



Implementation, Outcomes, and Impact Synthesis Report

Round 4 TAACCCT Third-Party Evaluations



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About This Report

The Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant initiative provided funding to community colleges and other postsecondary institutions across the nation to increase their capacity to deliver education and training programs for unemployed workers and other adult learners to prepare for in-demand jobs. Administered by the U.S. Department of Labor (DOL), in partnership with the U.S. Department of Education, TAACCCT provided \$1.9 billion in funding from 2011 to 2018 through 256 grants to colleges. For the fourth and final round, DOL awarded 71 grants, representing 263 colleges. Each grantee sponsored a third-party evaluation to document and assess the implementation, outcomes, and impacts of the grant activities. This report synthesizes the implementation, outcome, and impact findings from 71 Round 4 third-party evaluations.

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Executive Summary

TAACCCT Grant Activities

Colleges aimed to improve their own institutions and outcomes for participants, employers, and state and regional college systems. They sought to build capacity to deliver education and training responsive to the needs of local and regional industries and employers and to provide their participants with the new skills or skills upgrades needed to obtain well-paying jobs. As a result of their grants, colleges implemented an array of programs, made policy changes, and developed organizational capacity in diverse ways.

This report **synthesizes the implementation and impact findings from Round 4 third-party evaluations.** It supports a growing body of evidence on strategies that encourage (1) *accelerated and enhanced learning*, (2) *college persistence and completion*, and (3) *connections to employment*. The synthesis provides **implications for future community college and workforce development initiatives and for evaluating them.**

This summary presents the key findings from the Round 4 synthesis, based on the TAACCCT career pathways conceptual framework. The framework shows how grant activities are expected to lead to improved outcomes for participants and colleges, and its components are shown in each subsection below.

The Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant initiative provided funding to community colleges and other postsecondary institutions¹ across the nation to **increase their capacity to deliver education and training programs** for unemployed workers and other adult learners to prepare for in-demand jobs. Administered by the U.S. Department of Labor (DOL), in partnership with the U.S. Department of Education, TAACCCT provided \$1.9 billion in funding from 2011 and 2018 through 256 four-year grants to colleges.^{2,3} For the fourth and final round—the focus of this report, DOL awarded 71 grants, representing 263 colleges. Grantees had to obtain a third-party evaluator.

Synthesizing the TAACCCT Third Party Evaluation Findings

The Round 4 synthesis is a component of the ongoing national evaluation of the TAACCCT grant program. It seeks to draw a national picture of the implementation of the capacity-building strategies and build evidence of the effectiveness of the strategies on participants' education and employment outcomes. The synthesis uses the implementation, outcome, and impact findings from the third-party evaluations that each Round 4 grantee had to obtain. This report uses the implementation and outcome findings across all 71 final evaluation reports and the impact findings from the 25 of them that used experimental (1) or quasi-experimental (24) evaluation methods.

¹ This report refers to all TAACCCT-eligible institutions and grantees as “colleges.”

² Funding varied by the type of grantee. In Round 4, grant awards for single-institution grantees ranged between \$2.32 and \$3.25 million, whereas consortium grantees received between \$6.44 and \$20.0 million. Three single grantees and four consortia were awarded funding at a level that exceeded DOL funding cap guidelines. Such activities could include those that “(1) Advance State Career Pathway Systems; (2) Improve Statewide Data Collection, Integration, and Use; or (3) Create Nationally Recognized Competencies and Credentials” (<https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>, pp. 20-27).

³ Through four rounds of grants, TAACCCT funded more than 60 percent of the nation’s publicly funded community colleges, including at least one college from every U.S. state, the District of Columbia, and Puerto Rico in each round (Cohen et al. 2017).

KEY IMPLEMENTATION FINDINGS

All third-party evaluations had to include a program implementation analysis to document and assess the implementation of grant-funded new and enhanced programs of study, support services, curriculum development, participant assessments and career guidance, and partnership development. This section summarizes the implementation findings that align with the first two parts of the TAACCCT conceptual framework: the **program inputs** and three **capacity-building strategies**. It also reflects on whether the grantees achieved **intermediate outcomes** (generally within the four-year grant period and the year after the grant ends) for their institution (or consortium of institutions) and their plans to sustain the grant activities, a **longer-term outcome** (generally after the grant ends and beyond).⁴

Partners (Program Input)

Partnership development was a main component of the grant program and a key input in the conceptual framework. The Round 4 grant solicitation directed grantees to describe their proposed partnerships in their applications, along with their intended partnership goals. Key findings from the reports are:

- Grantees partnered with other colleges in consortia (27 grantees); collaborated with other departments on campus at their home institutions (14); established and leveraged partnerships with the public workforce system (53); and partnered with external organizations, including government agencies and governor’s offices (20) as part of a collaborative effort to effectively carry out the goals of their grants.
- All 71 grantees engaged employer partners, with employer involvement ranging from employer review of curricula, to work-based learning provided at the employer site, to the design of programs and investment of funding and equipment to support programs.
- Most grantees (53) engaged organizations in their local public workforce system. Through these partnerships, grantees often worked with these workforce organizations to recruit prospective participants and provide persistence and completion supports to participants such as career counseling and financial assistance for tuition and transportation. Other partners supported grant activities and participants, including government agencies and governor’s offices (20), including economic development agencies and organizations; and partnerships with nonprofit organizations (11), national workforce and credentialing organizations (7), chambers of commerce (5), and foundations (2).
- Several grantees faced challenges engaging their local public workforce system (16 grantees) and employer partners (16), due to time and staff constraints, delayed program implementation, and lack of a formal or cohesive strategy for partner involvement.
- Grantees indicated vision and buy-in of senior administrators was instrumental to supporting partnership efforts and surmounting program implementation challenges.

PROGRAM INPUTS

Grantee/College

- Existing programs
- Internal partners
- TAACCCT funding
- Other partners
- Employers
- WIBs
- External service providers

⁴ For more information on the Round 4 requirements for grantees regarding partnerships or sustaining the program after funding ended, see the grant solicitation: *Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program*, at <https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>. See the TAACCCT Career Pathways Framework on pp. 3-5 for an overview of the three overarching capacity-building strategies implemented by TAACCCT grantees.

Participants (Program Input)

Grantees targeted a range of adult learners and used a variety of recruitment methods. Key findings from the reports are:

- Grantees most commonly targeted veterans (39 grantees) and Trade Adjustment Assistance (TAA)-eligible workers (35).
- The most common recruitment methods were hosting their own and attending others' recruitment events (27 grantees) and using print (22) and digital marketing (22) campaigns.
- Community partners and internal college staff played key roles in conducting outreach and referring participants to programs.
- Despite concerted efforts, many grantees struggled to meet enrollment numbers and recruit target populations. Grantees overcame these challenges by broadening their target population or service area, changing recruitment staffing, intensifying recruitment efforts, and redesigning or adding a program to make their offerings more attractive.

PROGRAM INPUTS

Participants

- TAA-eligible workers
- Veterans
- Other adult learners targeted by grantees/colleges

Accelerated and Enhanced Learning (TAACCCT Strategy)

One of the key grant strategies DOL encouraged was developing and implementing accelerated and enhanced learning strategies. Accelerated and enhanced learning refers to education and training approaches that enable participants to progress through coursework and gain credits and credentials more quickly than they would in traditional, semester-based college courses. Grantees also enhanced learning for participants through the development of curriculum aligned to an industry to support a career pathway for participants and through the purchase of new training software or technology for the classroom and online learning. Key findings from the reports are:

- Grantees designed program curricula to align with industry needs. This included developing new programs (16 grantees), enhancing existing programs (14), or implementing a combination of new and enhanced programs (30). Fifty-six (56) reports mentioned the use of career pathways or core components of career pathways as part of program design or implementation.
- Grantees implemented a variety of accelerated learning instructional approaches, including online and technology-enabled learning (33 grantees), competency-based education (17), modularized curricula (16), contextualized learning (12), integrated basic education and skills training (I-BEST) and team teaching (8), and cohort models (2). Some reports discussed difficulties related to online learning and technology-enabled learning, but many reports described success with accelerated learning strategies.
- Grantees varied in how they delivered their training programs. Some (19) grantees implemented completely online programs, and many (38) used hybrid or flipped classroom approaches. Some (32) evaluation reports also discussed the use of hands-on learning to teach technical skills.

TAACCCT STRATEGIES

Accelerated and Enhanced Learning-Related

- Redesign of curriculum, credentials, and programs
- Alignment of college policies
- Technology-enabled learning

Persistence and Completion (TAACCCT Strategy)

The Round 4 grant solicitation permitted use of grant funds to help participants access support services, including academic, personal, and financial supports. *Academic supports* included intensive advising, tutoring, and peer supports. *Personal supports* included career-related services such as navigation and helping participants meet needs in their daily lives, such as mental health counseling and referrals to needed services. *Financial supports* included financial aid access and counseling and scholarships. By increasing access to these supports, grantees intended to mitigate barriers participants faced to persisting in and completing certificate and degree programs. Key findings from the reports are:

TAACCCT STRATEGIES

Persistence and Completion-Related

- Academic and nonacademic support services
- Redesign of developmental and adult education
- Transfer and articulation

- Grantees provided academic supports to participants, such as advising, tutoring, and peer support. Of these, most (52 grantees) reported using grant funds, but a few (14) leveraged existing academic supports at their college(s). The most common academic supports were assisting participants with course scheduling and registration (11), referring participants to college tutoring services (10), developing academic tools and resources for participants (10), and monitoring participant progress and performance (4).
- Grantees provided a range of personal supports. Some (28) grantees provided access to personal supports to help participants balance school with other obligations. Grantees connected participants with a variety of on- and off-campus services that helped address issues including transportation, housing, childcare, and mental health.
- About half of grantees (38) helped participants access financial supports, most commonly help accessing financial aid for their programs of study. Some grantees also helped participants acquire financial assistance with program-related expenses and scholarships, or offered parts of their grant-funded programs free of charge or at a reduced price.
- Grant staff most commonly provided academic, personal, and financial supports, but community partners also played a role in service provision at many grantee campuses.
- Some grantees faced institutional challenges to providing persistence and completion supports, such as low staff capacity and slow internal processes. Some grantees found that participants underutilized available supports.
- Reports commonly highlighted the career navigator/coach role as a useful innovation in promoting participant persistence and completion. Several grantees perceived that tutoring services, intrusive advising models, and financial assistance promoted participant success.

Connections to Employment (TAACCCT Strategy)

The Round 4 grant solicitation required grantees to provide work-based learning experiences for participants to expose them to and prepare them for employment, and to assist them in securing jobs in their fields of study. Grantees met those requirements through a variety of employment-related activities, including career exploration, career readiness training, simulated work experiences, on-the-job training, and employment services. Key findings from the reports are:

- Most grantees created new or enhanced training environments to align their programs with relevant occupational tasks and provide real-life work experiences for their participants. Enhancements included upgrading facilities (31 grantees) and purchasing equipment (50), industry software and

other technology (13), and supplies (11).⁵ Some grantees had challenges securing funding for facilities, equipment, and software in a timely manner. Others did not have sufficient funding to fully implement workspaces for simulated experiences.

<p>TAACCCT STRATEGIES</p> <p>Connections to Employment</p> <ul style="list-style-type: none"> • Work-based learning • Employment-related services • Partnerships with employers and industry and the public workforce system
--

- Grantees provided career exploration activities to help participants understand available careers. Most frequently, career exploration activities involved employer classroom visits or workplace tours (12 grantees), but also job shadowing, capstone courses, and externship experiences (12).
- Grantees provided career readiness training on transferrable, non-technical skills that participants could apply to any career. Career readiness training included job search assistance (12 grantees), mock interviews (8), professionalism training (7), and resume assistance (6).
- Grantees used staff, partners, and online tools to provide employment services to participants. The most common services were career counseling (37 grantees) and job search assistance (21).
- Most grantees provided training opportunities at work sites. Internships (37 grantees) and apprenticeships (22) were the most common activities. Some reports described participant on-the-job training opportunities as being among the most valuable contributions of their employer partners.

Sustainability (Longer-Term Outcome)

DOL intended the TAACCCT grants to spark innovation and development of education and training programs and supportive services that would continue beyond the life of the grant. In addition, key requirements of the grant sought to widen the network of support for grant projects and integrate them into local labor markets and approaches to workforce development as a mechanism for sustaining them over time. Such requirements included strategic alignment with the workforce system, sector strategies, and employer engagement.

Third-party evaluations indicate that many grantees took steps towards sustainability, but the degree to which they put in place mechanisms to sustain their innovative grant-funded activities and partnerships by the end of the grant varied. Key findings from the reports are:

- Most grantees (57) mentioned that grant-funded projects would continue in some form after the grant period. However, there was limited detail on which aspects of their models would persist.
- Some reports identified specific grant activities that grantees expected to sustain. These included work-based learning or employment supports (21 grantees), elements of persistence and completion supports (17), elements of instructional models implemented for accelerated or enhanced learning (15), and specific recruitment strategies (6).
- More than half (38) of the grantees signaled the importance of partnerships in sustaining grant activities, specifically partnerships with employers and industry.
- Grantees took steps to make programs sustainable, including making financial commitments (22 grantees) and investing in data systems (20).

⁵ Grant funds could not be used for the purchase of properties and construction of new facilities.

KEY OUTCOME AND IMPACT FINDINGS

As shown in the conceptual framework, one of the main objectives of the grant program was to improve education and employment outcomes for participants. This section summarizes the findings from the synthesis of the outcomes analyses (all 71 grantees) and the impact studies (24 grantees) from the third-party evaluators' reports.

Participant Outcomes (Intermediate)

Third-party evaluators measured participant outcomes that fell into two categories: *education* and *employment*. For both of these categories, the evaluation reports typically identified intermediate outcomes as defined in the conceptual framework. Longer-term outcomes, as highlighted in the framework, were more difficult to capture during the four-year grant. Key findings from the reports are:

INTERMEDIATE OUTCOMES	
Participants	
•	Course completion
•	Skills
•	Credentials
•	Employment (new employees)
•	Wages increases (incumbents)

- Forty-six (46) reports included program completion as an education outcome. For these reports, grantees' program completion rates ranged between 40 and 80 percent.
- Forty-two (42) reports included credential attainment as an education outcome. For these reports, participants earned credentials at rates that were broadly similar to program completion rates. Although participants could earn credentials without completing a grant-funded program, the two outcomes seem closely related.
- Twenty-four (24) reports included credits earned as an education outcome. Generally, these reports showed higher percentages of participants earning credit-hours than achieved other education outcomes such as program completion and credential attainment. However, reports that highlighted grant-funded programs that included more non-credit courses reported a lower share of participants who earned credit-hours.
- Thirty-two (32) reports included post-program employment and 25 reports included post-program wage gain as employment outcomes. Average employment rates and wage gains in the reports were more variable than the education outcomes, in part due to the time participants need to find jobs and the time evaluators need to collect and report data on participants.

