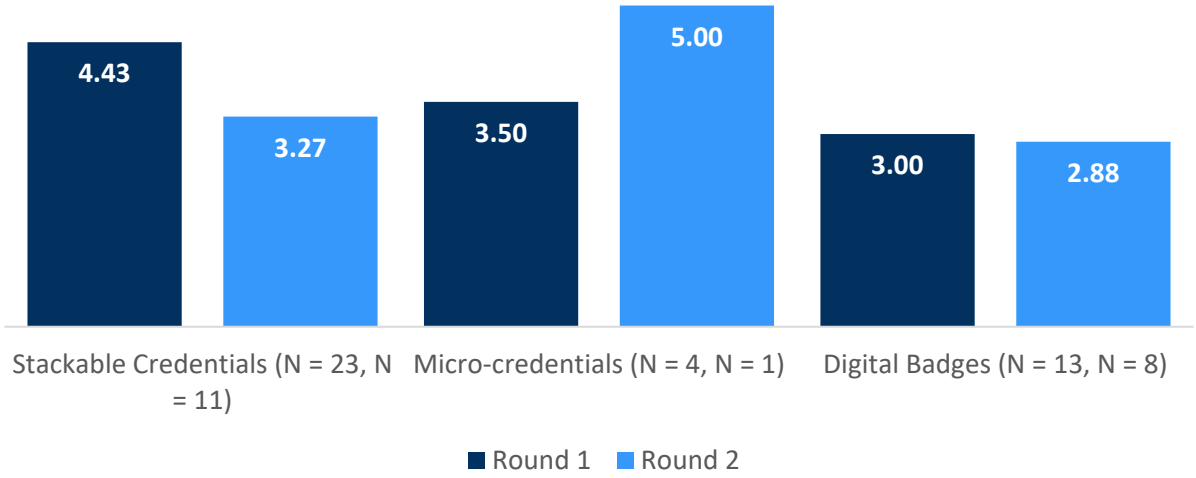
- Speak Skill Badge
- Listen Skill Badge
- Read Skill Badge
- Write Skill Badge
- Communication Ability Badge
- Information Analysis Knowledge Badge
- Problem-solving Skill Badge
- Adaptability Skill Badge
- Critical Thinking Skill Badge
- Self-awareness Knowledge Badge
- Initiative Skill Badge
- Time Management Skill Badge
- Team Work Skill Badge
- Resilience Skill Badge
- Self-Management Ability Badge
- Foundational Digital Literacy Knowledge Badge
- Online Communication/Collaboration Skill Badge
- Digital Security and Ethics Skill Badge
- Digital Problem-Solving Skill Badge
- Digital Citizenship Ability Badge

One interviewed partner shared that a task force was created to gather information related to soft skills that were seen as "best practices" across a variety of working environments. Another partner shared that, when developing badges, the work group gathered existing and promising best practices from California's 21st Century Learning and Willamette Education Service District Employability Skills. In efforts to pinpoint recognizable and achievable skills, the work group utilized findings from a talent assessment survey administered by the WTDB with the findings reinforcing those from a JP Morgan Chase survey. As a result, the work group identified soft skills for badging.

RQ2c. How were employer partners or other stakeholders involved in this process?

Figure 5 demonstrates that faculty/staff in Round 1 of the award were most likely to agree that partners were involved with developing stackable credentials, while respondents were neutral or agreed that partners engaged in developing micro-credentials or badging. In Round 2 of the award, faculty/staff most commonly felt neutral or disagreed that partners were involved in the process of developing stackable credentials and digital badges. One faculty member who was engaged in developing micro-credentials strongly agreed that partners were involved in the process.

Figure 5. Faculty/Staff Survey: Average agreement rating of partner involvement in developing stackable credentials, micro-credentials, and digital badges (1 = Strongly Disagree, 5 = Strongly Agree)



Faculty/staff (N = 26) shared the ways in which industry partners were involved in developing stackable credentials, such as providing industry-relevant input to inform student skill needs, participating in advisory committee meetings, providing guidance for and approving course curriculum, overseeing site visits for faculty members and students, and interviewing students for employment. Partner involvement was similar for the development of micro-credentials and badging.

One partner interviewee shared that they were involved in conversations about which stackable credentials would be most useful across the widest range of career options. Another interviewed partner shared that, through meetings, they tried to "pinpoint specifically" what the industry believes to be "recognizable, achievable benchmarks" for students. Another partner stated,

> *"It's important that stackable credentials are a hard accomplishment that could be specified in a way that would go hand in hand with other processes or achievements."*

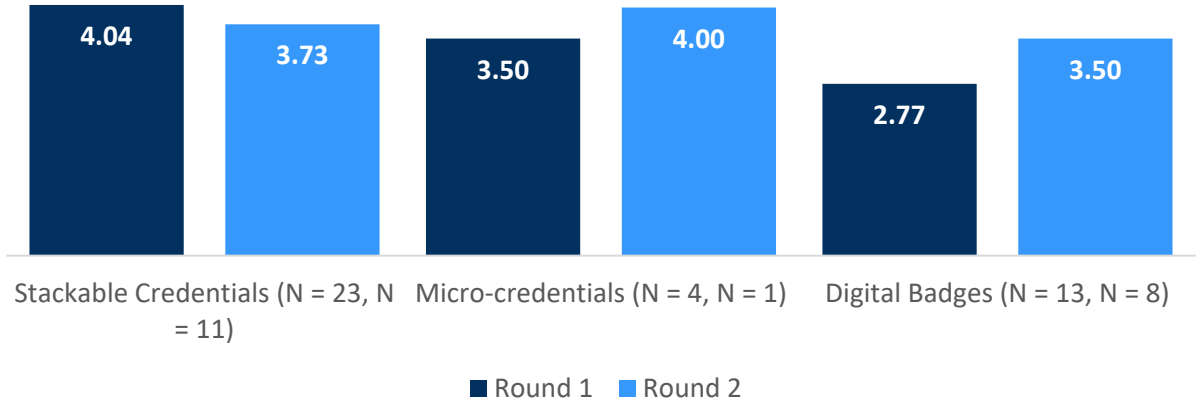
RQ2d. In what ways are these stackable credentials responsive to emerging skill needs in the targeted sectors?

In Round 1, faculty/staff agreed or strongly agreed that stackable credentials were responsive to the emerging skills needed in the Advanced Manufacturing and Cybersecurity industries

(Figure 6). Faculty/staff were in slightly less agreement that micro-credentials addressed skill needs, and most commonly felt neutral or disagreed that digital badges responded to the emerging skills needed in these industries. In Round 2, faculty/staff most commonly felt neutral or agreed that stackable credentials, micro-credentials, and digital badges were responsive to emerging skill needs.

One partner interviewee shared that stackable credentials were responsive to emerging skill needs by providing students a head start to communicate their qualifications to employers, while another partner felt that stackable credentials provided students with necessary certifications needed to successfully and safely operate in a working industry environment.

Figure 6. Faculty/Staff Survey: Average agreement rating of responsiveness of stackable credentials, micro-credentials, and digital badges to emerging skills in the industry (1 = Strongly Disagree, 5 = Strongly Agree)



RQ2e. How are stackable credentials being promoted? Are students aware of these credential offerings?

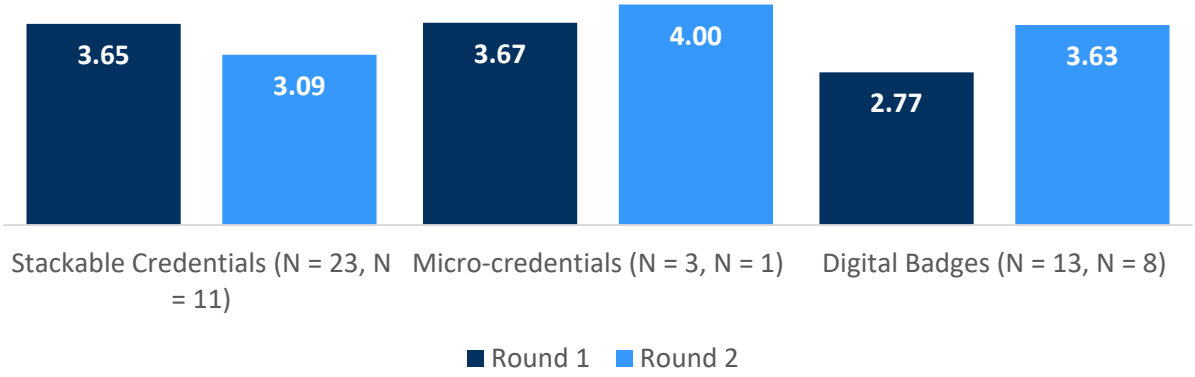
Awareness and Promotion of stackable credentials, micro-credentials, and badging

Faculty/staff appear to perceive students to be more aware of stackable credentials, micro-credentials, and badging than they are. Faculty/staff are utilizing a variety of methods to promote these credentials; however, students most commonly learn about these offerings through a faculty/staff member at the college.

Across Round 1 and Round 2 data, faculty/staff respondents were neutral or agreed that students were aware of stackable credentials and micro-credentials (Figure 12). Regarding

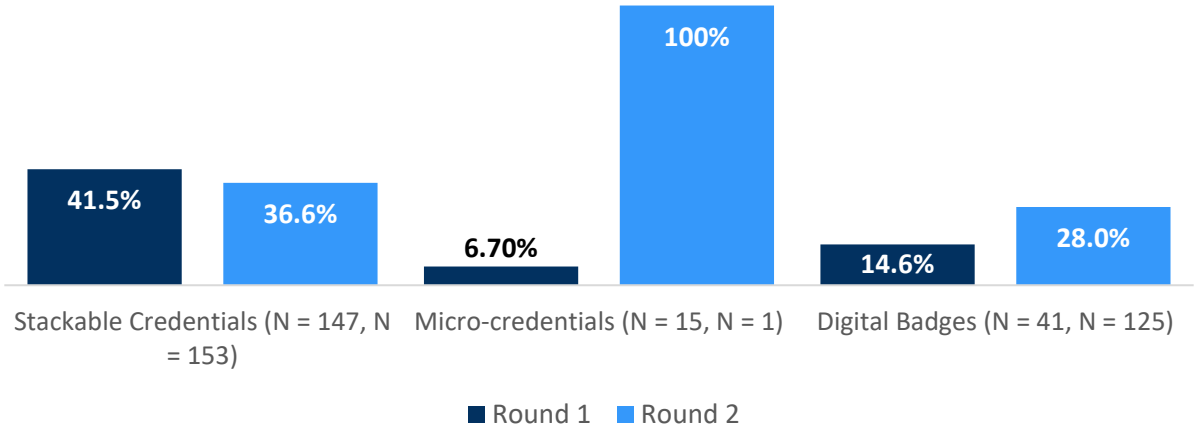
badges, Round 2 faculty/staff survey respondents agreed slightly more that students were aware of badges. Some schools were not asked about micro-credentialing or digital badges because at the time of the surveys, they were not yet offering digital badges. As of fall term 2024, all 9 colleges have piloted digital badges. Figure 7 illustrates that students were less aware of these program components than faculty/staff survey respondents perceived.

Figure 7. Faculty/Staff Survey: Average agreement rating of student awareness of stackable credentials, micro-credentials, and digital badges (1 = Strongly Disagree, 5 = Strongly Agree)



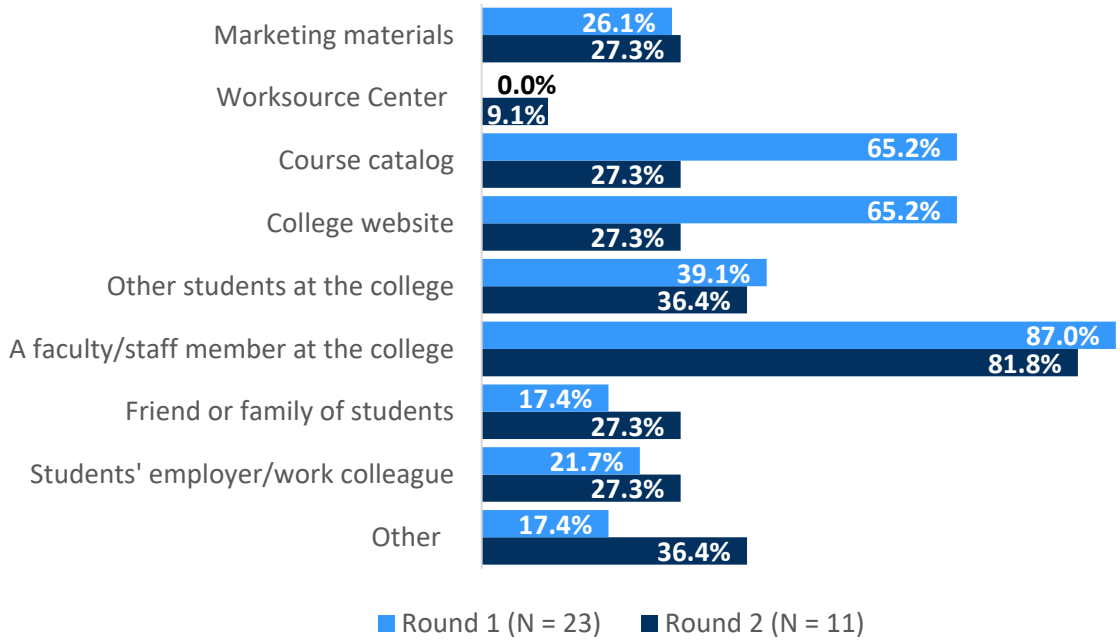
Across Round 1 and Round 2 data, less than half of students were aware of stackable credentials, and less than one-third of students were aware of digital badges. Less than ten percent of students were aware of micro-credentials in Round 1 data, while the one student asked about micro-credentials in Round 2 was aware of them (Figure 8). It should be noted that not all surveys included questions about micro-credentials and digital badges because most colleges were not offering them at the time of the surveys. The digital badge pilot began in Summer 2023.

Figure 8. Student Survey: Student awareness of stackable credentials, micro-credentials, and digital badges
(% Yes)



According to Round 1 faculty/staff survey data, stackable credentials were primarily promoted to students through faculty and staff members at the college, the course catalog, and the college website. Per Round 2 data, faculty and staff indicated that stackable credentials were primarily promoted through faculty and staff members at the college, other students at the college, and "other" methods outside of the provided options. Those who selected "other" cited career fairs and K-12 partners.