Impacts on Participants' Education and Employment (Intermediate)

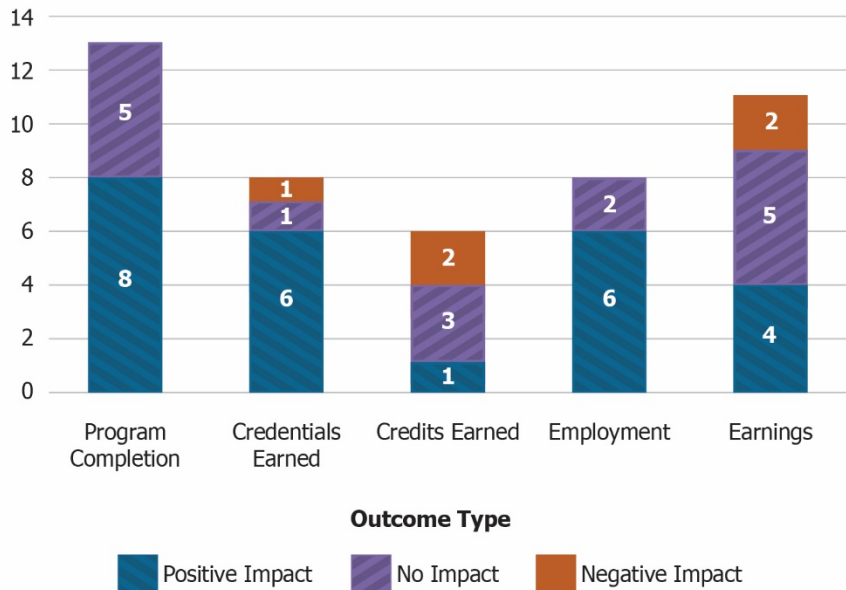
This report presents the **impact findings** from 25 of 71 third-party evaluator reports that provided experimental or quasi-experimental impact analyses. DOL encouraged third-party evaluators to use the most rigorous design feasible for their impact analysis.⁶ Because of challenges associated with

⁶ An **experimental design** assigns individuals to participate or not participate in the intervention at random, so differences in outcomes can be attributed to TAACCCT with greater certainty due to the control that evaluators have over assignment to treatment. In an experiment, the experiences of participants can be compared to the experiences of non-participants to estimate the impact of the TAACCCT project. See for example the "gold standard" evaluation of WIA adult and dislocated worker programs at <https://www.dol.gov/asp/evaluation/completed-studies/WIA-30mo-main-rpt.pdf>.

A **quasi-experimental design** is used if participants cannot be randomly assigned, potentially resulting in confounding differences between participants and non-participants. In a quasi-experimental design, treatment and comparison groups are formed using non-random methods including waitlists or administrative data on a similar group of individuals who are not program participants. A confounding difference between participants and non-participants would be some factor that is related to both treatment status and the outcome, but which is not caused by the treatment. For example,

implementing an experimental design, only one third-party evaluator used this method, and only about a third (24) of the evaluators used quasi-experimental methods.⁷ Exhibit ES-1 summarizes the impact findings from the 25 evaluations.

Exhibit ES-1. Third-Party Evaluation Impact Analyses Indicated Program Completion, Credentials Earned, and Employment Outcomes Were More Likely to Show Impact of Grantee Program Participation than Were Credits Earned and Earnings Outcomes



Source: 71 TAACCCT Rounds 4 third-party evaluator final reports.
 Note: N=25. Findings are reported for third-party evaluator impact studies that included the outcome. Statistical significance levels were set by the evaluators but were no lower than 0.10.

Key findings from the reports are:

- The impact studies largely found positive impacts of a grantee’s program on participants’ education outcomes. Specifically:
 - Of the 13 evaluations that estimated the impact on program completion, eight (8) found statistically significant, positive effects. This finding suggests that for most programs, the strategies implemented by the grantees, such as accelerated and enhanced learning and persistence and completion supports, may have helped participants complete their programs of study.
 - Of the eight (8) evaluations that estimated the impact on credentials earned, six (6) found statistically significant, positive effects—either a higher likelihood of earning any credential or a

in training programs an individual’s underlying, unmeasured motivation to build their skills and better themselves is a potential confounding factor. In a quasi-experimental design, researchers try to statistically control for these differences, typically through a combination of matching participants to similar non-participants and multivariate regression modeling. The quality of a quasi-experimental design largely relies on the design’s success in controlling for confounding factors.

⁷ The remaining third-party evaluators either did not produce an impact analysis or used methods such as multiple regression that include outcomes as dependent variables without an identifiable quasi-experimental design. Although regression analysis and outcomes analysis are informative, these methods are not able to estimate program impacts.

higher number of credentials earned. This finding suggests that accelerated learning by embedding shorter-term, stackable credentials in occupational training may help participants earn more credentials than they would have otherwise.

- Of the six (6) evaluations that estimated the impact on credits earned, one found statistically significant, positive effects. The interpretation of this finding is somewhat ambiguous; acceleration of a program of study could decrease credit-hours earned by participants, whereas increased persistence to completion should increase credit-hours.
- The impact studies largely found mainly positive impacts of a grantee’s program on participants’ employment, but the results were more mixed for earnings. Specifically:
 - Of the eight (8) evaluations that estimated the impact on post-program employment, six (6) found positive, statistically significant effects. This finding suggests that grantee efforts to connect participants to employment, such as work-based learning and career navigation, may have supported their efforts to find employment during or after their program participation. It may also indicate that grant-funded certificates or credentials are aligned with employer needs.
 - Of the 11 evaluations that estimated the impact on earnings, four (4) found a positive, statistically significant effect. Fewer evaluations showing positive impacts on participants’ earnings than on employment are consistent with third-party evaluations in previous grant rounds, again suggesting that the grant programs could improve connections to employers or their targeting of higher-wage occupations. It could also suggest that the follow-up period for the evaluation was not long enough to capture later employment and earnings effects. For example, some participants could have still been in enrolled in a program of study as the grant was ending.

This synthesis also sought to identify, for the evaluations that showed positive impacts, which strategies the grantees from these evaluations implemented. Twelve (12) grantees had **consistently positive impacts on participants’ education and employment**. This synthesis defined impacts as being positive if at least one estimate in the third-party evaluator final report is positive and statistically significant and none of the report’s main results is negative and statistically significant. The key findings from these reports are:

- Of the 12 grantees with consistently positive impact estimates, six (6) enhanced their curriculum with competency-based education models. Competency-based education ties classroom instruction and advancement through a program of study to mastery of skills and competencies, rather than to seat time, to accelerate learning and support persistence and completion.
- Four (4) of these 12 grantees contextualized or integrated basic skills training into their technical training to better serve participants with low basic skills levels. Contextualization was designed to help participants acquire basic skills faster, accelerate learning of technical skills and competencies, and support program persistence and completion.
- All 12 grantees with consistently positive impacts used a dedicated staff person to support participant success. These staff members, often with the job title of coordinator, coach, navigator, or case manager, provided one-on-one guidance to participants and helped them access a range of academic, personal, financial, and employment supports.

IMPLICATIONS FOR FUTURE COMMUNITY COLLEGE AND WORKFORCE INITIATIVES

One of the main goals of the TAACCCT national evaluation is to inform future community college and workforce initiatives and how to evaluate them. This section provides implications for future initiatives and the evaluation efforts that support them.

Implications for Future Community College and Workforce Initiatives

The implementation and impact findings from the third-party evaluation reports offer a rich set of information on how grantees implemented their grant activities. To help policymakers and practitioners as they seek to replicate and improve on the strategies implemented by Round 4 grantees, the research team offers the following implications for future community college and workforce initiatives:

Grantees that used a consistent strategy for employer engagement perceived success in developing their employer partnerships. Reports often highlighted strategies for developing strong partnerships with employers. Strategies included establishing connections with industry partners early on and consistently throughout the grant; hiring dedicated staff to coordinate and communicate with employers; and developing industry partnerships to make recommendations on matching industry needs with academic programs, course standards, curriculum, and industry certifications.

Grantees perceived that deliberately aligning processes and staffing with the public workforce system strengthened implementation and increased capacity. Grantees that had a WIOA representative on campus, who served as a liaison connecting participants to the workforce system, or that established a formal agreement with their local workforce centers to co-enroll participants, offer mutual referrals, and streamline career support services and financial assistance perceived more effective collaboration.

Successful participant recruitment strategies often involved partner referrals, dedicated staff, and flexible outreach strategies. Grantees identified outreach and recruitment strategies that seemed effective in meeting enrollment targets and overcoming barriers, including leveraging community partners for recruitment efforts, broadening the grantee's service area, intensifying recruitment activity (e.g., adding staff and working with community partners), and changing programs to make them more enticing for prospective participants.

Accelerated and enhanced learning strategies appeared to contribute to participant success, but colleges may need time to test and revise strategies to overcome implementation challenges. Strategies to meet the needs of adult learners and support acceleration highlighted in the reports included competency-based education and integrated instruction. Other promising approaches included incorporating shorter-term programs to help participants find jobs more quickly, and restructuring class schedules, such as adding evening courses. However, some reports suggested that grantees needed time to test and improve their strategies to overcome implementation challenges due to unfamiliarity with the approach within their institution or across their state. Building in time for colleges to adjust to new approaches and technology—especially for faculty—may help ensure the more successful approaches are sustained and improved over time.

Career navigators appear to improve participants' persistence and completion of their training programs. Of the persistence and completion strategies described in the reports, career navigators (also known as coach, advisor, coordinator, and case manager) stood out as a promising strategy. All 12 evaluations with consistently positive impact findings used a dedicated staff person to support participant success. Reports described a variety of advising and monitoring roles, as well as helping to ensure that participants had the resources they needed to successfully complete the program and transition into further education and employment. A few reports also mentioned that tutoring services, intrusive advising models, and financial assistance promoted student success.

Grantees used software to provide simulated work experiences to teach relevant skills and at a lower cost than a physical simulation laboratory. Some grantees found that low-cost technology solutions could provide quality experiences without having to make large capital investments. Some grantees acquired commonly used industry software for work simulations and practicing skills with technology they would use on the job. The software could run both on campus and on participants' home computers. Other grantees purchased and implemented software that offered a virtual simulated work experience. This strategy could be especially useful when in-person hands-on training is not available or classroom space is limited.

Work-based learning opportunities could be challenging for adult learners who worked while in school. Evaluation reports highlighted some instances where a training program's work-based learning opportunities were the on-the-job type, which made it difficult for adult learners to participate. For example, some reports noted that employed participants who sought training to upgrade their skills believed that on-the-job experience was unnecessary. Other evaluations reported that internships or other work-based learning opportunities on top of participants' regular job could make it difficult and burdensome for them. Other reports indicated that unpaid work-based learning opportunities, such as internships, could cause financial strain if participants had to quit or reduce time in their paid job. Developing *paid* work-based learning opportunities or relying, in part, on simulated work experiences can offer flexibility in how participants coordinate with their regular jobs.

Colleges built partnerships to provide services they have not traditionally provided to connect participants to employment. Some evaluations reported colleges hired staff to focus on work-based learning opportunities, job development, job placement, and other employment services. Others leveraged partnerships to support employment services, such as working more closely with American Job Centers. A few reports noted grantees built partnerships with employers to develop capstone projects for participants, to provide practical job experience and increase their employability.

Tracking and documenting participant outcomes after a grant ends can lay the groundwork for long-term sustainability. Some of the most compelling outcomes for grant-funded programs may only be achieved in the medium to long term and may not be detectable in the third-party evaluations that was limited to short-term outcomes. Several reports indicated it was too early to measure the impact of the program on participants' employment outcomes but that doing so showing impacts could become increasingly important to justify the expense of the program.

Implications for Future Evaluations of Similar Initiatives

The third-party evaluations offer important implications for shaping evaluation efforts under new initiatives and support developing rigorous evidence about the approaches being tested by future grantees.

Supporting rigorous third-party evaluations to test strategies may require intensive evaluation technical assistance in the early stages of an initiative. One challenge of evaluating large federal initiatives such as TAACCCT is that grantees may be testing strategies under a larger umbrella model—*career pathways*, in the case of TAACCCT—but they may package the strategies in different ways. This makes it difficult to isolate the effect on participant outcomes of a specific strategy, such as online learning or career navigators. Both funders and grant applicants developing the initiatives could benefit from bringing third-party evaluators to the table during the application process and start-up phase of the grant, in order to help ensure that rigorous methods can be used to answer key questions about what works and for whom. Starting with an *evaluability assessment*, which assesses and identifies the most feasible evaluation designs, could support the development of more rigorous evidence about strategies being tested. Then, third-party evaluators could develop a detailed evaluation design based on the evaluability assessment. A national evaluator could support these activities with one-on-one or more intensive technical assistance and would be able to assess the level of evidence that the evaluations would be able to provide across the initiative.

Third-party evaluations with longer follow-up periods, which may be beyond the end of the grant, can improve the assessment of outcomes and impacts, especially on employment. Round 4 third-party evaluators focused on short-term intermediate participant outcomes, but not longer-term outcomes because the evaluations ended when the grants ended. Thus, it was impossible to evaluate longer-term outcomes, as highlighted in the TAACCCT conceptual framework, due to the time limits on the evaluations. In particular, the time period condensed the follow-up period that third-party evaluators were able to capture from employment data, particularly for participants entering the program late in the grant period. Short follow-up periods can provide a misleading picture of program impacts, particularly for employment and earnings.

To select appropriate evaluation methods, third-party evaluators may need to take into consideration if and when in the grant period the strategies being tested will reach a "steady state." The TAACCCT grants allowed community colleges to explore promising new strategies for providing adult learners with education and training in high-demand occupations. But for many of the grantees, it took much of the grant period to develop, test, and refine their strategies. When implementation of a new intervention has not yet reached the point when it is in place and performing as intended (what evaluators call "a steady state"), it can be challenging to also apply a rigorous evaluation design (experimental or quasi-experimental) well. But that challenge does not mean new strategies should not be evaluated. Again, evaluability assessments and involving evaluators early in the design phase can help balance these needs and identify the most feasible, most rigorous approach possible for the initiative.

1. Introduction

TAACCCT Grant Activities

Colleges aimed to improve their own institutions and outcomes for participants, employers, and state and regional college systems. They sought to build capacity to deliver education and training responsive to the needs of local and regional industries and employers and to provide their participants with the new skills or skills upgrades needed to obtain well-paying jobs.

As a result of their grants, colleges implemented an array of programs, made policy changes, and developed organizational capacity in diverse ways.