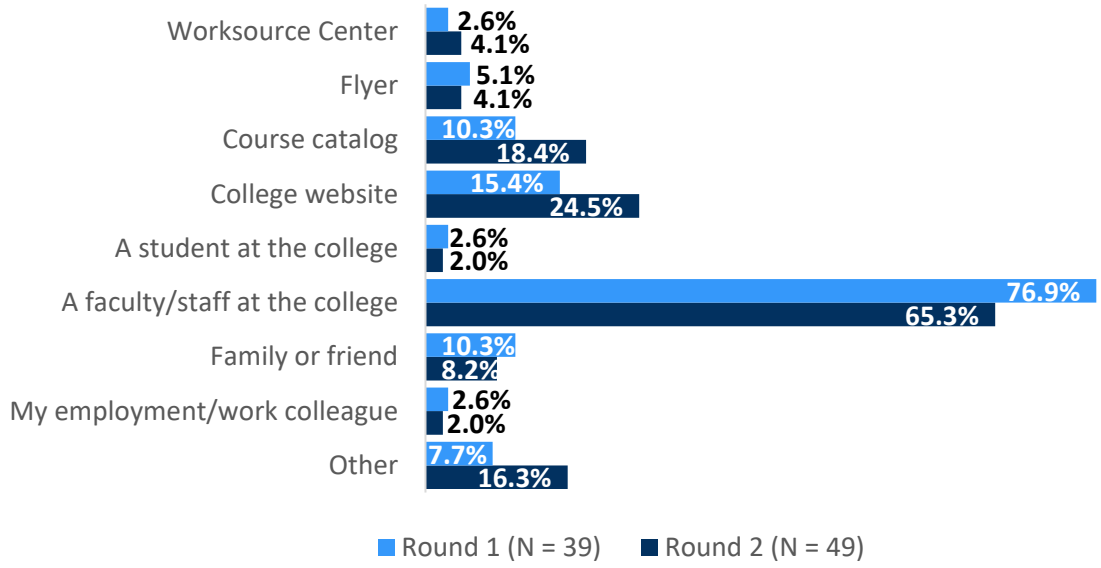
*Figure 9. Faculty/Staff Survey: Methods for promoting stackable credentials**



*Respondents could select more than one option.

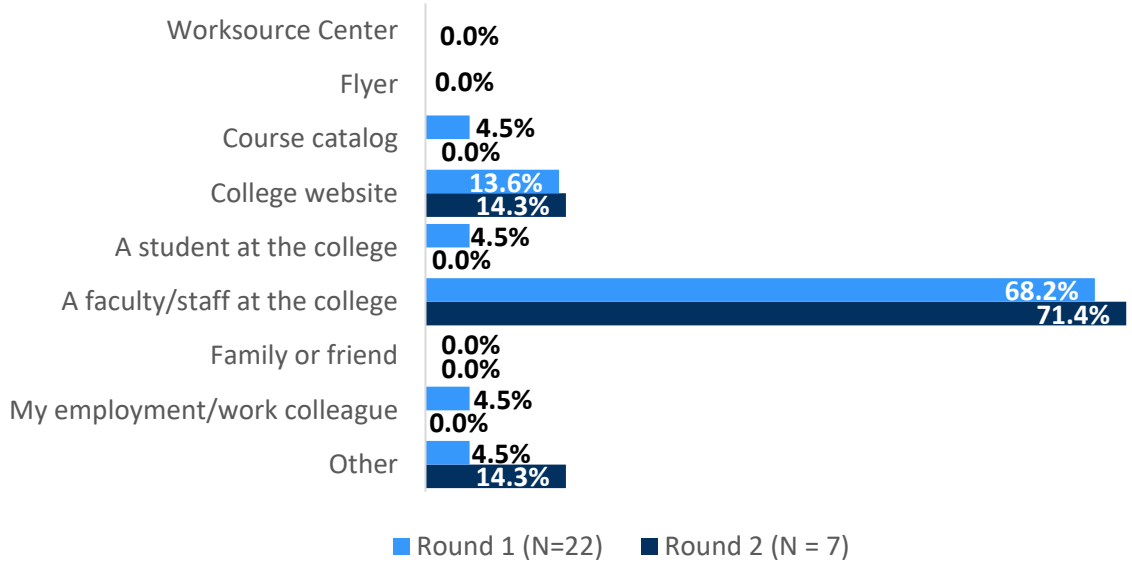
Mirroring faculty reports, students across both rounds of data collection indicated they became aware of stackable credentials through a faculty or staff member at the college (Figure 10). Fall surveys across both rounds of data collection allowed students to select any methods of promotion that they were aware of related to stackable credentials, while surveys administered in the spring across both rounds of data collection required students to select only one method. Figures 10 and 11 provide additional data relevant to the promotion of stackable credentials.

*Figure 10. Student Survey: Ways that students learned about stackable credentials**



*Respondents could select more than one option.

*Figure 11. Student Survey: Ways that students learned about stackable credentials**

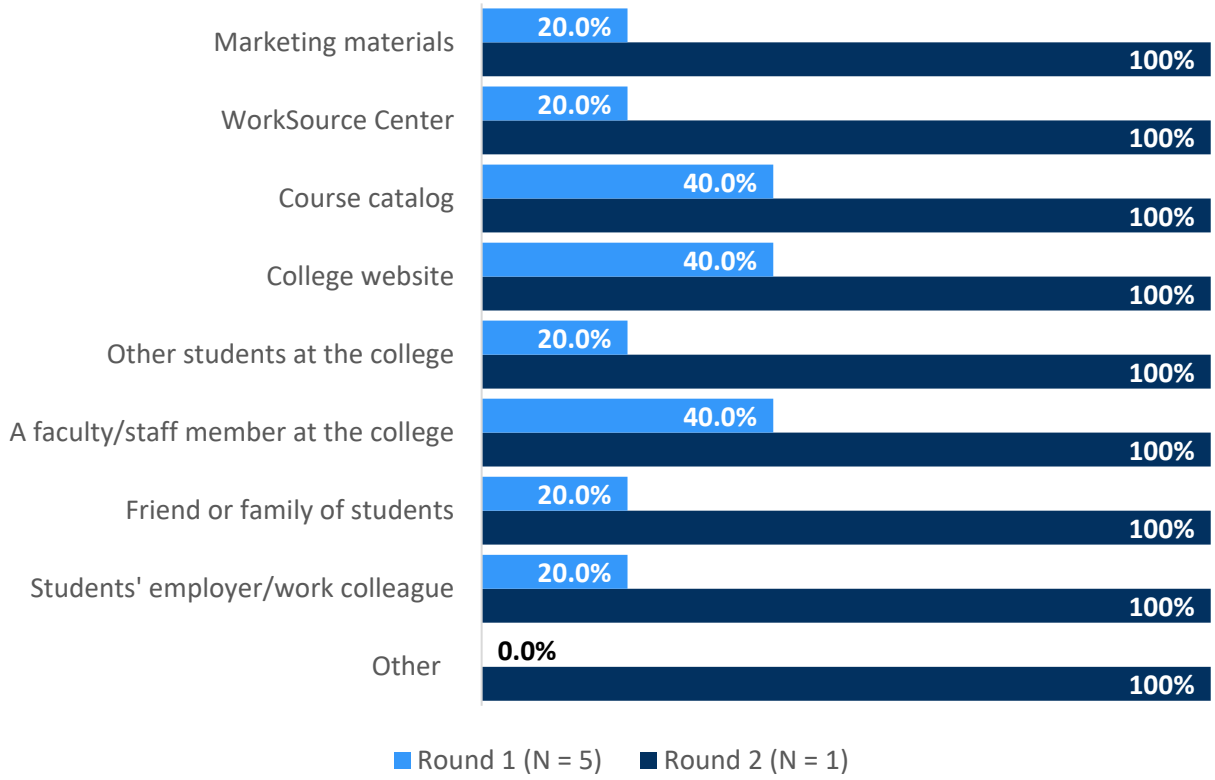


*Respondents could select more than one option.

Of the 61 students who were aware of stackable credentials in Round 1, they had earned an average of 1.07 stackable credentials at the time of survey data collection. In Round 2, an average of 1.11 stackable credentials had been earned across the 56 students at the time of the survey

According to faculty/staff survey respondents in Round 1, micro-credentials have primarily been promoted to students through faculty and staff members at the college, the college website, and the course catalog (Figure 12). The faculty/staff survey respondent from Round 2 shared that micro-credentials were being promoted via all methods and added that micro-credentials were also being promoted by K-12 partners. Students who were aware of micro-credentials shared that they learned about micro-credentialing through family/friends, faculty/staff members at the college, and other students at the college.

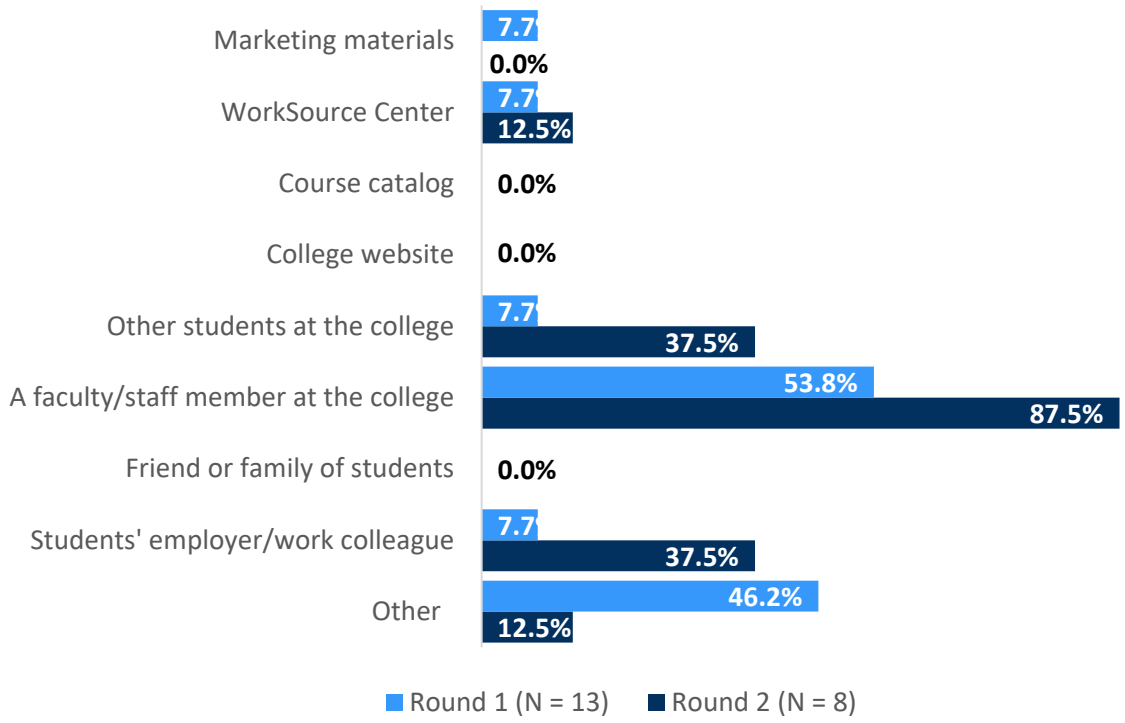
*Figure 12. Faculty/Staff Survey: Methods for promoting micro-credentials to students**



*Respondents could select more than one option.

Over half (53.8%) of Round 1 faculty/staff survey respondents and nearly 90% (87.5%) of Round 2 faculty/staff survey respondents shared that digital badges were being promoted to students through faculty and staff members at their college. Faculty/staff members from Round 2 of data collection also felt that students' employers or work colleagues were promoting digital badges. Round 1 faculty/staff survey respondents who selected "other" shared that digital badges were not being promoted, either due to them not being developed yet or them not being useful for employment.

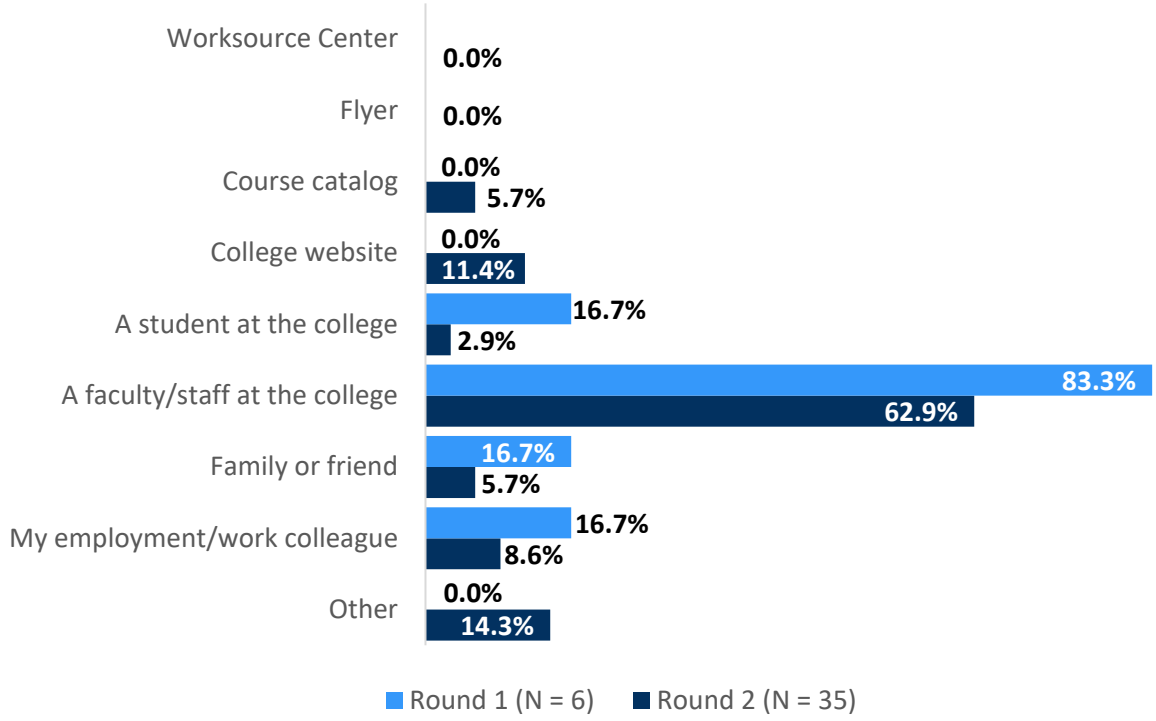
*Figure 13. Faculty/Staff Survey: Method for promoting digital badges to students**



*Respondents could select more than one option.

Similar to faculty/staff survey data, a majority of students across both rounds of data collection became aware of badging through a faculty/staff member at the college (Figure 14).

*Figure 14. Student Survey: Ways students learned about digital badges**

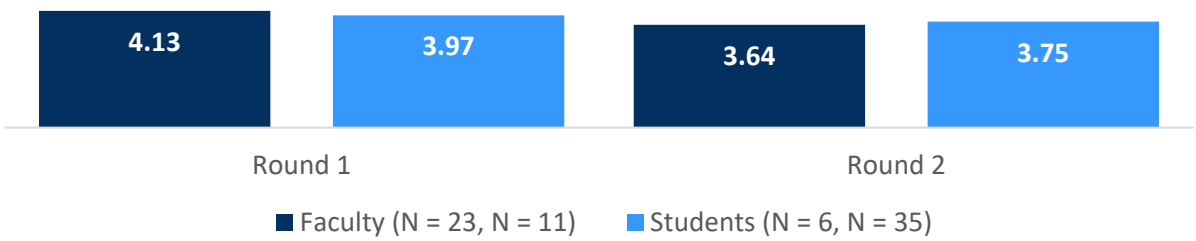


*Respondents could select more than one option.