The **Trade Adjustment Assistance Community College and Career Training (TAACCCT)** grant initiative provided funding to community colleges and other postsecondary institutions⁸ across the nation to increase their capacity to deliver education and training programs for unemployed workers and other adult learners to prepare for in-demand jobs. Administered by the U.S. Department of Labor (DOL), in partnership with the U.S. Department of Education, TAACCCT provided \$1.9 billion in funding from 2011 to 2018 through 256 grants to colleges.^{9,10} For the fourth and final round, DOL awarded 71 grants, representing 263 colleges.

DOL sought to build evidence about the implementation and outcomes of grant-funded programs and strategies through a range of evaluation activities. One activity, introduced in the second round

of grants, was a **requirement that grantees procure a third-party evaluator** to assess implementation of their grant activities and estimate the impact of activities on participants' education and employment outcomes. These third-party evaluations complemented other DOL-funded information generating efforts, namely several national evaluations across all grantees of each grant round (see textbox on the following page). DOL contracted with Abt Associates and its subcontractors the Urban Institute, Capital Research Corporation, and the George Washington University to conduct the **Round 4 National Evaluation**, of which this paper is a product.¹¹

This report synthesizes the implementation and impact findings from 71 Round 4 third-party evaluations. It summarizes what has been learned from the fourth and final round of the grant program to support a growing body of evidence on strategies that encourage *accelerated learning*, *college persistence and completion*, and *connections to employment*. The synthesis provides implications for future community college and workforce development initiatives and how to evaluate them.

⁸ This report refers to all TAACCCT-eligible institutions and grantees as "colleges."

⁹ Funding varied by type of grantee. In Round 4, for example, grant awards for single institution grantees ranged between \$2.32 and \$3.25 million, whereas consortium grantees received between \$6.44 and \$20.0 million. Three single grantees and four consortia were awarded funding at a level that exceeded DOL funding cap guidelines. Such activities could include those that "(1) Advance State Career Pathway Systems; (2) Improve Statewide Data Collection, Integration, and Use; or (3) Create Nationally Recognized Competencies and Credentials" (<https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>, pp. 20-27).

¹⁰ Through four rounds of grants, TAACCCT funded more than 60 percent of the nation's publicly funded community colleges, including at least one college from every U.S. state in each round (Cohen et al. 2017).

¹¹ DOL contracted with the Urban Institute to evaluate the first three rounds of TAACCCT grants.

TAACCCT National Evaluation Four Components

The national evaluations used a mix of qualitative and quantitative methods to understand and assess the capacity-building strategies funded by the TAACCCT grant program to inform future federal workforce investments and policy. The main components of the national evaluations are the following:

- An *implementation analysis* (Rounds 1–4) of the service delivery approaches developed and the systems changed through the grants.
- An *outcomes study* of nine Round 4 grantees using survey data and administrative records to better understand the characteristics of participants, their service receipt, and their education and employment outcomes.
- A *study of employer relationships* with selected Round 4 employer-partners to better understand employers' perspectives on how to develop and maintain strong relationships with colleges.
- *Syntheses of third-party evaluation findings* (Rounds 1–4) to develop a national picture of the implementation of the capacity-building strategies and build evidence of the effectiveness of the strategies on participants' education and employment outcomes.

This report is the product of the synthesis of Round 4 third-party evaluation findings.

This chapter provides an overview of the TAACCCT grant program including its conceptual framework, an organizing principle for colleges' grant-funded activities. It then discusses the methodology and limitations of the Round 4 synthesis. The chapter concludes with a roadmap to the remainder of the report.

1.1. OVERVIEW OF THE TAACCCT PROGRAM

Through grants to individual colleges and multi-college consortia, the TAACCCT program aimed to:

- Better prepare Trade Adjustment Assistance (TAA)-eligible workers¹² and other adults for high-wage, high-skill employment or reemployment in growth industry sectors by increasing their attainment of degrees, certificates, diplomas, and other industry-recognized credentials that match the skills needed by employers;
- Introduce or replicate innovative and effective methods for designing and delivering instruction that addresses specific industry needs and leads to improved learning, completion, and other outcomes for TAA-eligible workers and other adults; and
- Improve employment outcomes for participants.¹³

To address these goals, grantees focused on developing and implementing a *career pathways* conceptual framework to build colleges' capacity for providing education and training to adult learners. Career pathways conceptual frameworks offer articulated education and training steps between occupations

¹² Workers who have involuntarily lost their jobs or earnings due to increased foreign competition and imports may be eligible for the TAA program. The program offers benefits to such workers, including training opportunities and job search and relocation payments. See <https://www.dol.gov/general/topic/training/tradeact> for more information.

¹³ More information on the goals of the TAACCCT grant program overall and by round can be found at <http://www.urban.org/research/publication/taaccct-goals-design-and-evaluation>.

within an industry sector, combined with support services, to enable individuals to enter and exit the job market at various levels and to advance over time to higher skills, recognized credentials, and better jobs with higher pay.¹⁴

With the goal of supporting “sector strategies” that target specific industries and clusters of occupations, the TAACCCT grant announcements also required increased coordination with key stakeholders in the local and regional workforce system, including governors, employers, industry representatives, and other organizations. The grant announcements also encouraged grantees to scale and create policy and systems changes within and across community colleges.

1.1.1 THE TAACCCT CAREER PATHWAYS CONCEPTUAL FRAMEWORK

Exhibit 1-1 shows how the career pathways conceptual framework worked within the TAACCCT context.¹⁵ This framework describes how grant activities were expected to lead to improved outcomes for participants and grantees and their partner colleges. As such, it also guides the national evaluation activities by informing data collection and areas of analyses.

Starting at the left of the exhibit, there are two types of **program inputs**. The first type is the grantees and colleges’ grant-funded efforts to develop and enhance education and training programs and build capacity to serve adult learners. Colleges built on existing training programs and physical infrastructure, such as the classrooms, labs, and simulations where programs occur, and on institutional infrastructure, such as faculty. Contributing to those effects are partnerships, which could be internal to the college, such as campus services, administrators, and other departments, and external to the college, such as employers and the public workforce system.

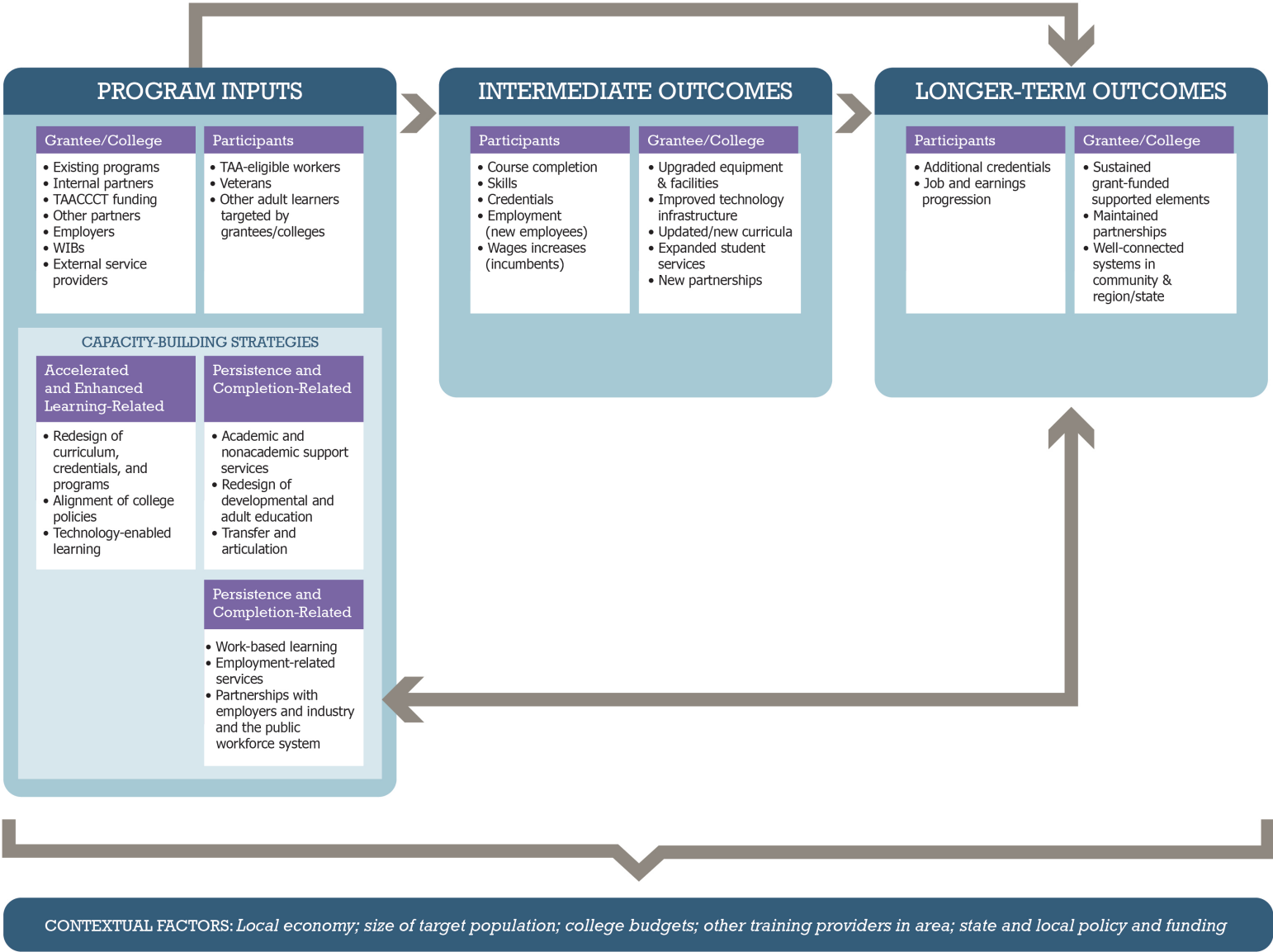
The second type of input is participants who need skill upgrades or new training to compete in the labor market or advance in their careers. Participants included TAA-eligible workers, veterans, and grantee-specific target populations, such as incumbent workers.¹⁶

¹⁴ There are many definitions of *career pathways* in the literature. The definition used for the TAACCCT national evaluation aligns with the definition for the Career Pathways Design Study, which provides a high-level synthesis of the findings from career pathways research and design. See Schwartz, Strawn, and Sarna (2018) for more information. Appendix A provides the full definition of *career pathways* from the Workforce Innovation and Opportunity Act of 2014.

¹⁵ This theory of change builds from the frameworks presented in the Rounds 1 and 2 and Round 3 TAACCCT synthesis reports (Eyster 2019; Kuehn and Eyster 2020; Eyster et al 2020). It also builds on theories of change developed for other recent evaluations of occupational training programs (see, for example, Fein 2012; Werner et al 2013).

¹⁶ As defined in the Workforce Innovation and Opportunity Act of 2014, an incumbent worker is an individual who is employed, meets the Fair Labor Standards Act requirements for an employer-employee relationship, and has an established employment history with the employer for six months or more, with some exceptions.

Exhibit 1-1. Career Pathways as an Organizing Conceptual Framework



Under inputs are three categories of **capacity-building strategies**:

- *Accelerated learning-related strategies* to reduce adult learners' time to complete training programs, such as redesigning curriculum, credentials, and programs; providing credit for prior learning; and designing stacked and latticed credentials.
- *Persistence- and completion-related strategies* to support adult learners' enrollment in, progress in, and completion of training programs, such as career counseling, academic advising, nonacademic supports (e.g., financial aid advising, life skills advising), and articulation and transfer agreements.
- *Employment-related strategies* to connect adult learners to the workforce such as work-based learning (e.g., simulations in virtual settings, training in work-like physical environments) and employment-related services (e.g., job placement).

The middle column in the framework is **intermediate outcomes**; that is, how grant-funded activities were expected to affect participant and college outcomes in the short term, generally within the four-year grant period and the year after the grant ends. For participants, these were completing a program and attaining industry-recognized credentials; obtaining employment closely aligned to training; increasing earnings; and reducing need for public benefits. Intermediate outcomes for grantee colleges included upgraded facilities and equipment, improved technological infrastructure, updated and new curricula, and expanded support services for students.

The column on the right shows **longer-term outcomes** for participants and colleges, which would occur after intermediate outcomes are achieved, generally after the grant ends and beyond. For participants, these included enrolling in other trainings, obtaining additional credentials, progressing in their employment, and further increasing their earnings. Longer-term outcomes for colleges included sustaining their grant-supported activities.

Finally, **contextual factors** can influence the implementation of grant activities and outcomes. For example, local economic conditions can affect the supply of potential participants for training programs as well as the availability of jobs for program completers.

1.1.2 TAACCCT THIRD-PARTY EVALUATIONS

An important goal of DOL was to build a body of evidence through evaluation of the capacity building and career pathways implemented by TAACCCT grantees that would help unpack how these strategies worked and how they may have contributed to participants' education and employment outcomes.

Beginning in Round 2, DOL required grantees to engage an independent third-party evaluator to design and conduct an evaluation of their grant project.¹⁷ Each grantee had to provide an evaluation design plan in its grant application. Third-party evaluation designs had to include:

¹⁷ For more information on the Round 2 requirements for third-party evaluations, see pp. 33-35 in that round's grant solicitation, *Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program*, at https://doleta.gov/grants/pdf/taaccct_sga_dfa_py_11_08.pdf.

- A *program implementation analysis* to document and assess the implementation of the grant projects, specifically new and enhanced programs of study, support services, curriculum development, participant assessments and career guidance, and partnership development; and
- A *participant outcome and/or impact study* to assess education and employment outcomes such as program completion, credential attainment, placement into employment, and employment retention. Third-party evaluators could also use additional outcome measures to reflect the goals of the local strategies tested.¹⁸

DOL encouraged third-party evaluators to use the most rigorous impact evaluation design feasible to estimate their grant project’s impacts on participants, either an experimental design with random assignment or a quasi-experimental design. All but one evaluator found experimental designs to be infeasible for evaluating the impacts of their grantee’s TAACCCT grant. Based on interactions between the national evaluation team and evaluators throughout the grant period, some evaluators also found quasi-experimental designs to be challenging even though 24 actually implemented quasi-experimental evaluations. These challenges are provided in the evaluation limitations expressed in the reports and discussed in more detail in Chapter 9. Appendix B provides summary charts on the planned evaluation designs and data sources from the third-party evaluations.

1.2. THIRD-PARTY EVALUATION SYNTHESIS RESEARCH QUESTIONS AND METHODS

This synthesis of the Round 4 third-party evaluations addresses three key research questions:

- 1. *What service delivery and/or system change innovations were implemented?***
- 2. *What was the impact of the grant-funded projects on participants’ education and employment outcomes?***
- 3. *What emerging ideas for service delivery and/or systems change seem the most promising for further research?***

The data source for the synthesis is third-party evaluator final reports.^{19,20,21} The national evaluation team used a three-step process to review the 71 reports (see textbox on methodology).

The synthesis has several limitations. First, it is based on the findings reported in the third-party evaluator final reports. There may be cases where evaluators made decisions to exclude particular analyses, in particular ones that demonstrated negative results.

¹⁸ The national evaluation team provided grantees with a recommended outline for the executive summary in their third-party evaluator’s final report. See <https://www.taacccteval.org/third-party-evaluator-reports/> for more information on this and other reporting guidance provided to grantees.

¹⁹ The final evaluation reports can be found at www.SkillsCommons.org, a DOL-sponsored online repository of job-driven workforce development materials where grantees posted these reports and other grant products.

²⁰ DOL required third-party evaluators to submit interim and final reports of findings from these analyses.

²¹ The findings on outcomes closely, but not exactly, aligned with the outcomes data grantees provided as a part of performance reporting. As the performance reports provide a more complete view of the main outcomes of interest, this synthesis does not report findings on participant outcomes.

Second, because the third-party evaluations concluded at the end of the grant period, evaluators could not capture longer-term, intermediate outcomes for participants, especially for employment, nor fully assess the sustainability of the grant activities (see textbox on limitations).

Third, the synthesis does not assess or critique the quality of the evaluation methods used. In consultation with DOL, the team made this choice to provide an inclusive as possible picture of third-party evaluation findings across the wide array of strategies and approaches tested. Thus, findings from well-designed and implemented evaluations got equal weight as findings from evaluations of lower quality. As such, the synthesis does not make any determinations on the strength of the evidence from these evaluations.

Finally, the synthesis of impact findings does not systematically review the impact findings, which could assess the strength and rigor of the evidence. Systematic reviews use a structured set of criteria for inclusion of evaluations, especially criteria to assess the rigor and quality of the methods and data, to address a specific research question.²²

Third-Party Evaluation Synthesis Methodology

Step 1: Perform a high-level assessment to identify whether the evaluation included implementation and impact analyses: Of the 71 Round 4 third-party evaluators 69 reported on an implementation analysis and 44 on an impact study.

Step 2: Review each report systematically to capture key findings.

For the implementation analyses, the team developed spreadsheets to record findings verbatim from the 69 reports. The categories of information aligned with the domains of (1) the career pathways conceptual framework, (2) systems change, and (3) sustainability.

For the impact analyses, the team reviewed and assessed the 44 reports describing conduct of an impact study to determine whether its design met basic standards for experimental or quasi-experimental methods. These basic standards were the use of (1) a control or comparison group and (2) a statistical strategy to mitigate selection bias. Of the 44 studies, 25 met the standards. From them, the team then captured information on the intervention, impact methods used, sample sizes, outcomes measured, impact estimates, and stated study limitations.

Step 3: Analyze the findings:

- **Review implementation findings and identify trends and patterns.** The team documented the outcomes that third-party evaluators tracked, and organized them by domain in the career pathways framework and sustainability.
- **Review impact findings and identify trends and patterns.** The team examined education and employment in the short and long term. For each outcome, the team also documented the element of the career pathways conceptual framework tested, the estimation methods used, a description of the sample, data for the analysis, limitations noted by the authors, and the impact estimates with statistical significance.
- **Suggest implications from the third-party evaluation findings.** The team suggested implications for policy and practice from the grants to understand what worked best and how based on the synthesis findings. The team also gleaned key implications for future workforce development research for evaluating the types of approaches and strategies tested by the grantees and their partner colleges.

²² In the future, the Clearinghouse of Labor Evaluation and Research (CLEAR), administered by DOL, may formally review some TAACCCT third-party evaluations to assess the strength of the evidence. Information on the clearinghouse and its review process can be found at <https://clear.dol.gov/>.

Third-Party Evaluation Data Limitations

This report discusses the third-party evaluation timeline and the data limitations it often caused for evaluators. The Round 4 grants funded a four-year period of performance, with the evaluations needing to be completed by the end of grant. Grantees could operate their programs up halfway through the fourth year of the grant, with the final six months to be used to wrap up their grant activities, submit final reports, and complete the evaluation. Thus, evaluators had to stop collecting data several months earlier than the end of the grant to analyze and report findings, shortening the outcome data collection window. This mainly affected employment outcomes, which evaluators' primary data source was state Unemployment Insurance quarterly wage records (if available to evaluators at all). For state wage records, there is typically a six- to nine-month lag in data availability, which meant the employment wage data, with the need to collect data a few months before the end of the grant, did not cover the last year of the grant. Participants who completed (or left) their programs of study in the last year of the grant would not have any postprogram employment and earnings available to them. And the data that covered any postprogram period was generally a short timeframe – a year or less. Evaluations then could only assess intermediate short-term outcomes and for only a subset of the participants, so they could not capture the full effect of the grant activities. A recent synthesis of career pathway evaluations also cited this as a common issue (Schwartz, Strawn, and Sarna 2018).

1.3. ORGANIZATION OF REPORT

The remainder of the report is organized as follows:

Chapters 2–7 synthesize implementation findings:

- **Chapter 2** on partnerships developed and enhanced during the grant projects;
- **Chapter 3** on participants and recruitment strategies;
- **Chapter 4** on accelerated learning strategies;
- **Chapter 5** on strategies to support college persistence and completion;
- **Chapter 6** on strategies to connect participants to employment opportunities; and
- **Chapter 7** on the plans grantees developed to sustain their grant activities.
- **Chapter 8** discusses the outcomes third-party evaluators captured and to what degree they went beyond the outcomes required for the grant to assess other participant outcomes.
- **Chapter 9** presents a synthesis of the impact findings, highlighting the strategies implemented by grantees whose evaluations showed consistently positive outcomes.
- To conclude the report, **Chapter 10** summarizes the implications of the implementation and impact findings from the Round 4 third-party evaluations for future community college and workforce initiatives and research.

2. Partnerships

The development of partnerships was a main component of the TAACCCT grant program and a key input in the career pathways conceptual framework. The Round 4 grant solicitation²³ directed grantees to describe their proposed partnerships in their grant applications, along with the intended goals of such partnerships. The textbox describes the types of partnerships envisioned by DOL.

Third-party evaluations documented an array of partnerships across the 71 grantees. Key findings from the reports are:

- **Grantees leveraged existing resources within their institutions and consortium partners.** Grantees partnered with other colleges in consortia (27); collaborated with other departments on campus at their home institutions (14); established and leveraged partnerships with the public workforce system (53); and partnered with external organizations, including government agencies and governor's offices (20) as part of a collaborative effort to effectively carry out the goals of their grants.
- **All grantees engaged employer partners; most (53) engaged public workforce systems.**
- **Advisory employer partners were the most common type of employer relationship (64).** Employer involvement ranging from employer review of curricula, to work-based learning provided at the employer site, to the design of programs and investment of funding and equipment to support programs.

Types of Partnerships

College Partnerships

- Grantees and their college partners in consortia put into place industry-driven strategies responsive to regional labor markets and state economies by working across institutions within their local region or throughout their state.
- Where appropriate, grantees also leveraged campus-based services to support the implementation of program services and activities, and to provide greater ease of access for participants enrolled in training on campus.
- Grantees worked with other two-year colleges and four-year institutions in their state on articulation agreements for grant-funded courses and credentials and on building bridges from non-credit to credit courses and programs within and between institutions.

Employment Partnerships

- To develop sector strategies, DOL required applicants to involve at least two employers and a regional industry representative in each site location served by the program.

External Partnerships with Key Stakeholders

- Grantees had to coordinate with at least three types of key stakeholders, or external partners, in each of the communities represented: (1) governors; (2) the public workforce system; and (3) philanthropic organizations, business-related and other nonprofit organizations, community-based organizations, and/or labor organizations.

²³ For more information on the Round 4 requirements for grantees, see that round's grant solicitation, *Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program*, at <https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>.

This chapter describes the types of partners described in the third-party evaluations. It then discusses how grantees organized partnerships, as well as partners’ contributions to program design and implementation.

2.1. INTERNAL AND EXTERNAL EDUCATION PARTNERSHIPS

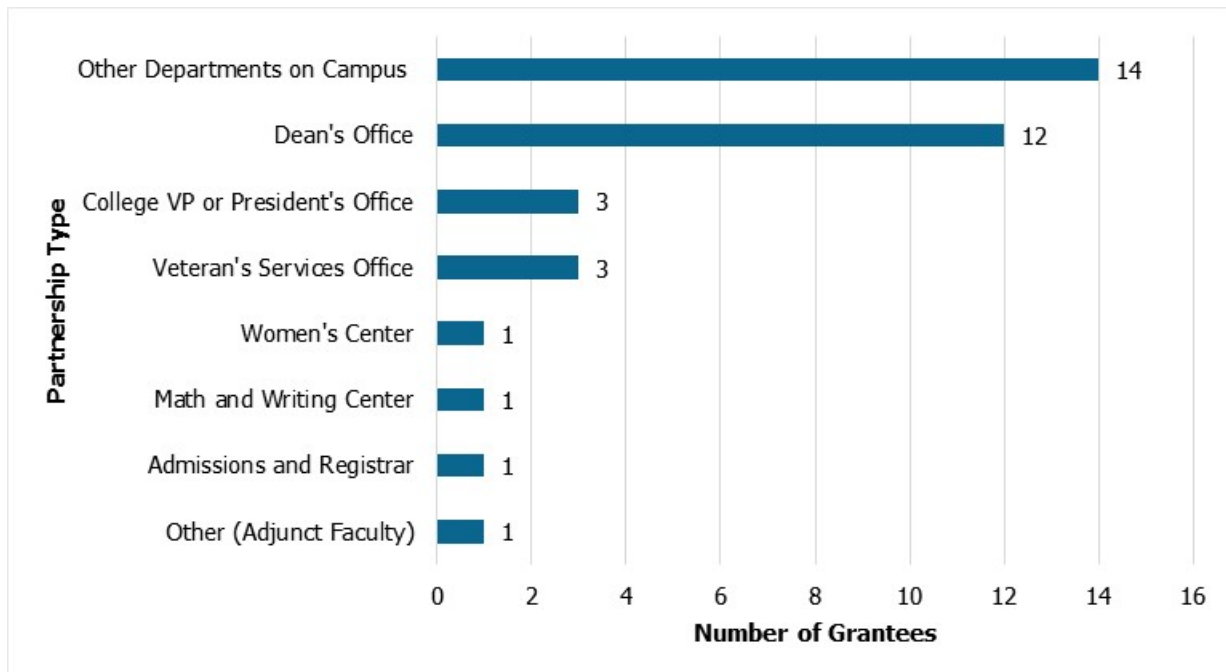
Grantees engaged partners internally (within their college), as well as across consortium colleges to implement grant activities. Some grantees engaged four-year partners to further specific grant goals, including the development of articulation agreements.

Grantees leveraged existing resources within their institutions and consortium partners.

Typically, one college department took the lead in applying for the grant and implementing activities. This was true with consortia as well, where the lead college had the additional challenge of coordinating with other college partners and consortium partners. Regardless of the grant structure, third-party evaluations documented how grant staff worked with internal partners and (for consortia) with other colleges, particularly in recruitment and the provision of persistence and completion supports to participants. Third-party evaluations also documented the importance of internal leadership and coordination in promoting the sustainability of grant programs (see Chapter 7 on Sustainability for additional detail).

Exhibit 2-1 shows the most commonly cited college partners.

Exhibit 2-1. Grantees’ Partnerships with Other Departments on Campus were the Most Common Type of Internal Partnership Described in Third-Party Evaluations



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: N=71. The categories displayed are not mutually exclusive.

The most common college partners were other departments on campus (14). For example:

- Central Arizona College fostered greater collaboration between the career and technical department and the science and math department, which resulted in the development of a “Fab Lab” (Mittapalli et al., 2018).²⁴
- Bergen Community College grant staff collaborated with the services department and the women’s center as part of a strategy for developing employer relationships (Van Noy et al. 2018).

The third-party evaluator final reports also identified deans’ offices as key partners. For example:

- Chippewa Valley Technical College facilitated connections between program deans and faculty at partner colleges in order to further professional development in-service training, and enable staff and instructor participation on consortium committees (Price et al. 2018).

Evaluation reports documented the role of peer learning in implementing activities across consortia. For example:

- Lawson State Community College consortium partners visited one another’s programs to gain “insight on their programmatic offerings, [program] implementation, challenges, and best practices” (Technology Management Training Group 2018, p. 23).
- Lorain County Community College developed “affinity groups” to bring together data managers, project managers, and navigators across partner colleges to discuss salient issues (New Growth Group and OERC 2018).
- Massasoit Community College convened monthly statewide meetings with project managers and navigators to discuss successes and challenges of grant implementation, which allowed for peer-to-peer sharing and formal presentations from local college staff on specific issues (Gene 2018).

Some grantees partnered with four-year colleges and universities. For example:

- Montgomery College established new partnerships and articulation agreements with four-year colleges as a result of improved collaboration (Hayman 2018).
- Miami Dade College worked with four-year colleges to design the new program curriculum (Waldman et al. 2018).

Other third-party evaluations stressed the importance of designated staff in facilitating connections between college partners. For example:

- Hazard Community College hired a central, full-time instructional course designer to support course developers and help facilitate participation across colleges (Hughes et al. 2018).

²⁴ The Fab Lab concept (“Fab” being short for “Fabrication”) was developed at the Massachusetts Institute of Technology (MIT) around 2001. Since then it has become a global network with more than 125 labs in 34 countries, all of which operate under an MIT charter. The labs are spaces where students design inventions on a computer, fabricate them, and test them. See <https://www.fablabconnect.com/new-lab-planned-at-eastern-arizona-college/> for more detail on Central Arizona College’s new space.