RQ2f. How are the stackable credentials preparing students for employment or advancement in Advanced Manufacturing and Cybersecurity?

In Round 1, faculty/staff survey respondents agreed or strongly agreed that stackable credentials were preparing students for employment in the industry (Figure 15), while in Round 2, faculty/staff respondents felt neutral or agreed with this statement. Similarly, students felt neutral or agreed that stackable credentials were preparing them for employment in the industry across both rounds.

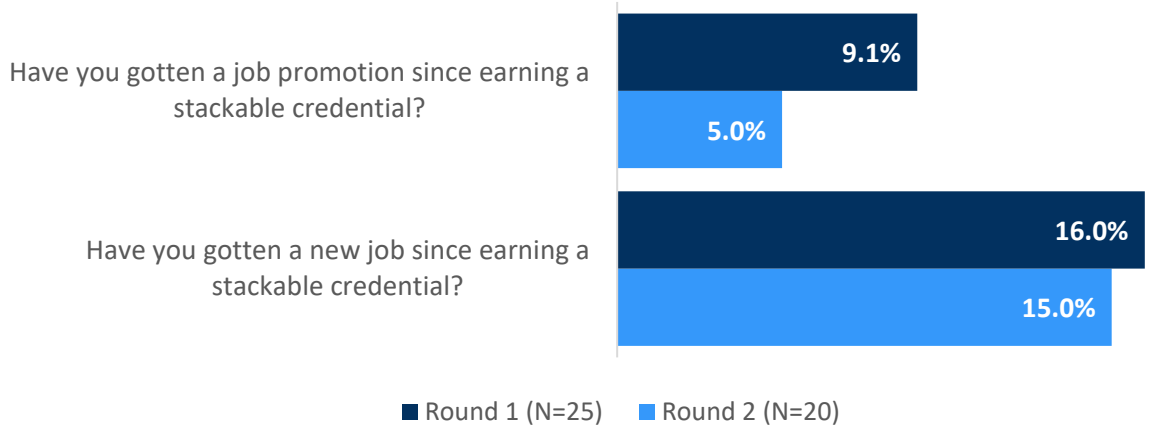
Figure 15. Average agreement rating of stackable credentials preparing students for employment in the industry (1 = Strongly Disagree, 5 = Strongly Agree)



Faculty/staff survey respondents who chose “agree” or “strongly agree” (N = 25) shared that stackable credentials enhanced student career readiness by providing them the ability to obtain a certificate while attending a program, teaching them skills that will increase employability, and providing them with a baseline education that will allow them to continue to a two-year or four-year program. Survey respondents also indicated that the stackable credentials were created with direct input from industry employers (n = 6).

In Round 1, approximately nine percent (9.1%) of students (N = 25) had gotten a job promotion since earning a stackable credential, while approximately 16% had gotten a new job since earning a credential. Slightly fewer students in Round 2 (N = 20) had received a job promotion (5.0%) or a new job (15.0%) since earning a stackable credential (Figure 16).

Figure 16. Student Survey: Changes in employment status since earning a stackable credential (% Yes)



When asked how stackable credentials were preparing them for employment within the industry (N = 75), students most commonly reported that credentials gave them a “leg up” in the job market, showed employers their proficiency in industry skills, and increased their general knowledge of their given fields.

RQ2g. How are badging and micro-credentialing enhancing student career readiness?

Faculty/staff members across both rounds were neutral or agreed that micro-credentials and digital badges were preparing students for employment (Figure 17). Students (Figure 17) were slightly more positive about the likelihood that micro-credentials were preparing them for employment, and felt similarly to faculty/staff regarding how digital badges were preparing them for employment. It should be noted that micro-credentials were not offered at all colleges, and therefore not included on all surveys.

Figure 17. Faculty/Staff Survey: Average agreement rating of micro-credentials and digital badges preparing students for employment in the industry (1 = Strongly Disagree, 5 = Strongly Agree)

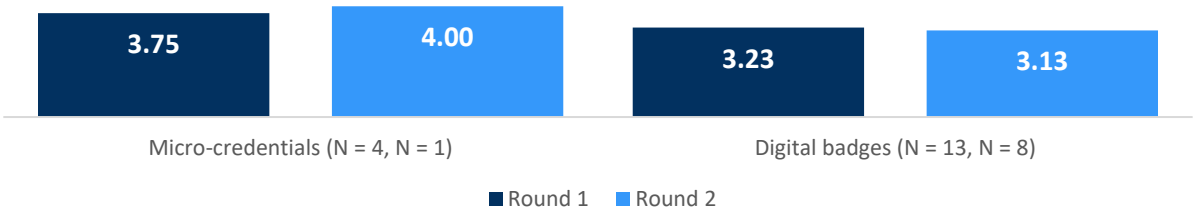
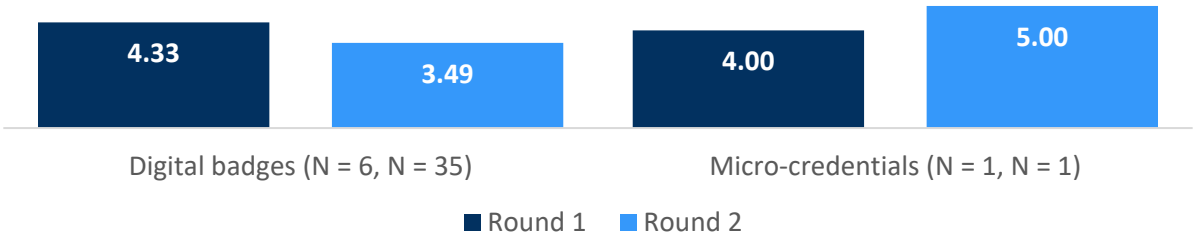


Figure 18. Student Survey: Average agreement rating of micro-credentials and digital badges preparing students for employment in the industry (1 = Strongly Disagree, 5 = Strongly Agree)



Faculty/staff (N = 8) most commonly indicated that badging increases the employability of students who participate in the program, as it provides employers with tangible evidence of students' acquisition of skills needed to help them succeed in the workplace.

Students (N = 27) indicated that badging is preparing them for employment by increasing their job potential, providing employers with tangible evidence of completed trainings and certifications, and teaching them the basics of their given industries.

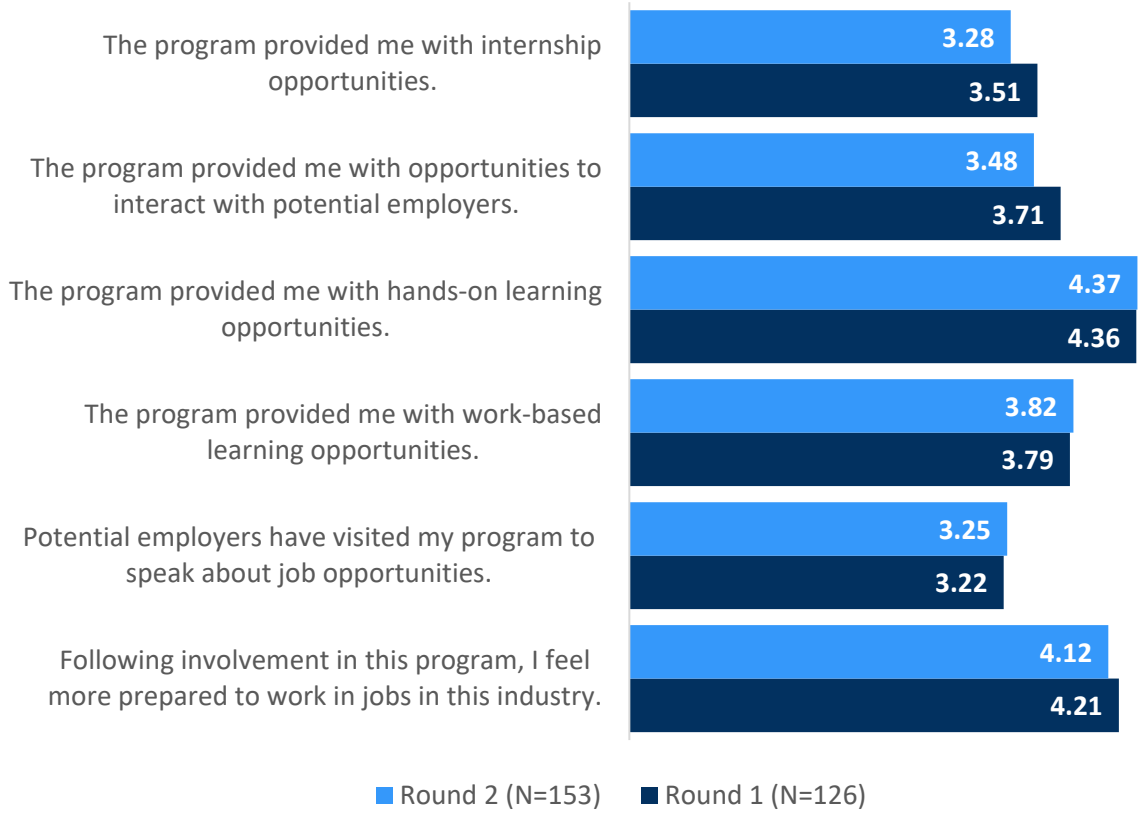
One partner interviewee who was involved in developing badges shared that badges provide students with "soft skills" that went beyond a traditional transcript or resume. Another interviewee, on the other hand, felt that badges were difficult to assess on a resume. They shared that soft skills, such as empathy, could not be taught; however, it should be noted that the consortium is not offering an empathy badge for this reason.

RQ2h. What other methods are being utilized to prepare students for employment or advancement in Advance Manufacturing and Cybersecurity?

Figure 19 demonstrates that students across both rounds of data collection agreed or strongly agreed that the program provided them with hands-on learning opportunities and that they felt

more prepared to work in jobs within their chosen industries following their participation in the program.

Figure 19. Student Survey: Average agreement rating related to industry career preparation (Ns vary) (1 = Strongly Disagree, 5 = Strongly Agree)



Over two hundred students (N = 235) elaborated on both rounds of the survey that their programs are preparing them in a variety of ways. Most commonly, students felt that their participation in the program increased their knowledge of industry relevant skills and improved their baseline knowledge of their given industries. Further, students felt that the programs in the consortium provided them with ample hands-on opportunities to practice industry skills and certifications to share with employers.

Partner interviewees also discussed how the SCC grant is preparing students for employment in various ways, such as teaching employability skills that go beyond the traditional academic transcript, deepening relationships with industry partners to influence the relevance of program instruction based on skills that are required to work in Advanced Manufacturing and Cybersecurity, providing funding for students to attend the program without financial barriers,

and engaging in promotional activities to further program outreach to high school students in rural areas, students from underserved communities, and students wanting to advance their current careers. One interviewee shared that the program is providing students with hands-on, work-based experiences that allow them to "test" out jobs before committing to a career. Another partner reported that programs were teaching students how to train for interviews, write a professional email, build a resume, and respond to constructive feedback. Finally, a partner shared,

> *"The students come out of the program with practical, relevant training where they can go right into the workforce and be productive."*

In addition to examples shared by interviewed partners, faculty/staff survey respondents (N = 36) shared a variety of ways in which industry partners prepared students for employment, such as providing students with hands-on opportunities that reflected the real workplace, sharing input on program curriculum to ensure relevancy to industry needs, and providing employment or internship opportunities for students.

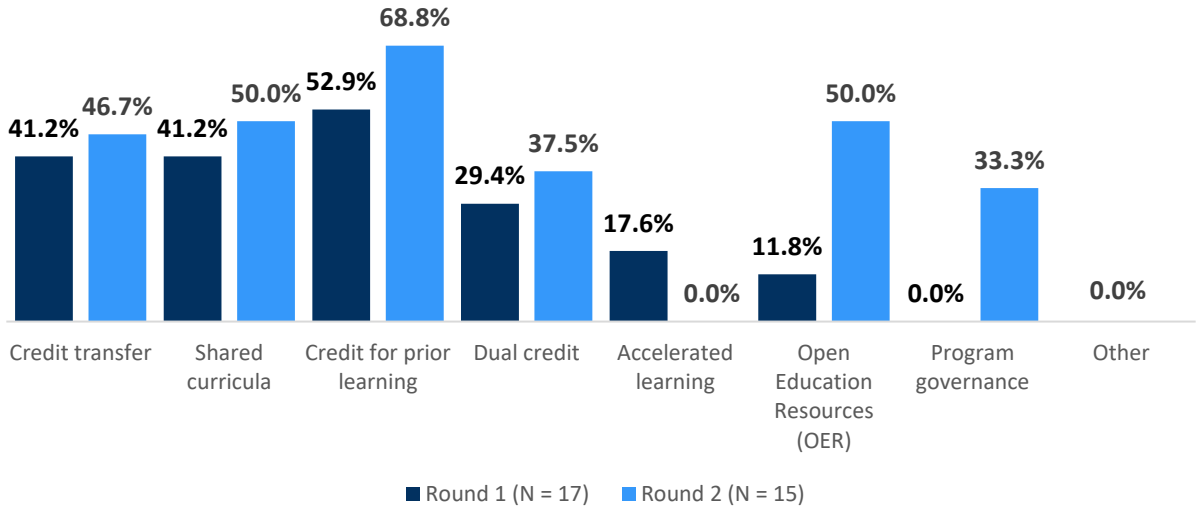
RQ3. How are consortium colleges aligning policy and procedures around issues of credit transfer, shared curricula, credit for prior learning, dual credit, accelerated learning, and adoption of Open Education Resources (OER) and program governance?

Key Findings

- Faculty/staff survey respondents were aligning policies and procedures related to shared curricula, credit for prior learning, credit transfer, dual credit, and accelerated learning. These efforts were being facilitated by collaboration among consortium members.

Faculty/staff survey respondents who participated in improving policy and procedure alignment provided further feedback related to their efforts (Figure 20). Among Round 1 faculty/staff members (N = 17), survey respondents were most likely to engage in efforts to align credit for prior learning (52.9%), credit transfer (41.2%), and shared curricula (41.2%). Round 2 faculty/staff members (N = 15) most commonly worked toward aligning credit for prior learning (68.8%), shared curricula (50.0%), and Open Education Resources (50.0%).

*Figure 20. Faculty/Staff Survey: Types of policies and procedures that have been aligned**



*Respondents could select more than one option.

RQ3a. What barriers has the consortium faced in aligning these policies and procedures?

When asked about barriers faced in aligning policies and procedures, faculty/staff (N = 21) shared a variety of challenges, including the time commitment needed to align policies and procedures, differences in policies and procedures across the consortium, and getting faculty members involved in alignment efforts.

RQ3b. What efforts have facilitated the alignment of policies and procedures?

Faculty/staff survey respondents (N = 22) reported various efforts that continue to facilitate the alignment of policies and procedures, such as collaborating with colleges across the consortium to share resources, communicate common goals, and establish consistency across programs, collaborating with external industry partners to enhance student employment and education outcomes, discussing policies and procedures with internal faculty and administration,

reviewing existing policies and procedures to determine necessary changes, and developing a better understanding of student needs to inform policies and procedures.

RQ3c. What efforts are being made to sustain newly aligned policies and procedures, as well as new programming?

Two partner interviewees shared that they are currently in the process of thinking about sustainability efforts but were unsure of how to do so. The Consortium Director added that each college is completing a Sustainability Plan focused on the key outputs of the grant.

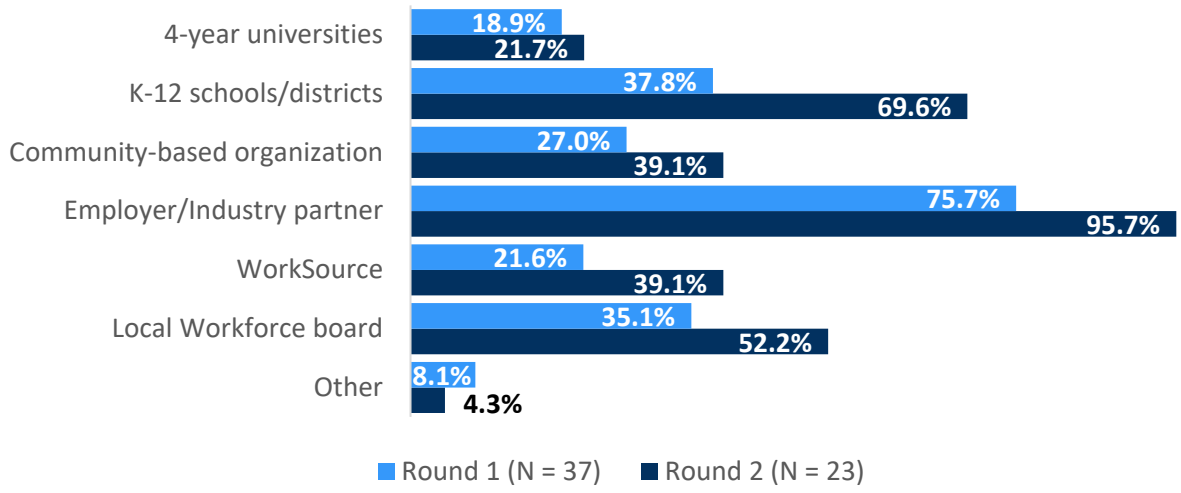
RQ4. What contributions did each partner make?

Key Findings

- Surveyed colleges are engaging with a wide variety of partners, and in doing so, partners are most commonly assisting with informing curriculum, providing funding and support to students in the program, strengthening dual credit courses for high school students, hiring students, and being guest speakers at events.
- Partner involvement in the program is most commonly facilitated by the opportunity to collaborate on meaningful work within their communities, the ability to influence the outcome of their future workforce, and positive outreach from colleges.

Faculty/staff survey respondents have engaged a wide variety of external partners (Figure 21). In both rounds of survey administration, respondents (N = 37, N = 23) most notably reported engaging with employer/industry partners (75.7%, 95.7%), followed by K-12 schools/districts (37.8%, 69.6%) and the local workforce board (35.1%, 52.2%).

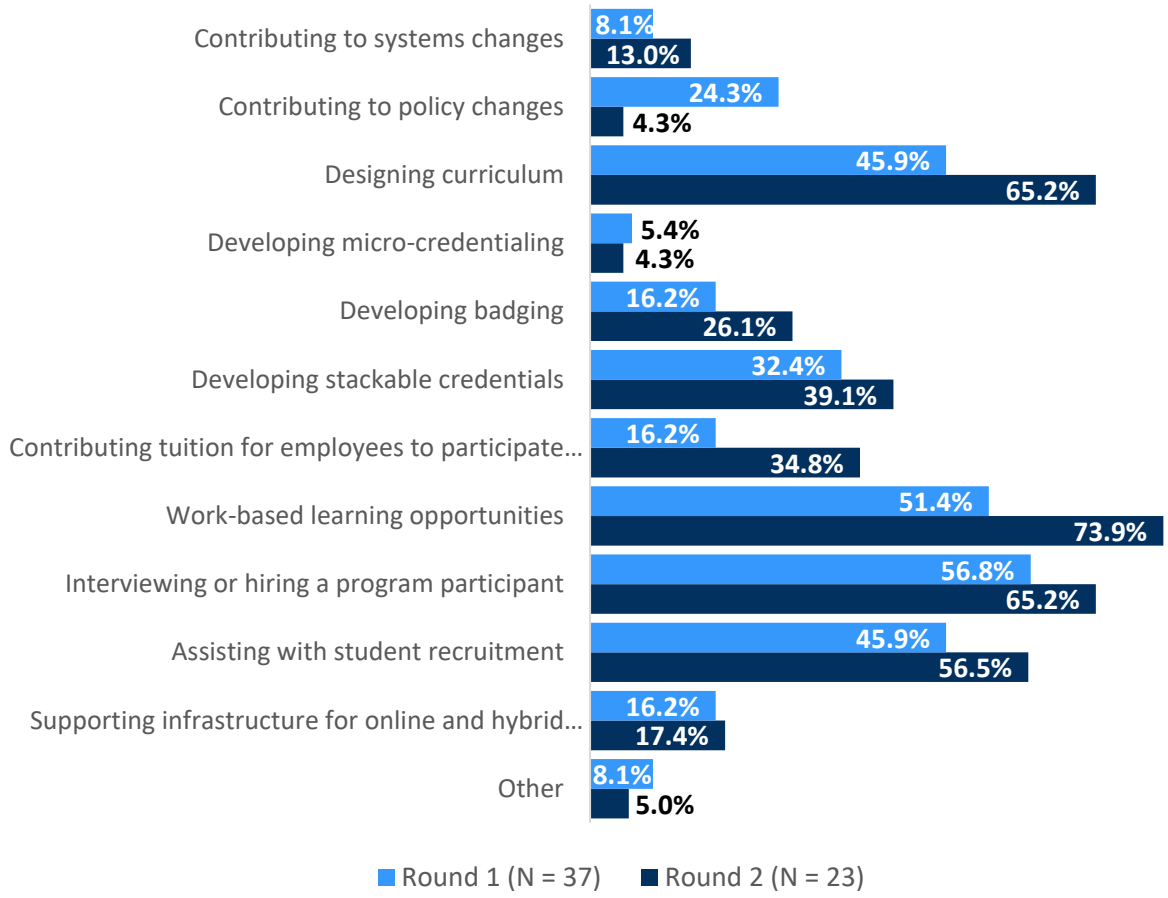
*Figure 21. Faculty/Staff Survey: Type of external partners colleges are engaging**



*Respondents could select more than one option.

According to Round 1 faculty/staff survey respondents (N = 37), external partners have primarily contributed to their programs by interviewing or hiring program participants (56.8%), providing work-based learning opportunities (51.4%), designing curriculum (45.9%), and assisting with student recruitment (45.9%). Among Round 2 faculty/staff respondents (N = 23), the most commonly cited external partner contributions included work-based learning opportunities (73.9%), designing curriculum (65.2%), and interviewing or hiring program participants (65.2%). Figure 22 on the following page shows more ways in which external partners have contributed to programs across the consortium.

*Figure 22. Faculty/Staff Survey: Ways in which external partners have been contributing to the program**



*Respondents could select more than one option.

Data shared previously in the report also demonstrates that partners have been involved in developing stackable credentials, micro-credentials, and badging.

Interviews with partners also shed light on how they have been contributing to the SCC program. Partners reported involvement with participating as a member of a grant committee or on the advisory board, developing badges, providing industry insight to inform curriculum, aiding in the promotion and development of dual credit high school programs, being a guest speaker in courses and at events, helping students find employment, providing equipment donations and funding student program attendance via tuition assistance or other means of financial support. One industry partner shared that they also supported the program by recruiting and financially supporting current employees to attend programs and obtain additional certifications. Further, some industry partners have supported the program by attending career fairs, such as the Manufacturing Day at the Oregon Manufacturing Innovation Center. One partner shared,

"We come in as industry partners to explain what our industry does and what careers are available within our industry. We share the different classes that are available at Portland Community College and educate students on what is out there."

One interviewee, who regularly participated as a guest lecturer in a cybersecurity course, reported that they spoke to students before the final week of instruction to share the "broad spectrum of different activities [they] could do within cybersecurity." In addition to this presentation, they also engaged in informal career preparation with students by answering questions related to finding job placement within the field.

Similar to guest lecture opportunities, one interviewed partner shared that they were involved in participating in a panel interview with other industry professionals in the Manufacturing 100 class at Central Oregon Community College. The panel interview provided students with the opportunity to learn more about career possibilities in the industry, as well as ways to boost their possibilities of getting hired in the industry. The partner shared,

"[The panel interviews] are an opportunity for students to have a one-on-one relationship with actual employers and people who have done what they are thinking about doing. We have the benefit of hindsight."

Another interviewee shared that they were directly involved in developing student support services and funds to ensure that students, especially those in rural or underserved communities, were given the tools to succeed in one of the college programs. They worked toward better anticipating student needs, including needs for tuition, tools, and transportation, to inform their support.

RQ4a. Which contributions from partners were most critical to the grant program?

When asked about the contributions from partners that have been most critical to the grant program, faculty/staff survey respondents (N = 31) most commonly indicated that receiving input for curriculum based on industry relevant needs has allowed them to adapt their programs informed by workforce demand. Survey respondents also expressed appreciation for

partners recruiting students to their program, hiring students in the program, and providing students with internship opportunities.

RQ4b. What factors contributed to partners' involvement?

Partner interviewees shared a variety of factors that contributed to their involvement, but they most commonly fell under two themes: 1) preparing their future workforce, and 2) supporting their communities. Those who were involved in an effort to prepare their future workforce indicated that they wanted to aid in efforts related to building a more informed workforce, in which one partner shared,

> *"I wanted to see if I could affect the process of getting better candidates so that I could have a successful business."*

Partners who were involved as a result of wanting to support their community felt that the programs provided a positive outcome for students from historically underserved communities and wanted to introduce Advanced Manufacturing or Cybersecurity to individuals who might not have had the chance to work in these industries, had they not entered one of the programs in the consortium. One partner shared,

> *"I believe the community colleges are at the forefront to engage historically underrepresented and underserve communities to ensure career pathways and technology, among other skills, to collectively lift their respective communities."*

Outside of these themes, some partners shared that they became involved through their own employees who had graduated from programs across the consortium, while others felt that faculty in the programs played a positive role in outreach to engage industry.

RQ4c. Had partners had previous relationships with the college(s), and if so, how has their involvement changed through the grant?

Approximately 62.5% of faculty/staff in Round 1 (N = 32) and 43.5% of faculty/staff in Round 2 (N = 23) reported that some of their external partners contributing to the administration of the program were new partnerships (excluding other colleges as part of consortium). Six faculty/staff survey respondents noted that the new partnerships have strengthened over the

course of the grant, while one respondent felt as though the new partnerships had become "more intentional".

Interviewed partners reflected similar insights related to how their involvement with colleges has changed through the grant. Partners felt as though their relationships had "deepened" over the course of the grant, and that they were able to develop a better understanding of the innerworkings of the programs across the consortium. Further, partnership over the course of the grant became more hands on through increased communication with program directors.

RQ4d. How are partners accepting badging and micro-credentialing programs in the workforce?

Faculty/staff members (N = 14) shared that partners were accepting badging programs in the workforce by reviewing badges as a way to learn more about a potential job candidate. One faculty/staff member indicated that they were working with industry partners to incorporate badging programs into hiring processes.

Two interviewed partners noted that they were unsure how badging was being accepted in the workforce or if employers were aware of the badges.

RQ4e. In what ways has the consortium increased coordination with workforce agencies?

Faculty/staff survey respondents (N = 22) shared ways in which the consortium increased coordination with workforce agencies, including involvement in more meetings with employer partners, increased collaboration with local job sites, expanded outreach to industry partners for advising opportunities, collaboration with local partners on regional projects, and the development of an apprenticeship model for Oregon.

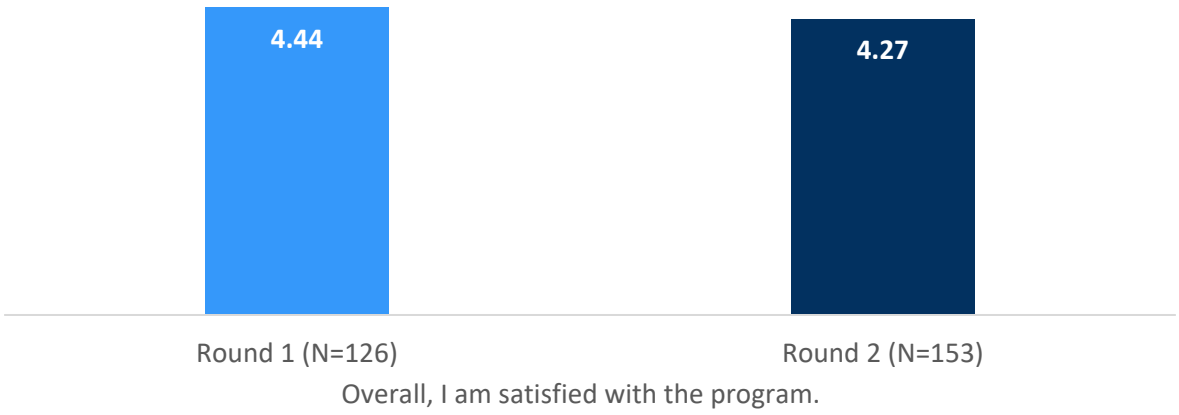
RQ5. To what extent was the program implemented as intended?

Key Findings

- Students are overall satisfied with the program.
- Faculty/staff suggested an area for improvement is around hiring more instructors to sustain the growth of the program.
- Most students gain access to the program without taking prerequisite courses, placement test, or having prior experience in the industry.

Overall, students across both rounds of data collection agreed or strongly agreed that they were satisfied with the program (Figure 23).

Figure 23. Student Survey: Average rating of satisfaction with program (1 = Strongly Disagree, 5 = Strongly Agree)



RQ5a. How did program activities change over time?