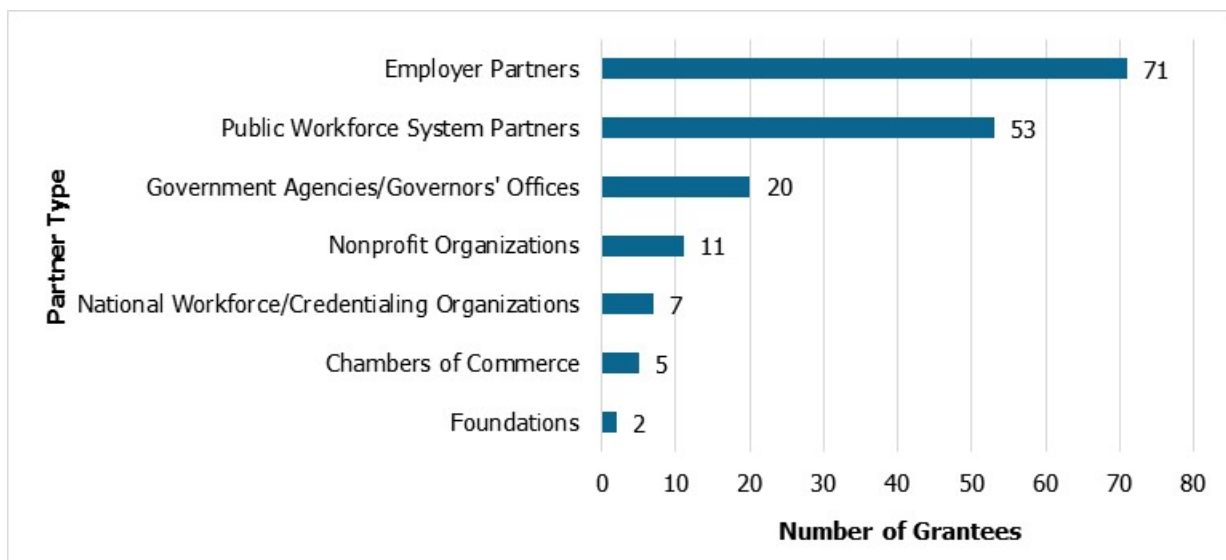
2.2. OTHER EXTERNAL PARTNERSHIPS

Grantees also developed external partnerships with employers, public workforce system entities, and other non-college entities.

All grantees partnered with employers; most engaged with public workforce systems.

Exhibit 2-2 shows the prevalence of non-college partners as documented in the evaluation reports. All 71 grantees partnered with employers, reflecting the central focus of the Round 4 grant solicitation. Other prevalent partners were the public workforce system and government agencies. Non-governmental partnerships were less common.

Exhibit 2-2. Employers Were the Most Commonly Highlighted External Partners in Third-Party Evaluations



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: *N*=71. The categories displayed are not mutually exclusive.

Employer partnerships fall into three categories:²⁵

Advisory employer partners were the most commonly referenced type of employer relationship in the reports (64). These employer partners reviewed program curricula and provided feedback to the college on labor market demand. For example:

- Bossier Parish Community College created curriculum review and advisory board committees to ensure programs met industry standards and community needs (Kelly-Smith et al. 2018a).
- Santa Fe Community College’s program director consulted with an advisory board to encourage and support relationship building and collaboration across institutions and provided multiple technology media as a conduit for continuous dialogue to share information, formulate new ideas, and improve program and information sharing (Hendricks et al. 2018).

²⁵ DOL developed a framework for employer engagement. The three categories (advisors, hands-on partners, strategic partners) describe differing levels of involvement. See *TAACCCT Fact Sheet: TAACCCT Is Deepening Employer Engagement*, https://doleta.gov/taaccct/pdf/TAACCCT_Fact_Sheet_Employer_Engagement_10.21.2016.pdf.

Hands-on employer partners helped implement and operate grant projects. Most (64) third-party evaluations described grantees engaging employers as hands-on partners. This type of partnership involved activities such as developing curriculum and providing work-based learning and other hands-on opportunities for program participants. Hands-on employers also served as instructors for grant programs. For example:

- Southwestern Oregon Community College engaged employers to participate in mock interviews, answer participants' questions, provide input and feedback on participants' resumes, and in some cases, offer internships or full-time jobs to participants (Pacific Research and Evaluation 2018c).

Strategic employer partners made substantial investments (time, hiring commitments, equipment, or other monetary support) to the sustainability of their partnership with the college. In comparison to other types of partners, strategic employer partners were most likely to be involved in sector partnerships, which bring together employers within an industry along with government actors, education institutions, economic development representatives, labor unions, and community-based organizations to focus on the workforce needs of an industry within the regional labor market context. Many (48) reports described strategic partnerships with employers. The text box shows one such example.

Employer Partners Supported Chaffey Community College and Consortium Partners

Strategic employer partners helped contribute equipment, made in-kind donations and financially invested in programs. The third-party evaluation report for the single-state consortium led by Chaffey Community College described how some of its employer partners played a strategic role, donating resources such as equipment or training space. For example, California Steel Industries leased the InTech Center building to Chaffey for only a dollar and is continuing to work with the college to identify additional space on campus. The InTech Center served as a career-focused training hub for TAACCCT participants, and the work performed at the center received recognition from U.S. Senator Kamala Harris. (Hendricks et al. 2018)

Grantees worked closely with representatives from the public workforce system.

Most (53) reports described partnerships with organizations in their local public workforce system, which included partnerships with workforce development boards, American Job Centers, TAA and state department of labor agencies, and core Workforce Innovation and Opportunity Act (WIOA) partners (adult education, veterans' groups). Through these partnerships, grantees often worked with these workforce organizations to recruit prospective participants (see Chapter 3.2) and provide persistence and completion supports (see Chapter 5) to participants.

For grantees, the biggest challenges in engaging both workforce development systems (16 grantees) and employer partners (16) were time and staff constraints, delayed program implementation, and lack of a formal or cohesive strategy for partner involvement. However, grantees found innovative ways to address these challenges. For example:

- Southwestern Oregon Community College's partnership with its local workforce board involved having a WIOA representative on the college's campus, who served as a liaison connecting participants to the workforce system (Pacific Research and Evaluation 2018c).

- Washburn University and its partner colleges established a new agreement with their local workforce centers to co-enroll participants, offer mutual referrals, and streamline career support services (Rasmussen et al. 2018).
- Central Piedmont Community College engaged Charlotte Works, the local workforce development agency, to facilitate a recruitment pipeline for the program via their communication channels with the local workforce (North Carolina State University Industry Expansion Solutions 2018).
- Chaffey Community College partnered with the workforce development board and local workforce agencies to set up systems to provide resources such as financial assistance and transportation support to students (Hendricks et al. 2018).

The evaluation reports also described partnerships with government agencies and governor's offices (20), including economic development agencies and organizations; and partnerships with nonprofit organizations (11), chambers of commerce (5), and foundations (2). Several (7) evaluation reports also described partnerships with national workforce and credentialing organizations (7), including Council for Adult and Experiential Learning, the National Center for Construction Education and Research, and the Manufacturing Skill Standards Council.

Subsequent chapters highlight the ways that partners assisted grantees in the implementation of their strategies, including recruitment (Chapter 3.2), persistent and completion strategies (Chapter 5), connections to employment (Chapter 6), and sustainability (Chapter 7).

3. Participant Recruitment and Enrollment

Grantees targeted a range of adult learners, including TAA-eligible workers, for high-wage, high-skill employment or reemployment in growth industry sectors by increasing their attainment of degrees, certificates, diplomas, and other industry-recognized credentials that match the skills needed by employers.

The reports described approaches to recruit and enroll participants for the grant-funded programs. Key findings from the reports are:

- **Consistent with grant requirements, grantees most commonly targeted veterans (39) and TAA-eligible workers (35).** Reports also noted that grantees focused on recruiting unemployed or dislocated workers (26), underemployed workers (14), and incumbent workers (8). Several reports also mentioned targeting other specific populations
- **Grantees used a variety of methods to recruit participants for their grant-funded programs.** The most common recruitment methods were hosting and attending recruitment events (27) and using print (22) and digital marketing (22) campaigns.
- **Community partners and internal college staff played key roles in conducting outreach and referring participants to programs.** For most grants, internal staff primarily performed outreach duties. Additionally, grantees also leveraged community partners such as the workforce system and employers to provide referrals and engage in their own outreach activities. Both college staff and community partners engaged in one or more of the recruitment activities (e.g., events, digital advertising).
- **Despite concerted efforts, many grantees struggled to meet enrollment numbers and recruit target populations.** Grantees overcame these challenges by broadening their target population or service area, changing recruitment staffing, intensifying recruitment efforts, and redesigning or adding a program to make their offerings more attractive.

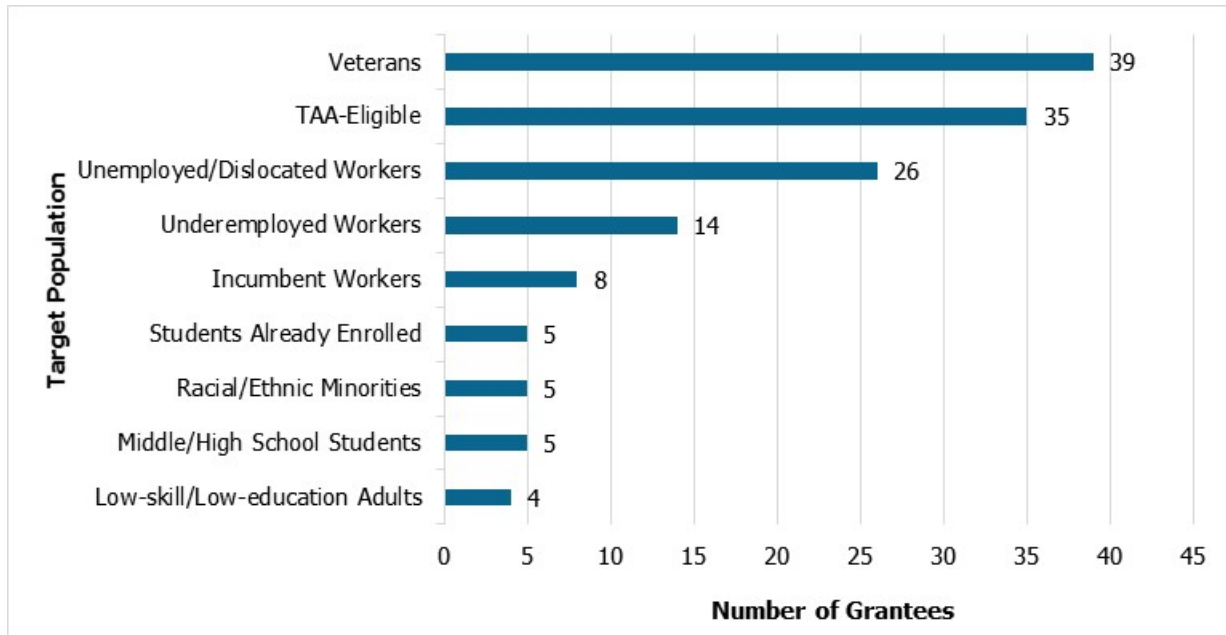
This chapter describes the populations targeted for the grant-funded programs and grantees' recruitment methods.

3.1. TARGET POPULATIONS

Grantees most commonly targeted TAA-eligible workers and veterans.

Of the 53 evaluation reports that mentioned target populations, Round 4 grantees most commonly targeted veterans (39) and TAA-eligible workers (35), which was consistent with grant requirements. Reports also noted that grantees focused on recruiting unemployed or dislocated workers (26), underemployed workers (14), and incumbent workers (8). Several reports also mentioned targeting other specific populations ([Exhibit 3-1](#) below).

Exhibit 3-1. Grantees Most Frequently Targeted Veterans, TAA-Eligible, and Unemployed Workers



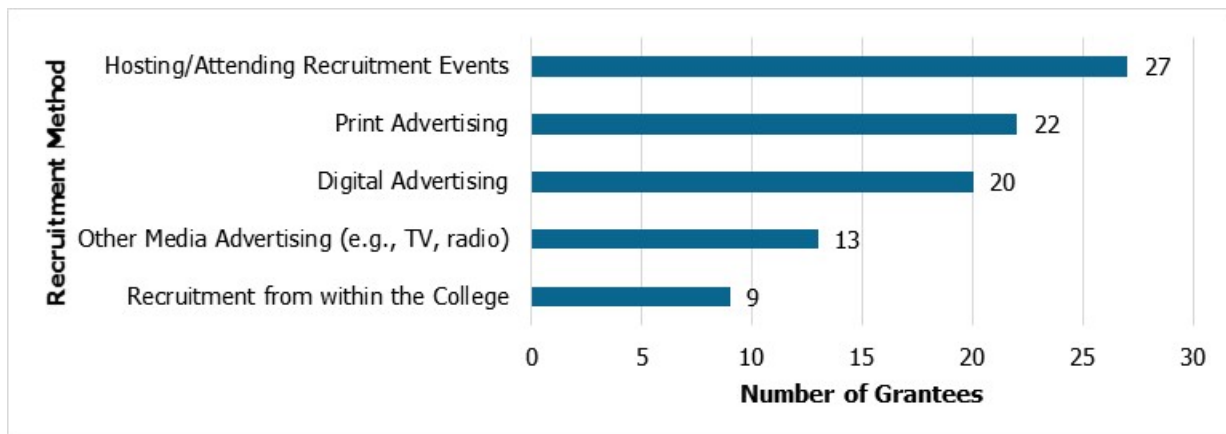
Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: N=53. The categories displayed are not mutually exclusive.

3.2. RECRUITMENT

Grantees’ most common recruitment methods were hosting or attending recruitment events and using print and digital advertising.

Grantees implemented a variety of recruitment strategies to meet target enrollment numbers and to reach target populations. **Exhibit 3-2** shows the most common recruitment methods reported in the 54 evaluation reports that described recruitment activities.

Exhibit 3-2. Grantees Commonly Recruited Participants through Events, Advertising, and Other Recruitment Activities



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: N=54. The categories displayed are not mutually exclusive.

CHAPTER 3: PARTICIPANT RECRUITMENT AND ENROLLMENT

The most commonly reported strategy was hosting events such as open houses, career fairs, and information sessions (27). A few reports noted that grantees made a concerted effort to regularly host these events. Recruitment staff also capitalized on external events by presenting at local and regional workshops, conferences, and workforce agency job fairs. In addition, they made in-person visits to local organizations, including job centers, veterans' groups, high schools, businesses, and community-based organizations. Increasing program visibility through these avenues allowed programs both to reach potential participants and to convince employers to refer incumbent workers to the programs. For example:

- Central Arizona College's career navigators made visits to American Job Centers, veterans' affairs offices, businesses, career fairs, and high schools to market its programs. Additionally, two of the college's consortium colleges worked with Arizona@Work Maricopa County to co-host a manufacturing event to bring awareness to career opportunities in advanced manufacturing and construction to high school seniors, recent high school graduates, and incumbent workers to learn more about the three colleges' respective programs. Central Arizona College and its consortium partners also used high-profile events in the community to market the program, such as the announcement of Lucid Motors building a plant near one of the colleges. They also participated in and hosted periodic recruitment events such as Welders without Borders and Skills Expo (Mittapalli, de las Alas, and Banerjee 2018).

Grantees also used other methods, including print advertising (22), digital advertising (20), and other media advertising (13). Print advertising included posters, flyers, newsletters, and other self-produced informational materials; digital advertising included websites and social media campaigns. Grantees' other traditional efforts included advertisements on the radio, television, and billboards in the community. For example:

- Universidad Metropolitana undertook a "very aggressive" social media campaign using Facebook, Twitter, Instagram, the college website, and the grant program's website (Panayiotou 2018, p. 8).
- Hazard Community College developed radio, billboard, and social media advertisements for its grant-funded program; one project lead described it as "full-scale marketing across the state of Kentucky" (Hughes et al. 2018, p. 19).

Finally, several (9) reports mentioned grantees actively recruited students already enrolled at their colleges into grant-funded programs of study. Internal recruitment typically involved reaching out to students in prerequisite classes about adding a certificate or degree offered by a grant-funded program. For example:

- North Idaho College grant staff visited students in prerequisite courses to describe grant-funded programs (Negoita, Paprocki, and Gutierrez 2018).
- At Metropolitan Community College, the instructors, veteran's office staff, and other grant staff talked with individual students about adding the Information Technology certificate to their educational plans (Shain and Grandgenett 2018).

CHAPTER 3: PARTICIPANT RECRUITMENT AND ENROLLMENT

Internal college staff and community partners played key roles in recruitment and outreach.

For grantees, internal staff primarily performed outreach duties but they also leveraged community partners such as the workforce system and employers to provide referrals and engage in their own outreach activities. Both college staff and community partners engaged in one or more of the recruitment activities described in the previous section (e.g., events, advertising, digital efforts, etc.).

Within colleges, different staff members bore the responsibility for recruiting participants. A few (10) reports indicated staff whose time was dedicated specifically to recruitment handled those duties. For example:

- Cape Cod Community College hired a full-time recruitment counselor who focused solely on recruitment for the program and worked with the director of enrollment to develop a recruitment plan (Bellville, Romero, and Hicks 2018).
- Northampton County Area Community College hired a marketing and outreach specialist to market and advertise the grant-funded program at the consortium level and to provide guidance and assistance with recruitment to individual colleges (Davis and Bill 2018).

In most cases, however, project directors, project coordinators, career navigators or coaches, academic advisors, and the college's marketing department conducted outreach as one of multiple responsibilities. Often, these staff members collaborated to conduct recruitment activities. For example:

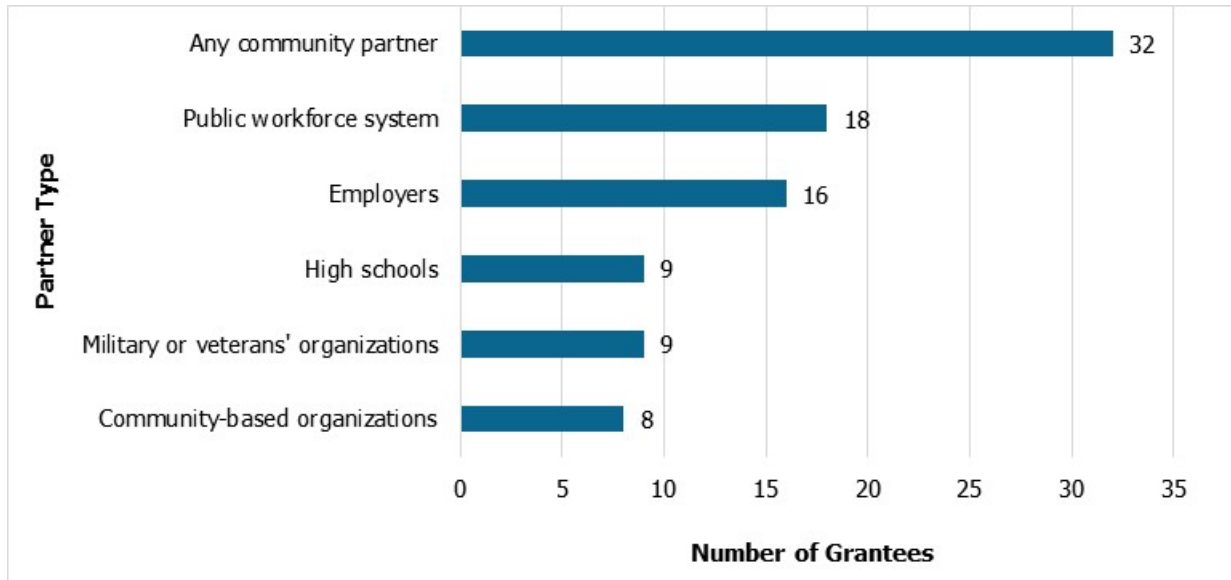
- Central Community College grant staff created an internal partnership with the college admissions, student services, veteran's services, and counseling departments so those departments were aware of the program and could refer students (Shain and Grandgenett 2018).
- Delgado Community College grant staff worked with the college's marketing department to develop a marketing plan that highlighted grant-funded programming (Waldman and Krauser 2018).

Additionally, as indicated in **Exhibit 3-3** below, nearly half (32) of reports noted that grantees received recruitment assistance from community partners, most commonly the public workforce system (18) and employers (16).

Evaluations generally documented two types of engagement from community partners: providing referrals (12) or marketing and outreach on the program's behalf (16). Grantees received referrals from a variety of community partners engaged with their target populations. For example:

- Chippewa Valley Technical College received referrals from employers as part of its effort to target incumbent workers (Price et al. 2018).
- Washburn University received referrals from local workforce centers that had contact with TAA-eligible workers (Price et al. 2018; Rasmussen Foster et al. 2018).

Exhibit 3-3. Public Workforce and Employer Partners Were the Most Likely Partners to Support Recruitment Activities



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: *N*=71. The categories displayed are not mutually exclusive.

Grantees leveraged their partners for recruitment. For example:

- Cincinnati State Technical and Community College’s student support center, the Pathway to Employment Center, positioned a recruiter at Hamilton County’s One-Stop service center to recruit TAA-workers, veterans, and other displaced workers. The recruiter also worked closely with a veterans’ representative in the area and recruited veterans at various regional events (New Growth Group 2018c).
- The University of Alaska partnered with an Alaska Native organization to recruit tribal members, and the Mining Mill Operations program leveraged a military connection to recruit veterans from several local bases (Hanson et al. 2018).
- Southern Illinois University Edwardsville took the unique approach of working with a local HeadStart program to recruit at-risk young parents (New Growth Group 2018b).

Several (9) grantees formed relationships with high schools to promote awareness of the grant-funded program among students nearing graduation. For example:

- Richland College’s Engineering Technology group worked with local high school students with dual enrollment in both their high school and the college’s programs, developing a close relationship with a local high school teacher who regularly brought students in to learn about the program (Haviland et al. 2018b).
- Danville Community College invited K-12 students and their families to tour its training facilities and held a day-long “Concept to Creation” workshop where students experienced the process of taking a product from design to manufacturing (Polzin et al. 2018).

CHAPTER 3: PARTICIPANT RECRUITMENT AND ENROLLMENT

Finally, some (8) grantees reported that community partners often took an active role in recruitment, promoting local grant programs to their networks through events, websites, newsletters, and word of mouth. For example:

- Hawkeye Community College, industry representatives, employers, and state and local agencies hosted career fairs; employers sent their employees to be trained in the college's programs; and state agencies referred participants to the programs. Iowa Workforce Development, Iow@Works, and various local agencies promoted the programs to increase participant referrals (de la Mora, Abraham, and Callen 2018).

4. Accelerated Learning Strategies

As shown in the career pathways framework (see [Exhibit 1-2](#)), one of the key grant strategies DOL encouraged was developing and implementing accelerated and enhanced learning strategies.²⁶

Accelerated learning refers to education and training approaches that allow participants to progress through coursework and gain credits and credentials more quickly than they would in traditional, time-based college courses. Grantees also enhanced learning for participants through the development of curriculum aligned to an industry to support a career pathway for participants and through the purchase of new training equipment and software or upgrading of existing facilities to support training.

The third-party evaluator final reports included extensive discussion of the design and implementation of accelerated and enhanced learning. Key findings from the reports are:

- **Grantees designed program curricula to align with industry needs.** According to the reports, this included developing new programs (16), enhancing existing programs (14), or implementing a combination of new and enhanced programs (30). Fifty-six (56) reports mentioned the use of career pathways or core components of career pathways as part of program design or implementation.
- **Grantees implemented a variety of accelerated learning instructional approaches,** including online and technology-enabled learning (33), competency-based education (17), modularized curricula (16), contextualized learning (12), integrated basic education and skills training (I-BEST) and team teaching (8), and cohort models (2). Some evaluation reports discussed difficulties related to online learning and technology-enabled learning, but many reports described success with accelerated teaching models.
- **Grantees varied in how they delivered their training programs.** Some (19) grantees implemented completely online programs, in addition many (38) used hybrid or flipped classroom approaches. Some (32) evaluation reports also discussed the use of hands-on learning to teach technical skills.

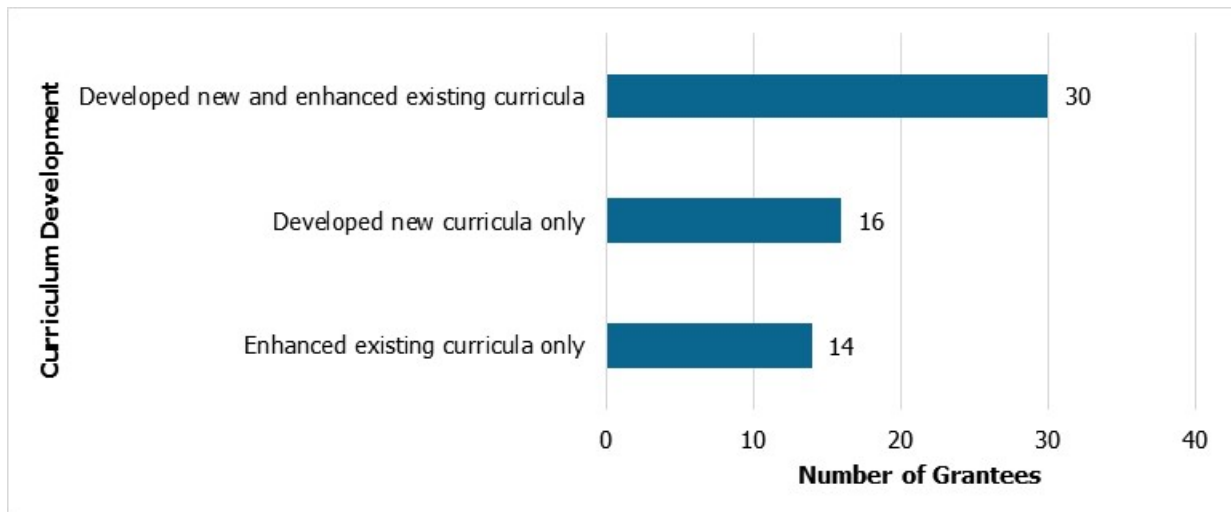
This chapter discusses the various efforts Round 4 grantees led to design and implement accelerated and enhanced learning strategies, as described in their reports.

4.1. NEWLY DESIGNED AND ENHANCED CURRICULA USED A CAREER PATHWAYS CONCEPTUAL FRAMEWORK

Most grantees (60) discussed developing new or enhancing existing curricula with grant funds. Half (30) of these grantees both revised existing curricula and developed new curricula across their training programs, 16 only developed new curricula for grant-funded training programs, and 14 only enhanced or revamped existing program curricula ([Exhibit 4-1](#)).

²⁶ For more information, see the grant solicitation, *Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program*, at <https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>.

Exhibit 4-1. Most Grantees both Developed New and Enhanced Existing Curricula for Their Grant-Funded Programs



Source: TAACCCT Round 4 third-party evaluator final reports.

Note: *N*=60 third party reports that described the grantees’ curriculum sufficiently to classify it.

Some (25) grantees mentioned leveraging work conducted using previous grant rounds to facilitate implementation of some aspects of their Round 4 projects. For example:

- The single-state consortium led by the University of Hawaii expanded on work completed during previous grant rounds to enhance student support systems and create new certificate programs to meet workforce needs across the state (Snodgrass et al. 2018).
- Texas State Technical College–Waco used research conducted during previous grants to support the evidence-based design of its Round 4 programs (Kelly-Smith et al. 2018b).
- The single-state consortium led by Miami Dade College–Kendall Campus aligned its grant project components with those from previous rounds, including the use of I-BEST, contextualized learning, 3D simulations, gaming design, and the use of Knowledge, Skills, Abilities, and Other (KSAO) assessments (Thomas P. Miller and Associates 2018).

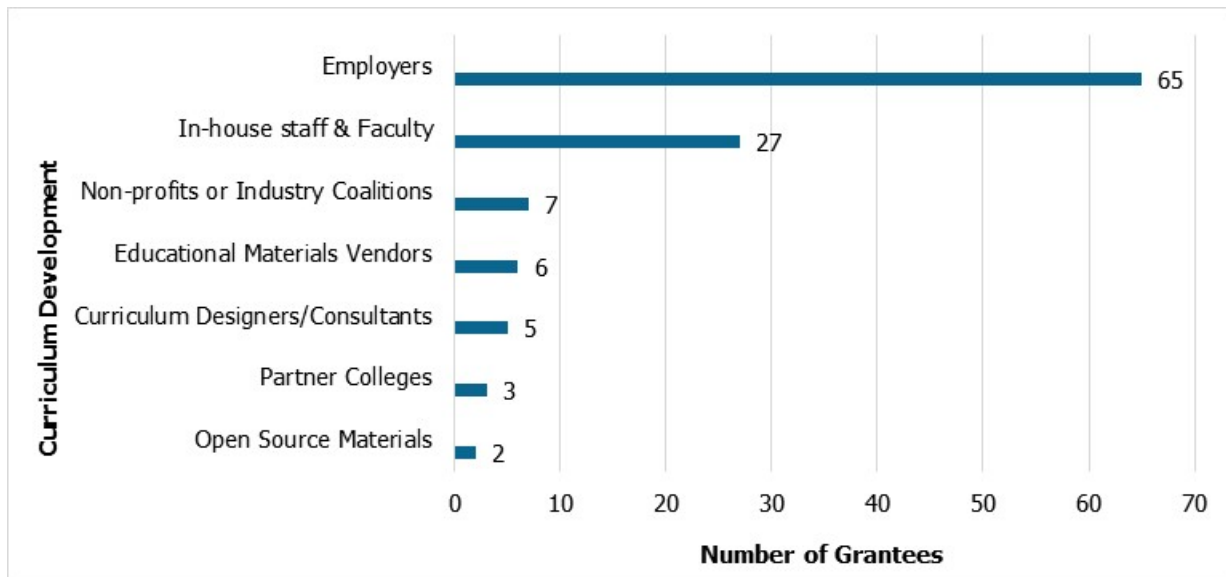
Most colleges aimed to align their curriculum with industry needs.

Grantees described a number of sources for new curricula or curriculum enhancements (**Exhibit 4-2**). The most common sources of curriculum were employers and in-house grant staff and faculty, with grant staff and faculty often partnering with employers to develop curriculum (see Chapter 2 for more detail on these partnering activities). Other sources such as nonprofits and industry coalitions, educational vendors, curriculum consultants, and others were much less common.