Faculty/staff (N = 48) shared a variety of ways in which the program changed over the course of the grant, including faculty changes, the development of more structured curriculum based on industry input and knowledge of industry needs, the addition of stackable credentials, micro-credentials, and digital badges, and increased machinery, equipment, and software to aid in hands-on instruction in courses (n = 6). One faculty/staff member spoke to the ways in which program expansion positively affected their college,

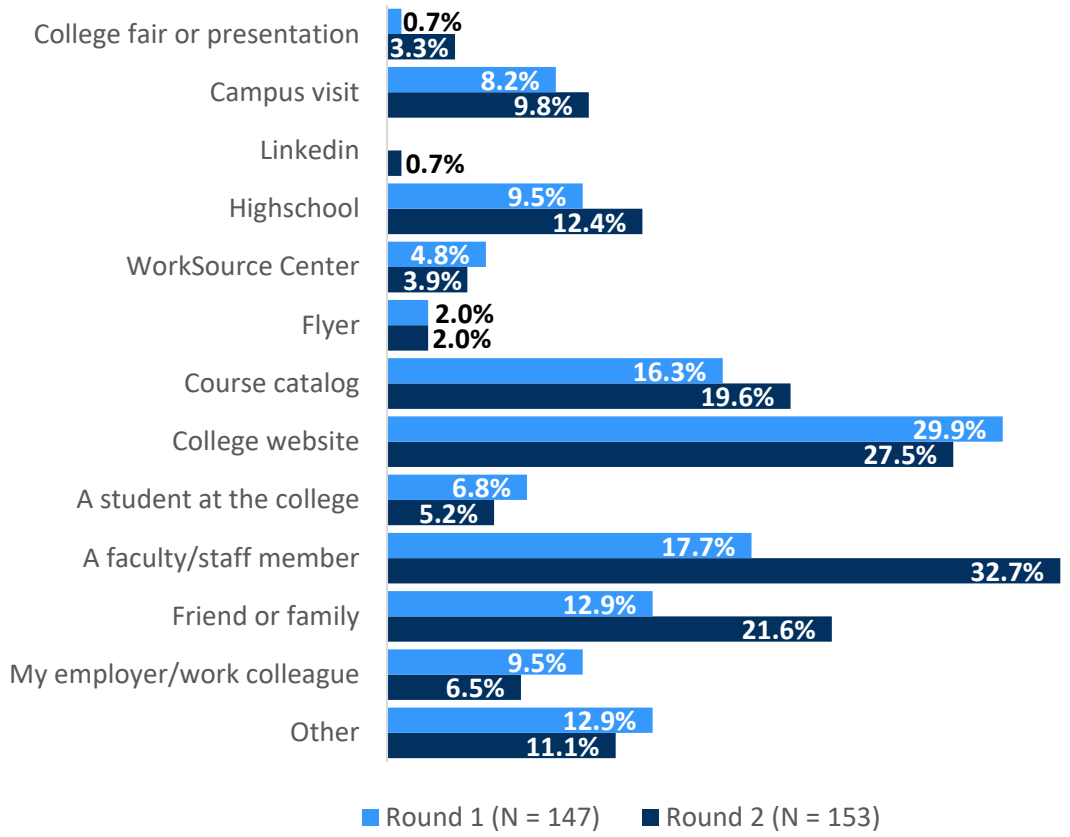
"We have greatly expanded our program. We are reaching more students and more types of students. Our program has a clear direction and is more results oriented."

RQ5b. To whom did the consortium direct program efforts? How was this determined?

Students learned about the program in a variety of ways, with the primary method across both rounds of data collection being through faculty/staff members at the college and the college website.

Students who selected "other" most commonly shared that they learned about the program through personal research, vocational rehab, community members, KBBH Job Support, TradeAct, and a newspaper ad.

*Figure 24. Student Survey: Ways students learned about the program**

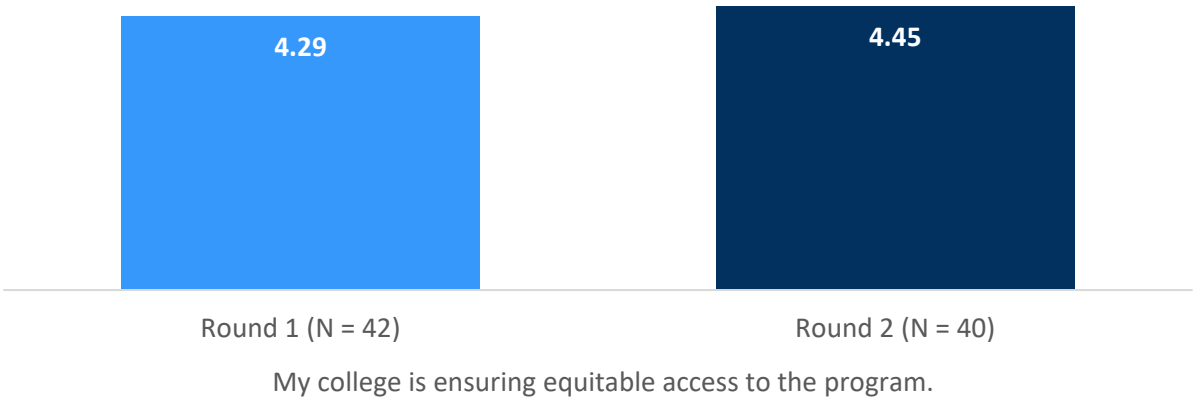


*Respondents could select more than one option.

RQ5c. How is the consortium ensuring equitable access to programs?

Overall, faculty and staff across both rounds of data collection agreed or strongly agreed that their college was ensuring equitable access to the program (Figure 25).

Figure 25. Faculty/Staff Survey: Average agreement rating that colleges are ensuring equitable access to the program
(1 = Strongly Disagree, 5 = Strongly Agree)



Faculty/staff survey respondents provided additional context regarding the ways in which their colleges were ensuring equitable access to their programs. For example, programs have been designed to promote flexibility to encourage working students or students with families to attend and find success in the program. Students are able to choose from a variety of course delivery methods, including online and hybrid, to ensure that all types of students have access to obtaining an education through one of the programs in the consortium. One faculty/staff member shared that a student was easily able to switch their class schedule from morning to evening classes once their work schedule had changed after the start of the term. Another faculty/staff member shared,

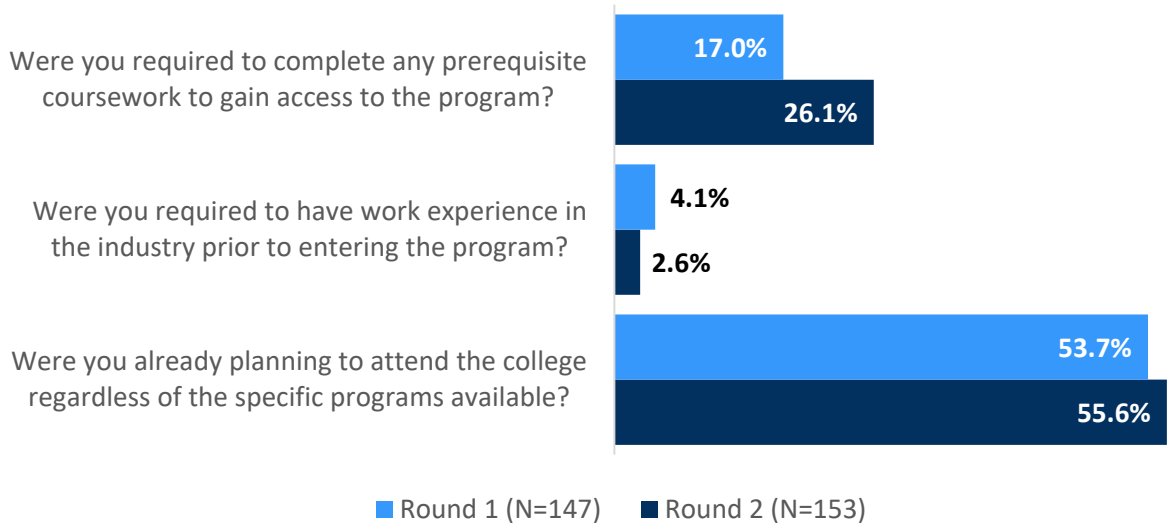
> *"We changed the lab and course schedule to better meet the needs of working students and those that needed more schedule flexibility."*

Additionally, faculty/staff members shared that they have engaged in recruitment efforts across traditionally underserved communities and applied for grants to aid in tuition assistance for students to ensure students from all backgrounds are aware of the programs available and

lessen financial barriers that might prevent students from attending these programs. Aside from recruitment efforts, the consortium makes an effort to accept credits for prior learning, prerequisites taken at other institutions, and streamline curriculum across the consortium to prevent barriers related to time and financial constraints.

Students shared information about their experience gaining access to the program. Approximately 7.5% (N = 147) of student survey respondents in Round 1 and 9.8% (N = 153) of student survey respondents in Round 2 experienced obstacles with entry to the program (Figure 26). Nearly a quarter (22.8%, N = 147) reported taking a placement test to gain access to the program in Rounds 1 of survey data collection, while slightly fewer (17.6%, N = 153) reported taking a placement test in Round 2. Further, less than twenty percent (17.0%, N = 147) of students in Round 1 and over a quarter (26.1%, N = 153) of students in Round 2 were required to complete prerequisite coursework to gain access to the program. Less than 5.0% of students across both rounds reported that they were required to have work experience in the industry prior to entering the program (Figure 29). Students named various placement tests they took prior to entering the program, such as standardized tests used to determine Math and English course placement, the CPT test, and the RCC Medford/US Army assessment. Over half of the students taking the survey across both rounds were planning to attend the college regardless of these specific programs.

Figure 26. Student Survey: Student perception of access to available programs (Ns vary) (% Yes)

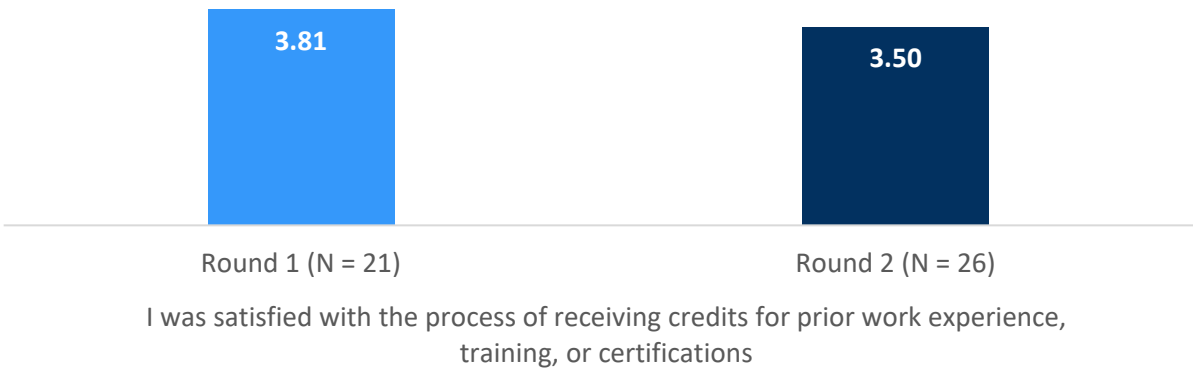


When reporting on experiences with credit for prior learning, 14.3% (N = 147) of students in Round 1 and 17.0% of students in Round 2 (N = 153) reported that they attempted to receive credits for prior work experience, training, or certifications to count toward the program. Across both rounds of survey data, over half of students (60.0% in Round 1, 65.4% in Round 2)

who attempted to receive course credit were able to receive credits for prior work experience, training, or certifications to count toward the program.

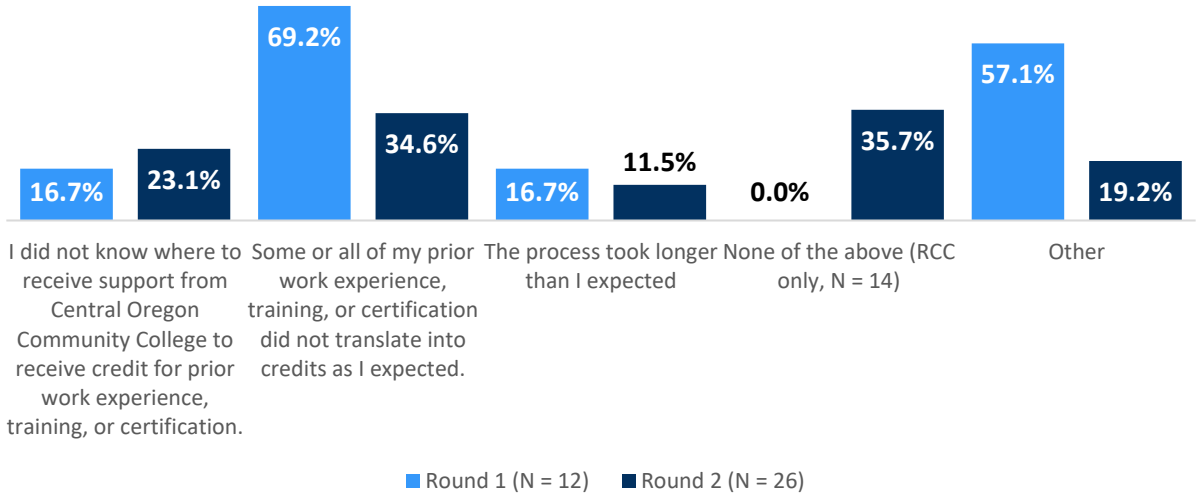
Students who attempted to receive course credit for prior learning mostly felt neutral or agreed that they were satisfied with the process of receiving credits for prior work experience, training, or certifications (Figure 27).

Figure 27. Student Survey: Average agreement rating of satisfaction with process of receiving credits for prior work experience, training, or certifications (Ns vary)
(1 = Strongly Disagree, 5 = Strongly Agree)



The primary obstacle students faced when attempting to receive credits for prior learning was due to some or all of their prior work experience, training, or certifications not translating into credits as they expected or "other" obstacles (Figure 28). Students who selected "other" shared that they faced obstacles related to difficulties convincing faculty/staff to honor their prior credits.

*Figure28. Student Survey: Obstacles faced when attempting to receive credits for prior experience, training, or certifications**



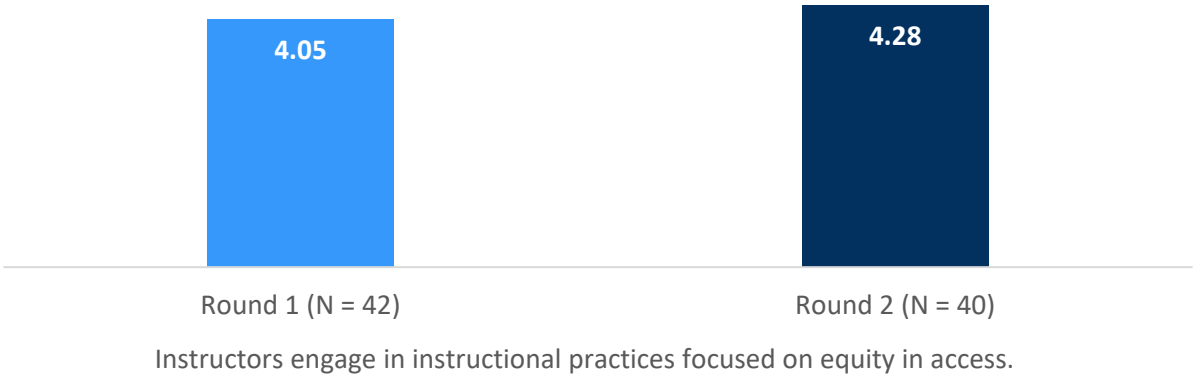
*Respondents could select more than one option.

When discussing obstacles to program entry generally, student survey respondents (N = 23) reported a variety of obstacles to entry, including transportation barriers, lack of openings in their preferred courses, aligning their course schedules with preexisting work schedules, registration restrictions for some courses, and financial barriers.

RQ5d. How are instructors engaging in instructional practices focused on equity in access?

Faculty/staff survey respondents agreed or strongly agreed that instructors engaged in instructional practices focused on equity in access (Figure 29).