Reflecting the central role of employers in the grant program, most (65) reports describe grantees designing their training programs to align with industry and employer needs, including by working directly with employer partners to develop or revise curricula, having advisory boards of industry representatives review curricula, or collecting data from employers about their labor market needs. For example:

- Minnesota State Community and Technical College faculty noted, “We are constantly creating new certificates because the more we work with these companies, the more we learn about what [trainings] they need” (Ho 2018, p. 29).

Exhibit 4-2. New and Enhanced Curricula Were Adapted from a Number of Sources, Most Commonly with Employer Support/Input



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: N=65.

Most grantees developed a career pathways conceptual framework.

Most (56) grantees used a career pathways framework or some core component of career pathways to guide curriculum design. Most commonly, grantees reported including stackable credentials to provide participants with flexibility to enter and exit training programs as needed. Some grantees tapped external partners, such as national workforce and credentialing organizations such as the Council for Adult and Experiential Learning and the National Center for Construction Education and Research, to help design curricula within a career pathways framework (Staklis 2018; Waldman et al. 2018).

4.2. GRANTEES USED VARIOUS INSTRUCTIONAL APPROACHES AND MODALITIES FOR DELIVERING CURRICULA

Instructional approaches included online or technology-enabled learning, competency-based education, and modularized curriculum.

Many (33) grantees used online or technology-enabled learning as part of program curricula, which can increase accessibility and accelerate completion of coursework by allowing participants to work from home and providing additional tools for academic support (**Exhibit 4-3**).

As opposed to traditional time-based credit models, a few grantees used competency-based education (17) and modularized learning (16) approaches. Such approaches base progress towards a credential on mastery of certain skills and allow participants to move through content in more easily digestible “chunks” of information, which can sometimes be self-paced. For example:

- Arapahoe Community College developed competency-based programming using the competencies required by the Commission for the Accreditation of Health Information and Information Management (CAHIIM) (Staklis and Boyette 2018).

CHAPTER 4: ACCELERATED LEARNING STRATEGIES

Twelve (12) grantees implemented contextualized learning in training programs. Contextualized learning embeds aspects of basic math, reading, or English language skills as relevant to the subject matter being studied, allowing participants to learn critical basic skills for their occupations as a refresher or to avoid having to take extensive remedial coursework.

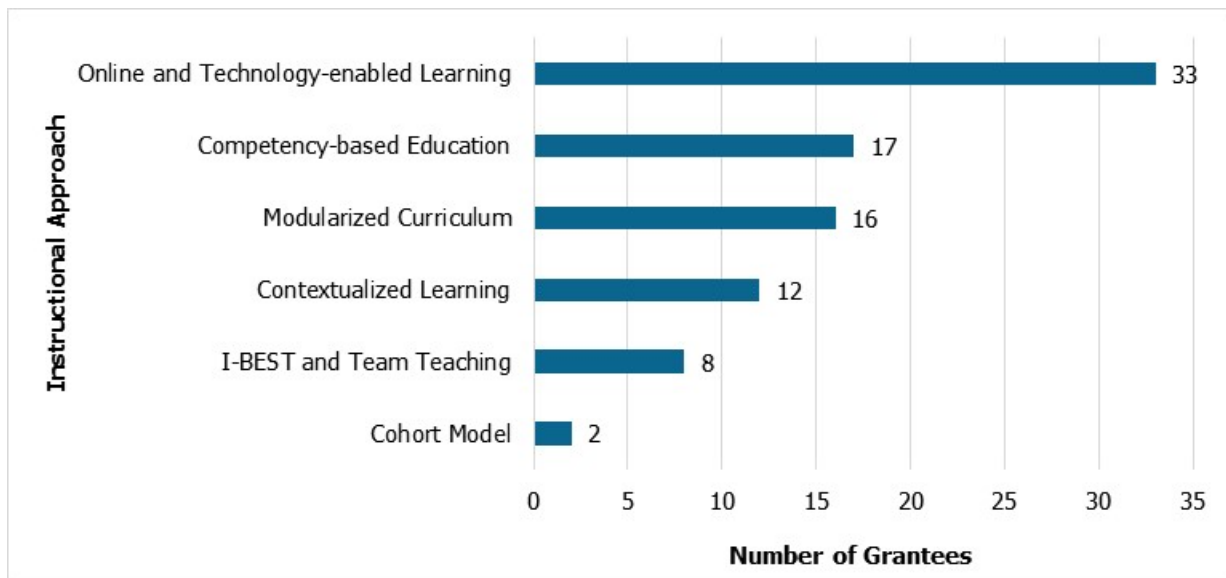
- The single-state consortium led by South Central College implemented contextualized learning and hands-on learning to provide experiential learning that engaged participants and helped them understand the real-world relevance of what they were learning (Bucci et al. 2018).

Some (32) grantees included hands-on learning in their program content, including labs or shops, simulations, and various forms of work-based learning, which is discussed in more detail in Chapter 6.

Exhibit 4-3 below details the various accelerated learning instructional approaches implemented.

A few (8) grantees used accelerated teaching models, such as team-teaching. Team-teaching, a core component of the I-BEST model, generally includes a technical instructor and a basic skills instructor and allows the instructors to “tag team”—one delivering lecture-type instruction while the other observes individual student progress and provides additional help as needed. Two grantees used a cohort model for student enrollment and progress through programs. Cohort models allow the same groups of participants to stay together as they move through a training program, which can facilitate beneficial peer support and allow instructors to become familiar with student group dynamics over time.

Exhibit 4-3. Grantees Employed a Variety of Instructional Approaches, Most Commonly Online and Technology-Enhanced Learning and Technology-Enhanced Learning



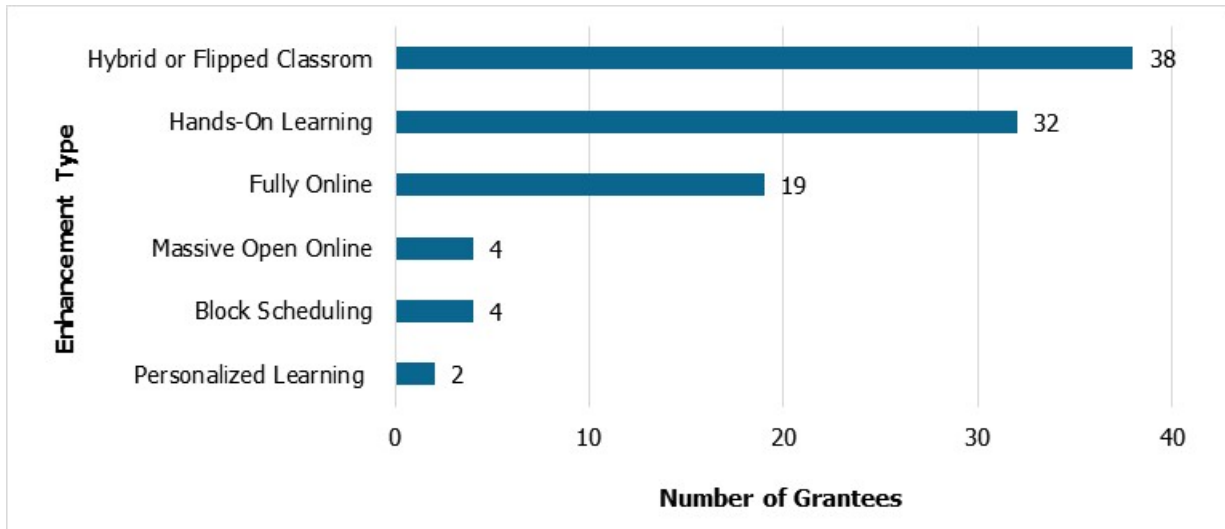
Source: TAACCCT Round 4 third-party evaluator final reports.

Note: $N=71$. The categories displayed are not mutually exclusive.

Modalities for delivering training varied.

Grantees used a variety of modalities for delivering training programs to participants (**Exhibit 4-4** below). Thirty-eight (38) grantees used hybrid or “flipped classroom” approaches, where lectures are delivered online and in-person instruction is dedicated to hands-on learning or individual assistance. Thirty-two (32) grantees used hands-on learning to help participants gain technical skills in their field of study. Nineteen (19) grantees offered at least one grant-funded program completely online.

Exhibit 4-4. Grantees Most Commonly Enhanced Training Using Hybrid or Flipped Classrooms



Source: TAAACCT Round 4 third-party evaluator final reports.
 Note: N=71. The categories displayed are not mutually exclusive.

Implementation of a Competency-Based Education Model

Sinclair Community College is a single-state consortium member of a grant led by Lorain County Community College. By converting programs to competency-based education (CBE), Sinclair enabled participants working towards any certificate in the Industrial Maintenance program (all non-credit programs) to accelerate through parts of their coursework based on demonstration of competency or scores in pre-assessment. On the credit side, a competency-based model was integrated into the first level of a Computer-Aided Manufacturing certification.

In total, the college developed nine CBE courses in its targeted programs and developed a new flexible lab space that enabled participants to complete lab work on their own schedules. Additionally, programs offered rolling admissions and start dates every two weeks, which offered greater flexibility to participants. The college developed a real-time dashboard that tracked participant in-person attendance, use of online materials, and course progress. A coach intrusively intervened via phone or email if a participant was struggling or lagging.

Preliminary results provided by the college indicated that participants were finishing CBE courses about 30 percent faster and at a 10 percent higher rate than students in traditional manufacturing courses. Some CBE courses were finished as much as 40 percent faster. (New Growth Group and the Ohio Education Research Center at The Ohio State University 2018)

Grantees also provided flexibility in how and where participants could engage with curriculum, such as personalized learning (2) and block scheduling (4). Finally, a few (4) grantees used massive open online courses to enable large numbers of participants to receive certain course content.

5. College Persistence and Completion Strategies

The Round 4 grant solicitation permitted use of grant funds to help participants access support services, including academic, personal, and financial supports, to improve participants' persistence and completion of their training programs.²⁷

Academic supports included intensive advising, tutoring, and peer supports. **Personal supports** included career-related services such as navigation and helping participants meet needs in their daily lives, such as mental health counseling and referrals to needed services. **Financial supports** included financial aid access and counseling and scholarships. By increasing access to these supports, grantees intended to mitigate barriers participants faced to persisting in and completing certificate and degree programs.

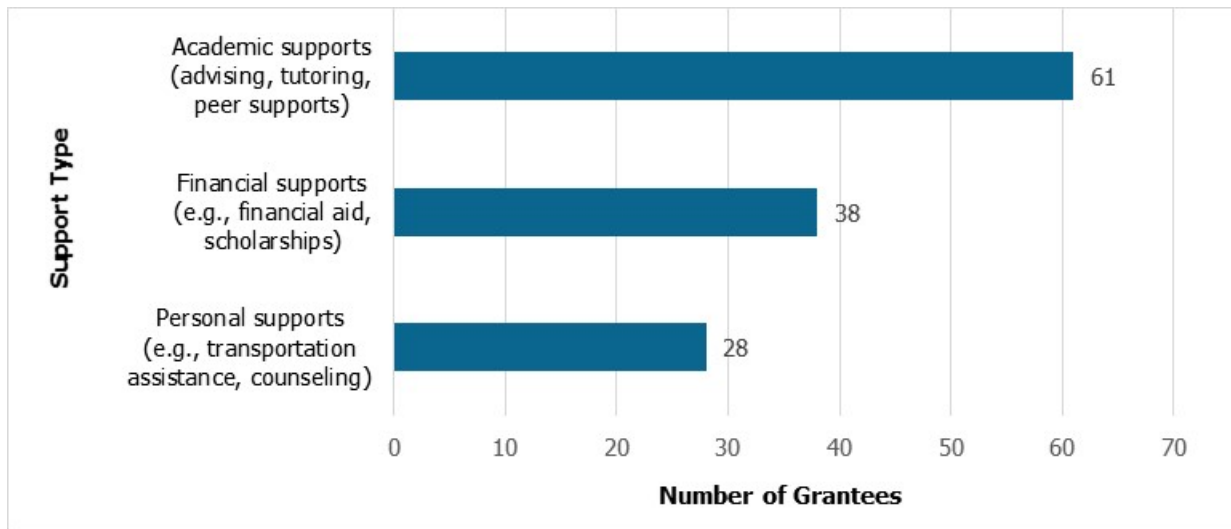
Many third-party evaluator final reports described how grantees implemented these persistence and completion supports. Key findings from the reports are:

- **Grantees provided a variety of academic supports to participants.** Of the 61 grantees that provided academic supports to participants, most (52) reported using grant funds, but a few (14) leveraged existing academic supports at their college(s). The types of academic supports highlighted in the reports were academic advising (48), tutoring (34), peer supports (17), cohort scheduling (8), and peer networking (3).
- **Grantees provided personal supports to help participants meet needs in their daily lives.** Grantees connected participants with a variety of on- and off-campus services that helped address issues including transportation, housing, childcare, and mental health.
- **About half of grantees helped participants access financial supports.** Many (38) grantees also provided financial supports to participants, most commonly help accessing financial aid for their programs of study. Some grantees also helped participants acquire financial assistance with program-related expenses and scholarships, or offered aspects of their grant-funded programs free of charge or at a reduced price.
- **Partners sometimes played a key role in persistence and completion supports.** Grant staff most commonly provided participants with access to academic, personal, and financial supports, but community partners also played a role in service provision for many grantees.

This chapter describes how grantees designed and implemented persistence and completion supports, and the degree to which these supports were integrated into institution- and systems-wide operations. Grantees provided a variety of supports directly or through partnerships. Evaluations described several different types of student supports: academic, personal, and financial supports (**Exhibit 5-1**).

²⁷ For more information, see the grant solicitation, *Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program*, at <https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>.