Figure 29. Faculty/Staff Survey: Average agreement rating related to instructional practices focused on equity in access
(1 = Strongly Disagree, 5 = Strongly Agree)



Faculty/staff survey respondents shared a couple ways that instructors were engaging in instructional practices focused on equity in access. These included developing curriculum based on equitable practices, participating in professional development or collegewide programs focused on diversity, equity, and inclusion, delivering courses in multiple modalities to increase flexibility and accessibility for students, and tailoring instruction to accommodate various needs of students. One faculty/staff member shared,

> *"[We are] utilizing our LMS and built in software to ensure that we are at 100% accessibility. We have selected dual language text and have a fantastic partnership with our student disability services."*

RQ5e. What implementation efforts did the consortium struggle with?

Interviewed partners shared a few barriers to implementation efforts that they recognized while working with the consortium, including staffing and turnover challenges, grant activity sustainability concerns, difficulties for students to land industry internships, and differences of opinion between what instructors want to teach versus what the industry suggests for the curriculum. One partner shared that, despite differences in opinion related to the curriculum, colleges were always open to ideas from industry partners to strengthen the relevance of their courses.

Faculty/staff survey respondents (N = 59) shared a variety of improvements that could be made to their programs. Improvements that would further support grant implementation efforts

included hiring more instructors to encourage sustainable program growth, increased partnerships and collaborations with industry professionals, secondary academic institutions, and K-12 programs, increased funding, and increased marketing / outreach to students.

RQ6: In what ways are systems changed due to the collaboration among colleges and between colleges and employers?

Key Findings

- Systems change across the consortium has included increased intentional collaboration with partners, as many faculty/staff members felt that they were more likely to engage in a direct line of communication as a result of grant activity. Systems change has also encompassed developing the employability skills badging framework and shared resources via an online repository.

- Obstacles that colleges are commonly experiencing to affect system change included slow or timely processes, faculty turnover, limited resources, and communication barriers.

When asked about the ways in which systems have changed due to collaboration among colleges and between colleges and employers, faculty/staff most commonly felt that they have gained a direct line of communication with partners and strengthened their partnerships with employers. One faculty/staff member felt that their program was better aligned with local industries, and another highlighted the work being done between employers and the colleges to place students in "additional training programs, work study, and future jobs."

Faculty/staff also felt that positive curricular changes were being made based on input from employers and communication across the consortium. Curricular conversations across the consortium and with other educational institutions has allowed for further alignment of processes, skills taught, and certificates attained. This alignment will likely allow students to more effectively transfer credits to other colleges or universities.

The Consortium Director also shared that piloting the employability skills digital badges was a key component of the systems change, as well as the Open Education Resources (OER) shared via an online repository among the colleges.

RQ6a. How are the colleges building relationships and facilitating shared learning throughout the grant to strengthen career pathways in Advanced Manufacturing and Cybersecurity?

Faculty/staff survey respondents shared that, in an effort to strengthen career pathways in Advanced Manufacturing and Cybersecurity, they most commonly facilitated shared learning through collaboration with colleges in the consortium to gain perspective on curriculum development, enhance cooperation across college programs, and share their experiences related to grant efforts. Survey respondents also shared that they collaborated with four-year universities to ensure course alignment and seamless credit transfers, as well as collaborated with K-12 institutions to share resources and knowledge with high school teachers in CTE programs.

RQ6b. What are examples of barriers that colleges are commonly experiencing to affect system change? How are these being overcome collectively?

Faculty/staff survey respondents (N = 41) shared the barriers that they experienced to affect system change. Barriers most commonly included slow or timely processes necessary to implement systemic change, faculty turnover, limited space or resources needed to incorporate hands-on opportunities for students, and communication barriers with internal faculty/administration, colleges across the consortium, and industry partners. One faculty/staff member shared that the college is a "large organization," thus "things take time." Despite timely system changes, they noted that their program's administration recognized the importance of the program and have been supportive with the processes.

RQ6c. What do successes and areas for growth look like in terms of communication between colleges and employers?

Faculty/staff survey respondents shared a variety of success and areas for growth related to communication between colleges and employers, as shown by Table 18 below.

Table 18. Successes and areas for growth related to communication between colleges and employers

Successes	Areas for Growth
- Site visits - Discussion and communication at advisory board meetings - Employers seeking help from programs to find prospective employees - In-person communication	- Insight from more employers - Increased required meetings between colleges and employer partners - Enhanced communication from employers outside of advisory board meetings

Successes	Areas for Growth
- High school collaborations - Community outreach programs - Communication via direct contact - Willingness of employers to provide support to the programs	- Increased program recruitment efforts - Increased opportunities for site visits, hands-on experiences, and work-based learning - Investments in equipment for employer/industry partners - Budgeting for a liaison to be the main point of contact for communicating with employer partners - Maintain adequately trained staff

Interviewed partners shared similar strengths and areas for improvement related to communication with colleges but added additional context to collaboration efforts. For example, partners felt as though community colleges were receptive to feedback from the industry related to curricular development.

RQ7: What role did the program play on student outcomes?

Key Findings

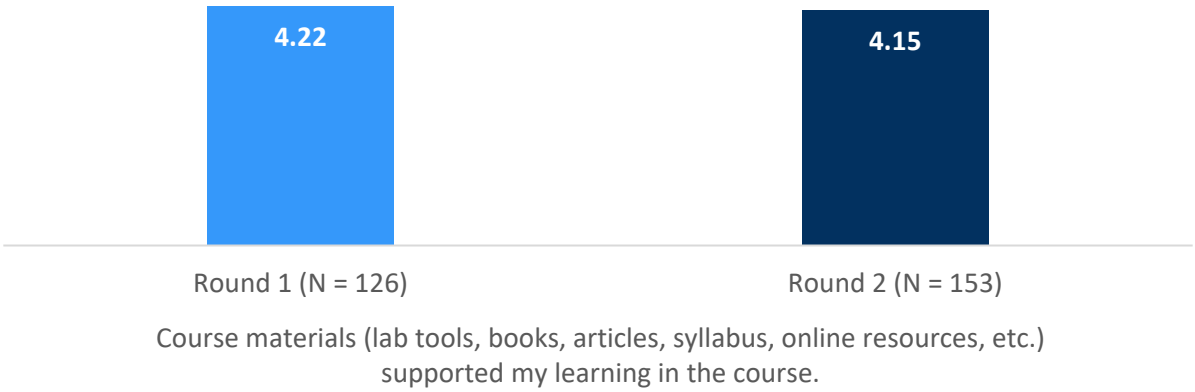
- Some students have already gained employment in the industry since becoming involved in the program. Students also reported that they are more likely to pursue a career in the industry and obtain a local job because of their participation in the program.

- Faculty/staff, students, and partners all highlighted the program's ability to help students attain employment. There are several components of the program that support students in reaching this outcome such as the curriculum and resources informed by industry partners, opportunities to engage one-on-one with employers, hands-on learning opportunities, and high-quality technology that is applicable to the industry.

RQ7a. What implementation efforts were most effective at playing a role in student outcomes?

Overall, students agreed or strongly agreed that course materials such as lab tools, books, etc. supported their learning in the courses (Figure 30). While this does not directly address this research question, students having necessary course materials to support their learning can lead to increased possibilities of attaining employment or advancement in their chosen industries.

Figure 30. Student Survey: Average agreement rating related to course materials supporting learning
(1 = Strongly Disagree, 5 = Strongly Agree)



Faculty/staff survey respondents (N = 58) noted a variety of strengths of their programs. Most commonly, faculty/staff felt that programs across the consortium provided students with an increased chance of employability in the Advanced Manufacturing and cybersecurity industries, instructors dedicated to supporting students in their academic and career goals, and facilities, software, and machinery to aid in hands-on and work-based learning. One faculty member highlighted the effectiveness of the program,

> *"Multiple students each term decide to return as full-time students to further develop their skills. Those that opt for entering the workforce have found that the educational experience afforded by this program boosts the prospects of being hired."*

Students (N = 200) reported many strengths of their given programs, all of which prepare them for employment, including the instructors in the program who provided them with support,

encouragement, and knowledge of industry skills, hands on experiences that allowed them to work with machinery and software relevant to their industries, and the ability of the programs to introduce them to real-world scenarios and baseline knowledge of their chosen industries. One student shared,

> *"[The program] teaches you a lot about the manufacturing industry and provides a basic foundation for a career in the trades over a relatively short period of time."*

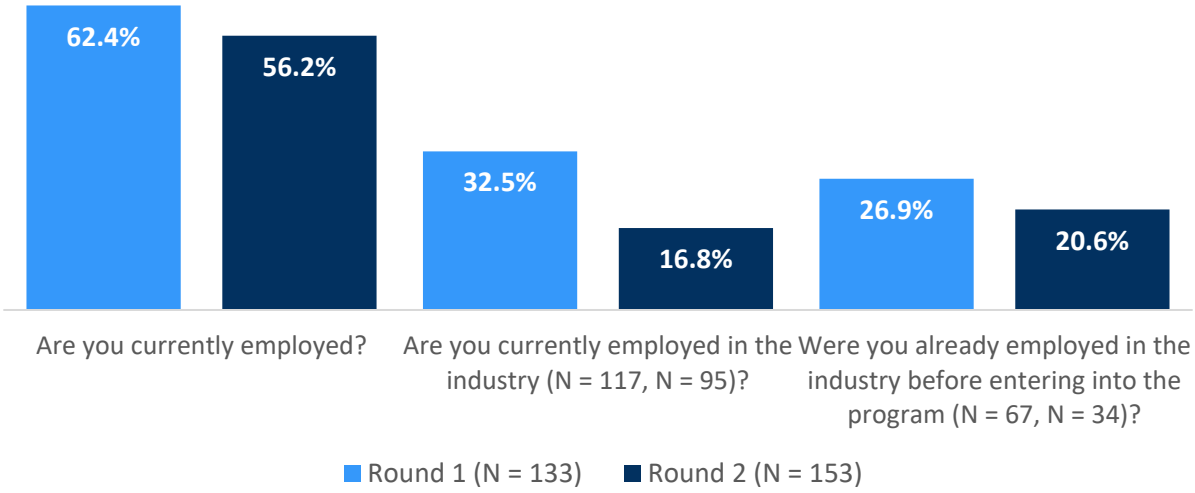
Interviewed partners also shared the strengths of the SCC project, which include its flexibility for students, the implementation of high-quality technology and resources for students, and its applicability to the workforce.

These strengths highlighted by faculty/staff, students, and partners all play a role in supporting students to obtain employment.

RQ7b. In what ways are students prepared to attain employment or advancement in Advanced Manufacturing/Cybersecurity?

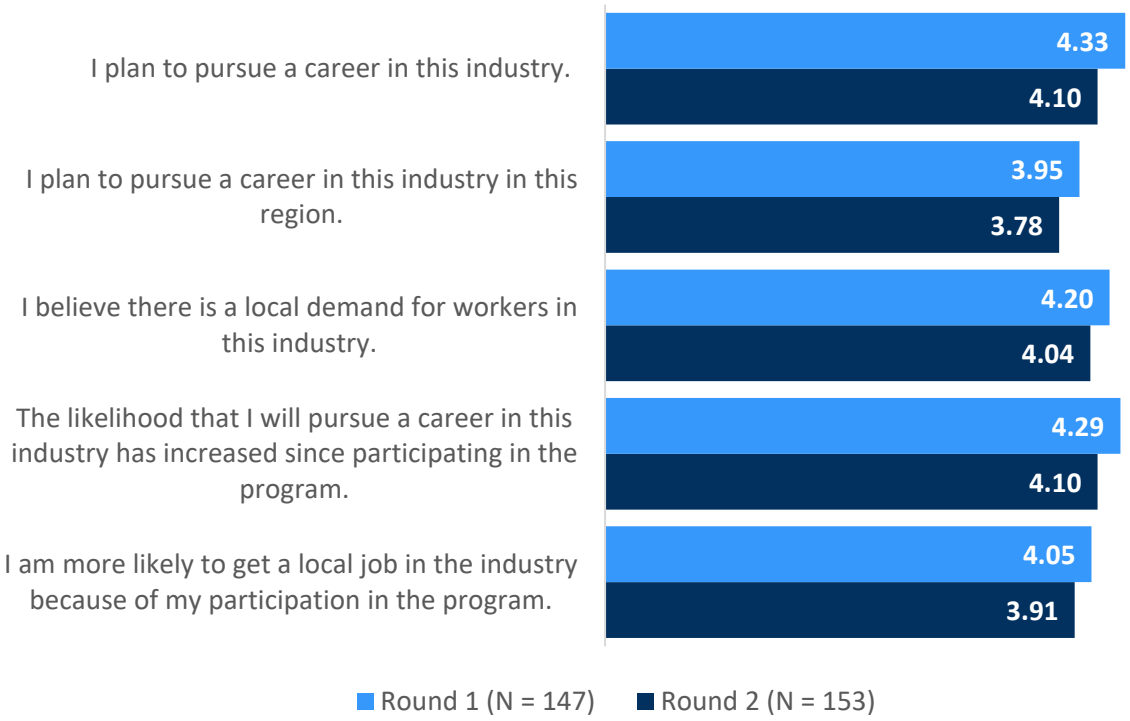
Of the students who completed the survey, over half were employed at the time of Round 1 (62.4%, N = 133) and Round 2 (56.2%, N = 153) of data collection. In Round 1, nearly one-third of students (32.5%, N = 117) who were employed were also employed in the industry, and over a quarter (26.9%, N = 67) were industry employed prior to entering their program. In Round 2, approximately 16% (16.8%, N = 95) of students who were employed were employed in the industry, while a little over 20% (20.6%, N = 34) were employed in the industry prior to starting their program (Figure 31).

Figure 31. Student Survey: Employment status (% Yes)



As indicated in Figure 32, students across both rounds of data collection believed that there was a local demand for workers in this industry. Students also indicated that they are more likely to pursue a career in this industry because of their participation in the program. While students agreed or strongly agreed that they planned to pursue a career in the industry, they were less likely to plan to pursue a career in their region.

Figure 32. Student Survey: Average agreement rating related to careers in the industry (1 = Strongly Disagree, 5 = Strongly Agree)

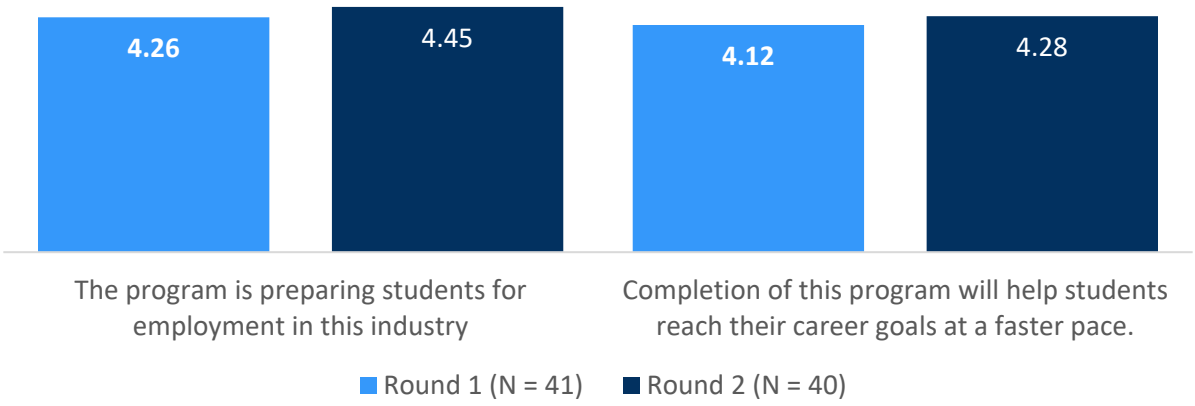


Students who were employed at the time of data collection were neutral or agreed that they were more likely to get a salary increase at work as a result of participating in the program (Figure 33).

Figure 33. Student Survey: Average agreement rating related to salary increase expectations (1 = Strongly Disagree, 5 = Strongly Agree)

Overall, faculty/staff survey respondents agreed or strongly agreed that the program was preparing students for employment in the industry and would help students reach their goals at a faster pace (Figure 34).

Figure 34. Faculty/Staff Survey: Average agreement rating related to career preparation (Ns vary) (1 = Strongly Disagree, 5 = Strongly Agree)



Faculty/staff members (N = 70) shared a variety of ways in which the Advanced Manufacturing and Cybersecurity programs were preparing students for employment in these industries. Most commonly, survey respondents felt that students were learning industry relevant skills that provided them with ample knowledge to succeed when applying for future careers. Further, students were exposed to hands-on experiences with equipment and/or software used in the industries and taught a robust, well-rounded curriculum built from knowledge and input from industry professionals. One faculty/staff member shared an example of how students were taught how to utilize industry equipment and strengthen relevant skills,

> *"The Pre-Trades for Advanced Manufacturing program gives students hands-on experience with a variety of machinery that they may encounter in the workplace. It teaches them how to take precision measurements and manufacture parts with tight tolerances."*

Students (N = 235) most commonly found that the industry relevant curriculum and skills being taught in their program, as well as the baseline foundational knowledge of the industry taught through their program were ways in which their participation in Advanced Manufacturing and Cybersecurity programs were preparing them for employment within the field. Additional ways that participation in the program helped prepare them for employment included the hands-on

learning opportunities provided through the program and the certifications that were made available to them through their progression in the program.

Evaluation Insights

1. Partnerships with a variety of external stakeholders are strong and an important aspect of this project. The consortium colleges and Consortium Director worked throughout the grant with a wide range of partners who supported the program with a number of activities including the development of stackable credentials, micro-credentials, and badging. Since these grant components—and others in which partners are involved—can impact participants' employability, partnerships are integral to supporting students to attain employment or advancement in their field. These partnerships were facilitated by strong communication, enthusiasm for the project, pre-existing connections, a desire to support the community, and a desire to enhance the skills of future employees.

2. A work group of consortium members and partners developed digital badges focused on employability skills. While faculty/staff and partners expressed excitement around badges, some expressed concern that employers would not recognize badges as something valuable during the hiring process. Despite this, students were optimistic that badges would prepare them for employment in their industry.

3. The Oregon Consortium made a lot of progress reaching or exceeding the target numbers for eight grant outcomes. For six of the outcomes, each of the two industries exceeded the target number. For one of the outcomes, one of the industries exceeded the target number. There is one outcome, where significant progress was made but was not be fully met by the end Year 4, Quarter 4 of the grant.

4. Overall, the programs in both industry areas exceeded the target numbers of students completing credentials. This is promising given that students, faculty/staff, and partners are optimistic that the grant programs are preparing students for work in the industry.

5. Throughout the grant, the consortium progressed in developing stackable credentials and badges. Survey findings indicate that faculty/staff perceive

students to be more aware of these opportunities than they are. Students typically learn about stackable credentials and badges through faculty/staff at their college, but for these credentials and badges to be useful to students they will need to become more aware of their availability. Thus, there may be room for colleges to further promote stackable credentials and badges to students.

6. An important component of this grant was to offer courses in hybrid and online formats. The consortium colleges did offer courses in these nontraditional formats, while also providing in-person learning opportunities. Student survey respondents indicated that in-person courses are actually their preference; however, the hybrid and online options were still important to many students in that they offered them flexibility to take courses while balancing work and family obligations.

Conclusion

The Oregon Consortium for Strengthening Community Colleges Training Grant Program, led by Mt. Hood Community College and consisting of nine colleges across Oregon, focused on enhancing Advanced Manufacturing and Cybersecurity career pathways. The program promoted collaboration among colleges to implement systemic changes through strategies such as expanding online and hybrid learning, developing stackable credentials and badging, aligning policies around curriculum and credit transfer, and sharing resources via an online repository. Another key component of the grant was collaboration with external partners who provided input on curriculum development, stackable credentials and badging, and provided learning opportunities to students. Through a quarterly performance outcomes survey, student and faculty/staff surveys, partner interviews, and discussions with the Consortium Director, PRE learned that the Oregon Consortium successfully completed all targeted outputs and that they made significant progress achieving the target numbers for eight grant outcomes, with five outcomes exceeding targets in both industries.

Findings from the evaluation show that consortium colleges cultivated strong relationships with partners, which has been vital to the project's success, and a key component of for developing curriculum, stackable credentials, and badges. While there were concerns among some faculty and employers about the recognition of digital badges, students were optimistic about their value in preparing for employment. As noted, the consortium also offered pathways in online and hybrid formats; while students sometimes prefer in-person courses, the hybrid and online options have provided necessary flexibility, allowing many to balance their educational goals with work and family responsibilities.

The consortium colleges continue to offer courses in Advanced Manufacturing and Cybersecurity. As the grant comes to a conclusion, each college is completing a Sustainability Plan focused on the key outputs of the grant.

Limitations

PRE took a participatory approach to this evaluation, which yielded valuable input from consortium members regarding data collection instruments. Despite this, adhering to the participatory approach posed some obstacles when collaborating with nine colleges that had different representatives involved at different times, sometimes due to staff turnover. Each college also had varying needs when it came to data collection activities, so evaluators had to

be cognizant of ensuring data collection instruments for each college addressed research questions when making adjustments.

Appendices

Appendix A: Partner Interview Questions

1. Please start by sharing how you have been involved with The Oregon Consortium SCC project.
    - When did your involvement begin?
    - Are you involved with Advanced Manufacturing, Cybersecurity, or both?

2. What activities have you been focused on since you partnered with The Oregon Consortium? Please discuss progress in these areas in which you have been involved.
    - Supporting infrastructure for online and hybrid delivery
    - Assisting with student recruitment
    - Interviewing or hiring a program participant
    - Work-based learning opportunities
    - Contributing tuition for employees to participate in the program
    - Developing stackable credentials
    - Developing digital badges
    - Developing micro-credentialing
    - Designing curriculum
    - Contributing to policy changes
    - Contributing to systems changed
    - Participating as a member of a grant committee
    - Other areas

3. *Partners who indicated they were involved with developing stackable credentials will be asked:* What was the process for developing stackable credentials?
    - How do stackable credentials respond to emerging skill needs in Advanced Manufacturing/Cybersecurity?
    - How are stackable credentials preparing students for employment in Advanced Manufacturing/Cybersecurity?

4. *Partners who indicated they were involved with developing micro-credentialing will be asked:* What was the process for developing micro-credentialing?
    - How does micro-credentialing enhance student career readiness?
    - How will you accept micro-credentialing in the workforce?

5. *Partners who indicated they were involved with developing digital badges will be asked:* What was the process for developing badging?
    - How do digital badges enhance student career readiness?
    - How will you accept digital badges in the workforce?

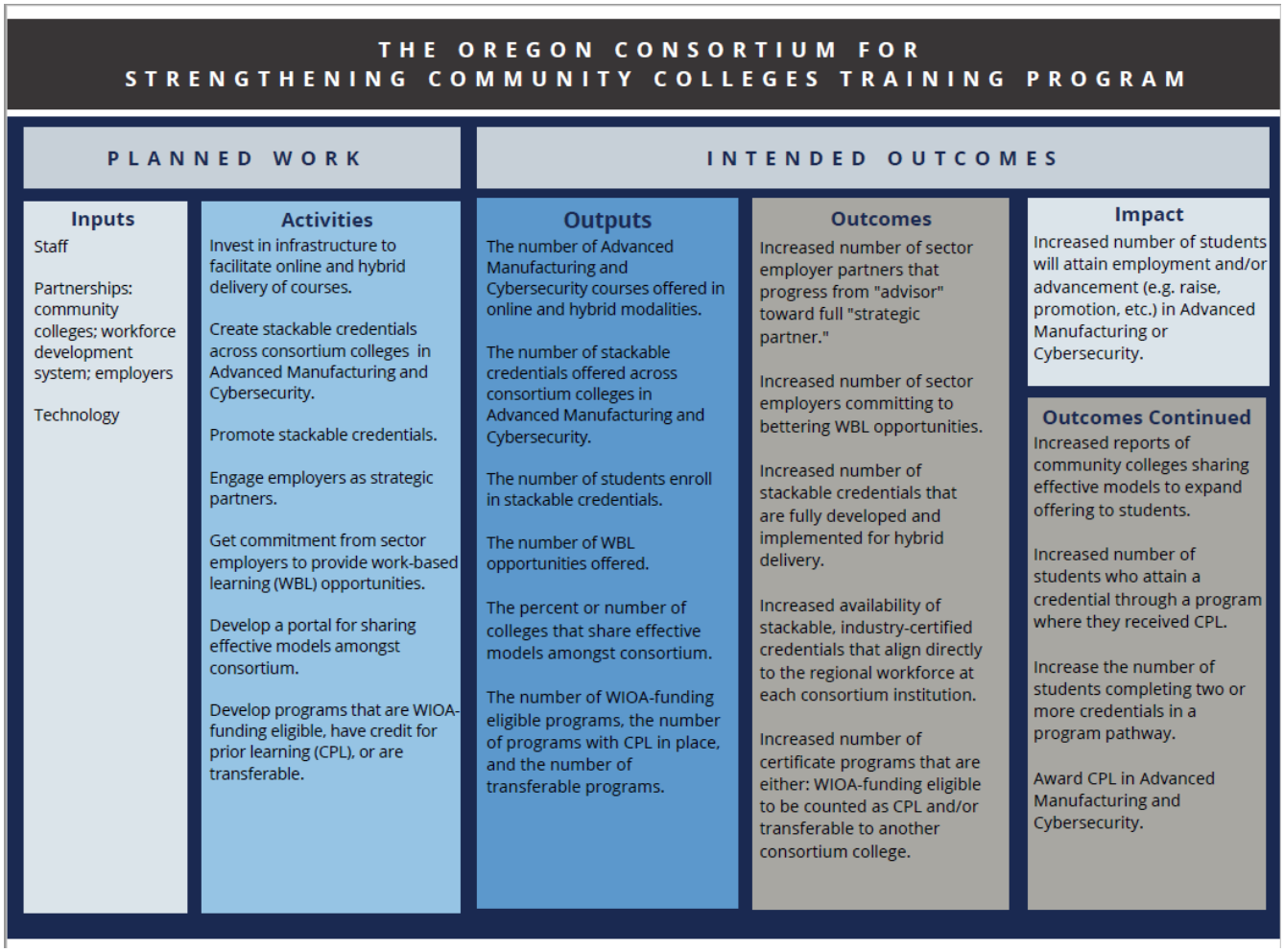
6. What other methods is The Oregon Consortium using to prepare students for employment in Advanced Manufacturing/Cybersecurity?

7. What factors have contributed to your involvement in the project?
    - Prior to the grant, did you have a partnership with any of the colleges that are part of The Oregon Consortium? How has your involvement with the college(s) changed since working on the SCC project?
    - What contributions that you have made have been most critical to the grant program so far?
    - What are the strengths and areas for improvement in terms of communication between colleges and partners?

8. Overall, what are the strengths of The Oregon Consortium SCC project at this time?
    - What are the barriers or challenges of the project?

9. Do you have any other comments about The Oregon Consortium SCC project?

Appendix B: The Oregon Consortium SCC Logic Model



Appendix C: Program Outputs

The table below lists the outputs from the program workplan. The green checkmark signifies outputs that are complete and the open circle represents work that is not being done directly through the consortium. Further, the table demonstrates whether progress with the program outputs has met the intended implementation timeline. Thus, all outputs addressed by the consortium were completed and in alignment with the proposed timeline.

Program Outputs		
Convene **Employer Engagement Team**, led by Workforce Coordinator, comprised of one person from WTDB, OWP, HECC, three Oregon Consortium college presidents (on rotation), and employer partners	✓	On Track
Employer Engagement Team establishes meeting schedule, shared mission & vision; strategic plan	✓	On Track
Provide direct support to employers to identify and act on opportunities to increase engagement along the consortium	✓	On Track
Engage with business associations, chambers of commerce, and similar to increase the number of employer partners engaged in project activities	✓	On Track
Drive acceptance and adoption of badging and micro-credentials by employers and industry associations through business engagement effort, demonstrate value	✓	On Track
Provide direct support to employer partners to improve workplace training and tuition reimbursement policies and programs	✓	On Track
Provide direct support to employer partners to improve compensation policies related to completion of workplace training programs	✓	On Track
Engage with business associations, chambers of commerce, and similar to reinforce the return on investment for workplace education and training programs	✓	On Track
Engage with business associations, chambers of commerce, and similar to promote tuition remission and reimbursement programs in the workplace	✓	On Track
Drive acceptance and adoption of badging and micro-credentials by employers and industry associations with reports or presentations on project results, return on investment, and value prospectus on project-related training	✓	On Track
Convene **Curriculum/Delivery Team** for each sector: college leads, WTDB, HECC, college advisory board members, faculty, one president, others;	✓	On Track

Program Outputs		
identify team leads and rotation if any; subcommittees for Advanced Manufacturing may be needed		
Curriculum/Delivery Teams each establish meeting schedule; shared mission and vision; strategic plan	✓	On Track
Confirm preliminary inventory of existing associate degrees, technical diplomas, certifications, and stackable credentials across the consortium in career pathways related to the target industry sectors	✓	On Track
Inventory existing industry recognized credentials including digital badges, cost, and delivery modalities offered by consortium members	✓	On Track
Inventory new and emerging industry recognized credential and digital badging options	✓	On Track
Confirm preliminary analysis of employment data and projections, fit/gap to refine focus of curricula development and revision efforts	✓	On Track
Identify and create stackable credentials, with embedded industry certifications	✓	On Track
Engage instructional design team to create or adapt flexible delivery and assessment modalities (online or hybrid) and OER	✓	On Track
Populate HECC Curricula Portal with new and revised curricula	✓	On Track
Identify and meet faculty development needs in each industry sector pathway	✓	On Track
Identify and implement new stackable credentials and consortium institutions, confirming workforce alignment with regional workforce development and employment partners	✓	On Track
Increase coordination among WTDB, OWP regional offices, HECC, and individual colleges	✓	On Track
Identify and create stackable credentials, with industry embedded certifications	✓	On Track
Increase community college engagement in WIOA plan development	○	N/A; being addressed outside the consortium
Submit project curricula (credentials, certificates, courses, etc.) for placement on WIOA eligible training provider list (ETPL) at statewide or regional level	✓	On Track

Program Outputs		
Inventory existing best practices consortium colleges use to drive equity in access to targeted career pathways	✓	On Track
Inventory new and emerging practices in equity in access to postsecondary education	✓	On Track
Inventory access points (first entry and re-entry) to target career pathways for equity in access for all learners	✓	On Track
Engage instructional design team to ensure new and revised curricula leverage best practices around equity in access, particularly IET approaches	✓	On Track
Convene **Policy and Procedure Team**—all colleges—faculty, selected leaders, one president; identify team lead, associate, and rotation if any; create subcommittee on Cybersecurity program governance.	✓	On Track
Policy and Procedure Team establishes meeting schedule; shared mission and vision; strategic plan	✓	On Track
Inventory all college's policies and procedures related to curricular development, use of OER, credit transfer, dual credit offerings, credit for prior learning, teaching delivery modes, curricular development/OER, OER in use, program governance, faculty development and accelerated learning	✓	On Track
Confirm gap analysis for infrastructure, employer engagement, and policy and procedure dynamics	✓	On Track
Design consortium-wide policies; each college creates procedures for: credit transfer, adoption of OER, dual credit, program governance, accelerated learning, equity in access	✓	On Track
Convene IT and Software Teams for each industry sector (all consortia colleges); identify team lead, associate, and rotation if any	✓*	On Track
IT and Software Teams establishes meeting schedule; shared mission and vision; strategic plan	✓*	On Track
Identify technology needs and complete a college by college fit/gap based on regional demand and institutional focus	✓	On Track
Design and execute a consortium purchase process to ensure best pricing on software and hardware assets	✓	On Track

*The Oregon Consortium did not create IT and Software teams; however, they did this work as a consortium during the first year and are continuing to do it for the badging through the badging workgroup.

Appendix D: Central Oregon Community College Additional Infrastructure Tables & Figures

The following figures provide insight into how faculty/staff and students measured their level of agreement with the accessibility of each modality.

Figure i. Average rating of remote – synchronous format providing access to program (1 = Strongly Disagree, 5 = Strongly Agree)

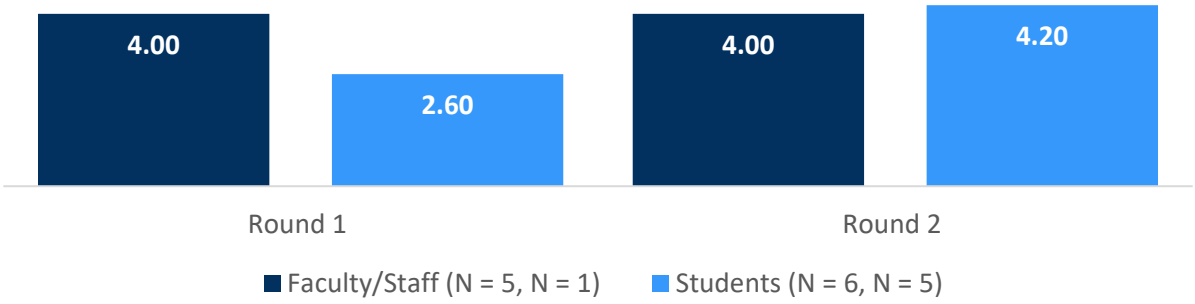


Figure ii. Average rating of online – asynchronous format providing access to program (1 = Strongly Disagree, 5 = Strongly Agree)

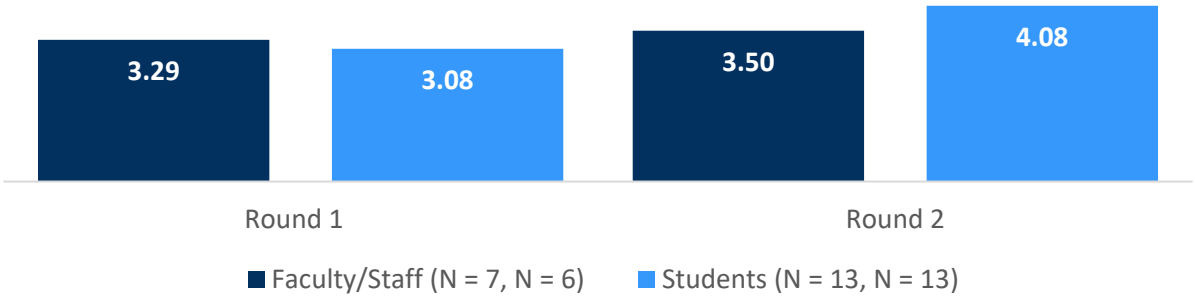


Figure iii. Average rating of remote/online format providing access to program (1 = Strongly Disagree, 5 = Strongly Agree)

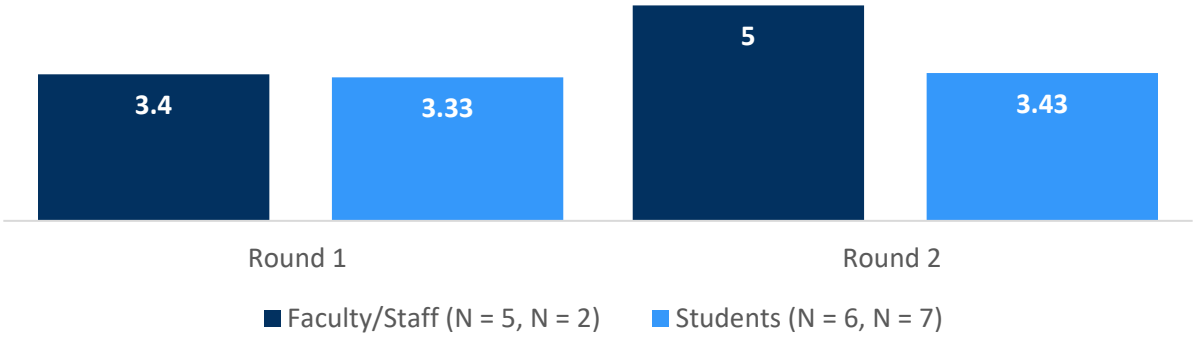


Figure iv. Average rating of in-person/online format providing access to program (1 = Strongly Disagree, 5 = Strongly Agree)

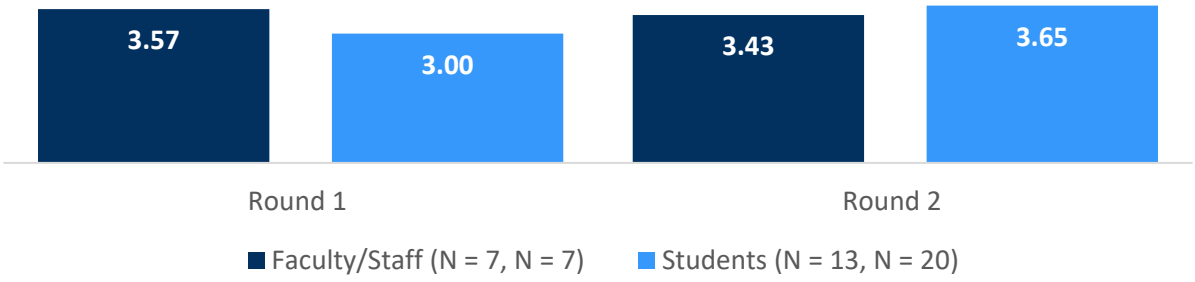


Figure v. Average rating of remote/in-person format providing access to program (1 = Strongly Disagree, 5 = Strongly Agree)

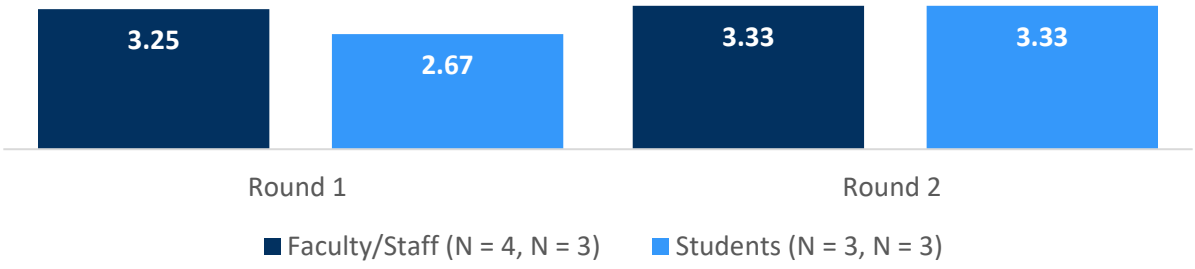


Figure vi. Students ability to access technology they need to participate in course formats available at Central Oregon Community College (Ns vary)
(% Yes)

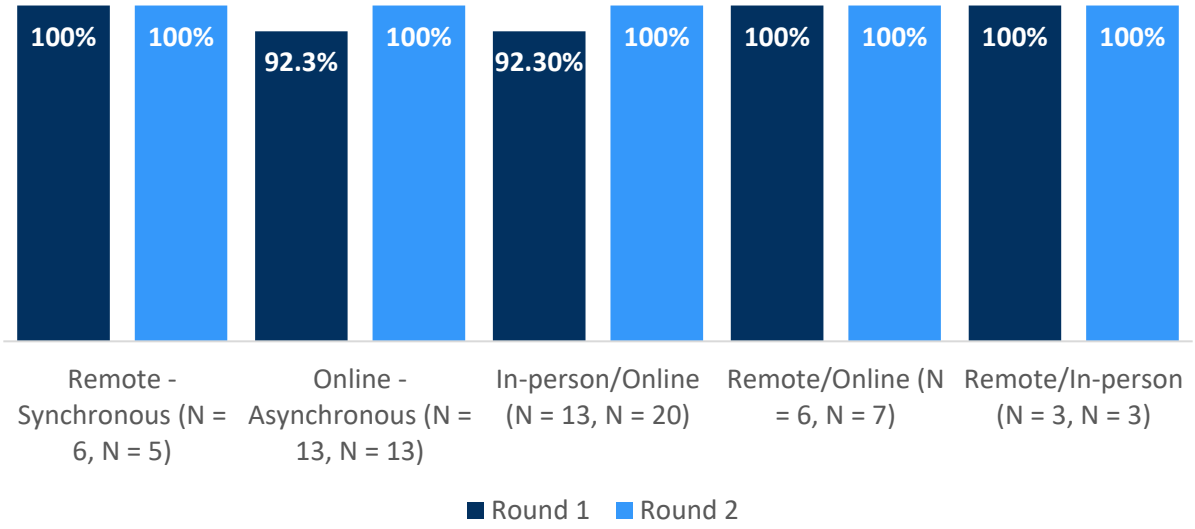


Table i. Technology devices Central Oregon students primarily utilized to take their courses

Technology devices		
Remote – Synchronous		
	Round 1 (N = 6)	**Round 2 (N = 5)**
Personal Computer	100%	80.0%
Computer at Computer Lab	0.0%	0.0%
Borrowed Computer from College	0.0%	20.0%
Borrowed Computer from Family or Friend	0.0%	0.0%
Phone	0.0%	0.0%
Other	0.0%	0.0%
Online - Asynchronous		
	Round 1 (N = 13)	**Round 2 (N = 13)**
Personal Computer	84.6%	84.6%
Computer at Computer Lab	15.4%	0.0%
Borrowed Computer from College	0.0%	7.7%
Borrowed Computer from Family or Friend	0.0%	0.0%

Technology devices		
Phone	0.0%	7.7%
Other	0.0%	0.0%
Remote / Online		
	Round 1 (N = 6)	**Round 2 (N = 7)**
Personal Computer	100%	100%
Computer at Computer Lab	0.0%	0.0%
Borrowed Computer from College	0.0%	0.0%
Borrowed Computer from Family or Friend	0.0%	0.0%
Phone	0.0%	0.0%
Other	0.0%	0.0%
In-person / Online		
	Round 1 (N = 13)	**Round 2 (N = 20)**
Personal Computer	69.2%	80.0%
Computer at Computer Lab	15.4%	10.0%
Borrowed Computer from College	7.7%	0.0%
Borrowed Computer from Family or Friend	7.7%	0.0%
Phone	0.0%	10.0%
Other	0.0%	0.0%
Remote / In-person		
	Round 1 (N = 3)	**Round 2 (N = 3)**
Personal Computer	33.3%	100%
Computer at Computer Lab	33.3%	0.0%
Borrowed Computer from College	0.0%	0.0%
Borrowed Computer from Family or Friend	0.0%	0.0%
Phone	33.3%	0.0%
Other	0.0%	0.0%

Table ii. Internet Central Oregon students used to access courses

Internet options		
Remote – Synchronous		
	Round 1 (N = 6)	**Round 2 (N = 5)**
High-speed internet at my home	50.0%	80.0%
High-speed internet at a friend or family member's house	0.0%	0.0%
High-speed internet at the college	16.7%	20.0%
High-speed internet at a public library	0.0%	0.0%
Hotspot	0.0%	0.0%
Data on my phone	0.0%	0.0%
Other	33.3%	0.0%
Online - Asynchronous		
	Round 1 (N = 13)	**Round 2 (N = 13)**
High-speed internet at my home	69.2%	92.3%
High-speed internet at a friend or family member's house	0.0%	0.0%
High-speed internet at the college	23.1%	0.0%
High-speed internet at a public library	0.0%	0.0%
Hotspot	0.0%	7.7%
Data on my phone	0.0%	0.0%
Other	0.0%	0.0%
Remote / Online		
	Round 1 (N = 6)	**Round 2 (N = 7)**
High-speed internet at my home	83.3%%	100%
High-speed internet at a friend or family member's house	0.0%	0.0%

Internet options		
High-speed internet at the college	16.7%	0.0%
High-speed internet at a public library	0.0%	0.0%
Hotspot	0.0%	0.0%
Data on my phone	0.0%	0.0%
Other		
In-person / Online		
	Round 1 (N = 13)	**Round 2 (N = 20)**
High-speed internet at my home	53.8%	65.0%
High-speed internet at a friend or family member's house	0.0%	5.0%
High-speed internet at the college	30.8%	15.0%
High-speed internet at a public library	0.0	0.0%
Hotspot	15.4%%	10.0%
Data on my phone	0.0%	5.0%
Other	0.0%	0.0%
Remote / In-person		
	Round 1 (N = 3)	**Round 2 (N = 3)**
High-speed internet at my home	33.3%	100%
High-speed internet at a friend or family member's house	0.0%	0.0%
High-speed internet at the college	33.3%	0.0%
High-speed internet at a public library	0.0%	0.0%
Hotspot	33.3%	0.0%
Data on my phone	0.0%	0.0%
Other	0.0%	0.0%

Figure vii. Student satisfaction levels with course formats offered at Central Oregon Community College (Ns vary)
(1 = Strongly Disagree, 5 = Strongly Agree)