Exhibit 5-1. Academic Supports Were the Most Common Way Grantees Supported Participant Persistence and Completion

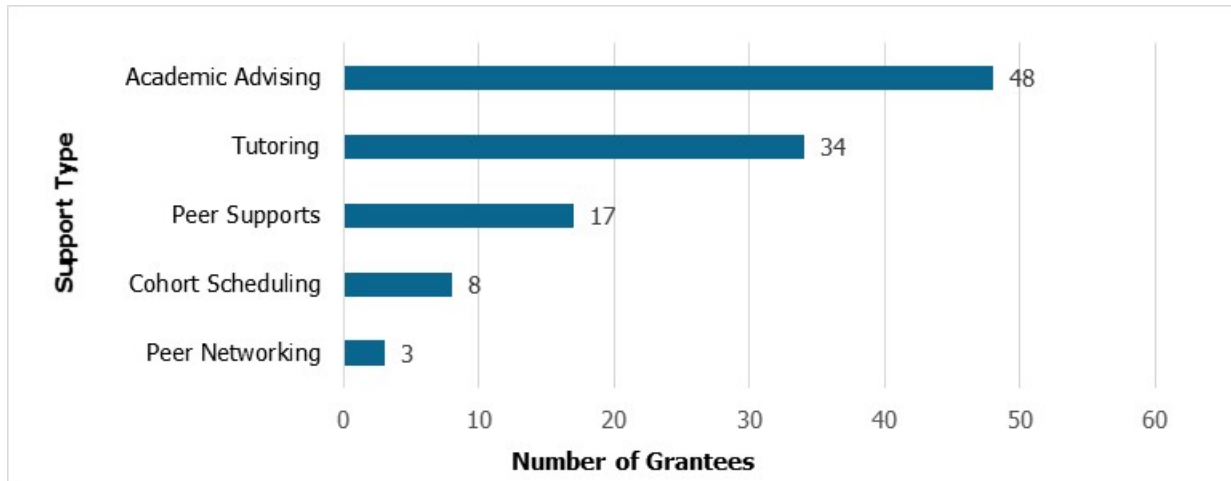


Source: TAACCT Round 4 third-party evaluator final reports.
 Note: N=71. The categories displayed are not mutually exclusive.

Grantees provided academic supports to participants, such as advising, tutoring, and peer support.

Of the 71 grantees, most (61) made one or more types of academic supports available to participants during the grant period (**Exhibit 5-2** below). Most (52) of those grantees used grant funds to provide academic supports but a few (14) leveraged existing academic supports at their college(s) (not shown in **Exhibit 5-2**). The types of academic supports, highlighted in **Exhibit 5-2**, were academic advising (48), tutoring (34), peer supports (17), cohort scheduling (8), and peer networking (3). Academic supports took many forms, but typically grantees leveraged grant funds to intensify existing academic support services or to hire new personnel. Typically, all participants enrolled in a grant program were eligible for these services if they were offered by the grantee, but several reports noted that grant support staff specifically targeted participants who were falling behind, identifying these participants either by monitoring their progress or by actively reaching out to instructors.

Exhibit 5-2. Academic Advising and Tutoring Were the Most Common Forms of Academic Supports



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: $N=61$. The categories displayed are not mutually exclusive.

More than two thirds (48) of all grantees offered academic advising services to participants. Common forms of academic advising services included assisting participants with course scheduling and registration and helping them understand and meet course requirements (11); referring participants to college tutoring services (10); and developing academic tools and resources for participants such as individualized academic pathways and action plans (10). Academic advising services were generally provided one-on-one and in person. However, a few (3) reports noted the use of online services. For example:

- Hazard Community College and Lake Area Technical College implemented online student success coaches to increase the accessibility of academic advising (Hughes et al. 2018; Taylor, Swanson, and Henry 2018).

Tutoring was also a common element of academic supports. Almost half (34) of reports mentioned that grantees provided tutoring to participants. Tutors were intended to help participants struggling with their coursework or to proactively ensure that participants did not fall behind. In some cases, tutors were specific to certain programs or subjects. For example:

- Massasoit Community College provided math lab assistance (White 2018).
- NHTI–Concord’s Community College, Cape Cod Community College, and Richland College implemented peer tutoring programs in addition to offering traditional tutoring services (Singer 2018; Belville, Romero, and Hicks 2018; Haviland et al. 2018b).
- Hazard Community College and North Idaho Community College offered online tutoring (Hughes et al. 2018; Negoita, Paprocki, and Gutierrez 2018).

Finally, several (17) grantees implemented some type of peer supports—including cohort scheduling and peer networking opportunities. For example:

- Bergen Community College’s 11 partner colleges implemented networking sessions, short curricula that allowed participants to learn, discuss, and network around a given topic (Van Noy et al. 2018).

- Manchester Community College and NHTI–Concord’s Community College created peer mentoring programs, where more advanced participants could coach their first-year peers (Hayman 2018; Singer 2018).

Grantees provided personal supports to help participants meet needs in their daily lives.

Of the 71 grantees, 28 provided resources and/or referrals to assist participants in balancing family, school, and work obligations. Supports helped address issues related to transportation (15), housing (9), and childcare (5); some (9) reports mentioned that grantees provided or connected participants with counseling services (**Exhibit 5-3** below). Other grantees provided personal supports such as assistance with accessing public benefits, health services and health insurance, internet access, and food. A few (3) grantees had supports in place for veterans specifically (see text box). Like they did academic supports, grantees typically delivered personal support services in a one-on-one setting. For example:

- Onondaga Community College staff provided participants with Chromebooks so they could access the internet away from school and assisted with finding housing, arranging transportation support, and in one case, helping a participant obtain legal services (Fiorenza 2018).
- Southwest Virginia Community College program coaches helped participants find childcare and resolve transportation issues (Magnolia Consulting 2018a).

A few (10) grantees had grant support staff provide referrals to on- or off-campus services. On-campus services often included those provided through existing campus centers, such as a counseling center or veterans’ services. When existing grant or college services could not meet participants’ needs, support staff at schools including Massasoit Community College and Oklahoma City Community College made referrals to community partners that could help with nonacademic issues, such as homelessness and health insurance (White 2018; WorkED 2018a).

Innovative Support Services for Veterans

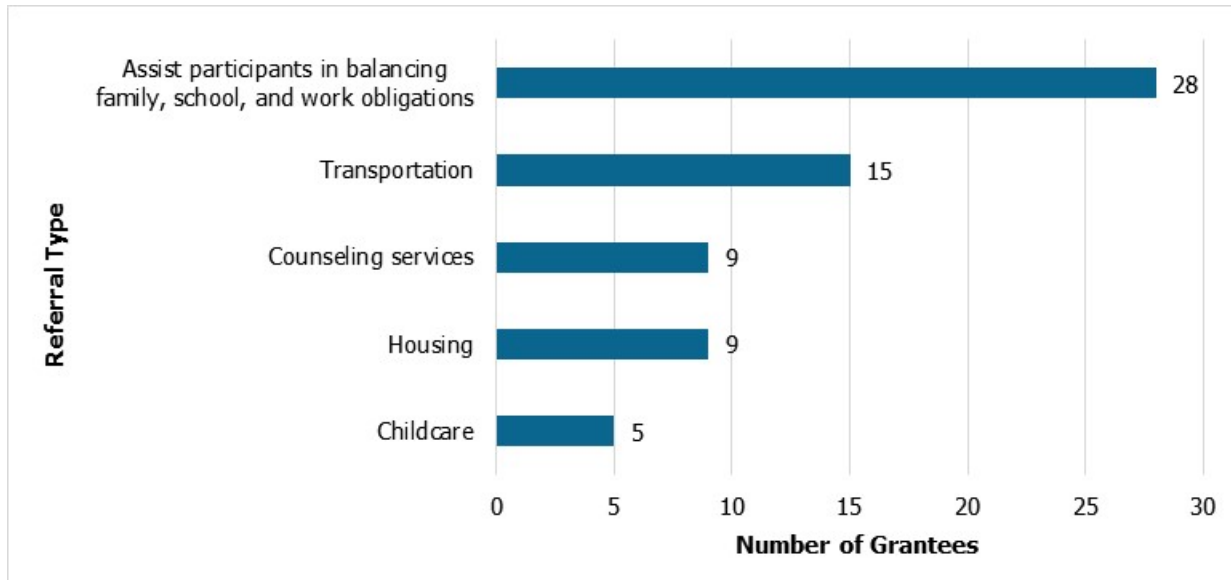
Three grantees used grant funds to provide targeted support services to student veterans, recognizing that this population faces unique challenges to persistence and completion:

The single-state consortium led by Board of Regents NSHE–Western Nevada College expanded its Veteran Resource Centers, which serve as community centers and employ veteran coordinators to provide tutoring, professional development, career guidance, and academic advising to student veterans. (Pacific Research and Evaluation 2018a)

Similarly, at the single-state consortium led by the University of Hawaii, the veteran coordinator worked with the college administration to open a Veterans’ Resource Center on campus to offer student veterans and their families a variety of services, including counseling, to support the health and mental health of veterans and facilitate their smooth transition into college. (Snodgrass, Staklis, and Moyer 2018)

In the single-state consortium led by Mountwest Community and Technical College, veteran coordinators provided academic, personal, and financial supports to participants. They were also responsible for promoting positive interactions and a sense of community, helping to coordinate work-based training opportunities, and organizing networking opportunities through a learning community. (Horwood et al. 2018)

Exhibit 5-3. Grantees Providing Resources and/or Referrals Primarily Focused on assisting Participants in Balancing Family, School, and Work



Source: TAACCCT Round 4 third-party evaluation final reports.
 Note: N=28. The categories displayed are not mutually exclusive.

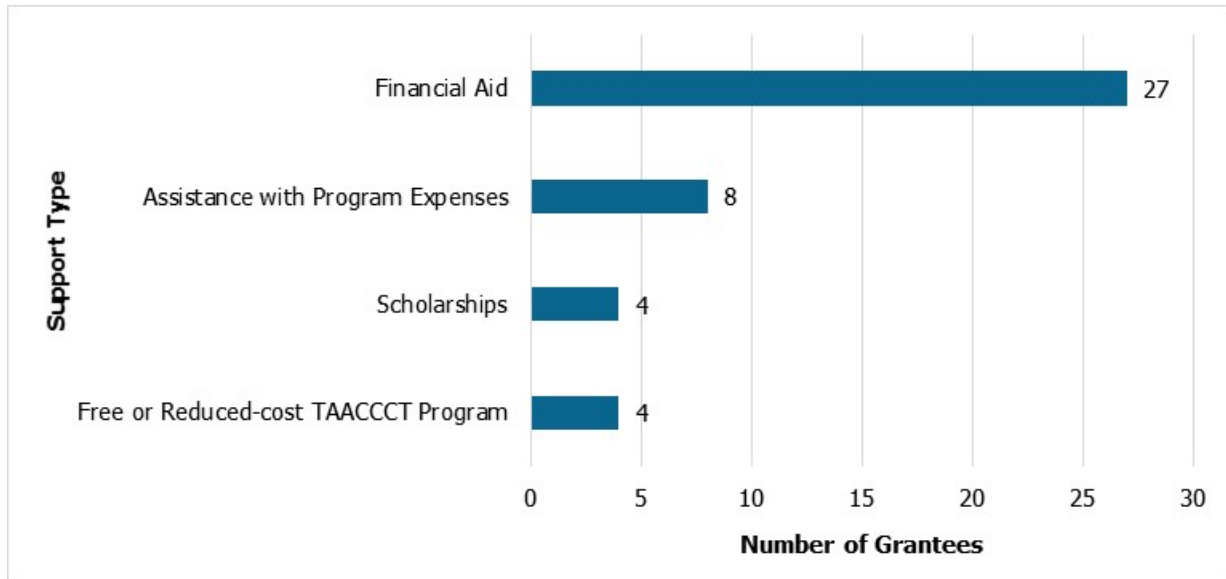
Two grantees proactively identified and mitigated potential barriers to academic success. For example:

- North Idaho College required partner colleges to ask participants to complete a self-assessment to identify potential individual, academic, and employment challenges. Participants then automatically received a personalized email with links to the supports they might need (Negoita, Paprocki, and Gutierrez 2018).
- Southwest Tennessee Community College established a retention team who developed a needs assessment and a list of resource referrals to address common issues such as transportation, childcare, housing, work schedule conflicts, and other issues (Sturges et al. 2018).

About half of grantees helped participants access financial supports.

Some Round 4 grantees addressed program affordability by offering participants financial supports (**Exhibit 5-4**). In total, 38 of 71 grantees provided participants access to some type of financial support, including financial aid (27), financial assistance with program-related expenses (8), scholarships (4), and free or reduced-cost programs (4).

Exhibit 5-4. Grantees Helped Participants Access Various Types of Financial Supports



Source: TAACCT Round 4 third-party evaluator final reports.
 Note: *N*=38. The categories displayed are not mutually exclusive.

Grantees worked in close cooperation with internal and external partners to address participants’ financial needs and barriers. Most commonly, support staff such as career navigators/coaches and academic advisors guided participants through the process of applying for and obtaining financial aid and scholarships. For example:

- Texas State Technical College–Waco’s Workforce Development Department used non-grant college funds to allocate 10 scholarships of \$10,000 each to help participants who could not afford training (Kelly-Smith et al. 2018b).
- Arapahoe Community College established an agreement with Arapahoe/Douglas Works! (the local workforce center) to provide tuition assistance for 75 technical program participants and on-campus job search services (Staklis 2018).

Recognizing that the cost of tuition was not the only financial barrier to participation in the grant-funded programs, a few (8) grantees helped participants access financial assistance to cover other program costs. For example:

- The Miami Dade College consortium covered the costs of textbooks and testing fees for earning industry-recognized credentials; and grant staff donated a set of textbooks, leveraged non-grant college funding to supplement the costs, and worked with community organizations to secure funding for participants (Waldman, Wilkinson, and Romano 2018).
- Delaware Technical and Community College’s Patient Care Technicians program staff helped participants get college funding to pay for expenses such as books, exam fees, drug screenings, immunizations, and uniforms (Smith 2018b).

Additionally, a few (4) grantees made aspects of their programs free or offered them at a reduced cost by leveraging resources outside the grant. For example:

- In the single-state consortium led by Miami Dade College, the Training for Manufactured Construction program was free. Similarly, the single-state consortium led by University of Hawaii Maui College offered all consortium programs tuition-free (Waldman, Wilkinson, and Romano 2018; Snodgrass, Staklis, and Moyer 2018).
- Bossier Parish Community College gave participants in the Welding program access to free welding training, and NHTI-Concord's Community College provided a reduced price for certification exams (Kelly-Smith 2018a; Singer 2018).

Partners sometimes played a key role in persistence and completion supports.

Academic, personal, and financial support services were typically delivered by college staff. However, others provided them, as well. As described, peers were also involved at some grantees; and at a couple (2) of grantees, instructors themselves tutored participants who struggled in their classes (Panayiotou 2018; Price et al. 2018).

A few (8) grantees also reported that participants accessed academic supports from academic advisors or tutors within the college's existing infrastructure. For example, at five grantees, participants received help with applying for financial assistance through existing campus financial aid services. In some cases, grantees did this because they did not use grant funds for participant supports; in other cases, new participant supports complemented existing college services. Where grant staff did not provide services, they referred participants to college or external services that could serve students' needs.

Additionally, at several (10) grantees, external partners such as community based organizations, employers, and workforce agencies directly provided personal (4) and financial supports (6) to participants. For example:

- Oklahoma City Community College partnered with the Urban League, which supported a cohort of participants in the Commercial Food Equipment Service Technician program with transportation and housing services (WorkED 2018a).
- Cape Cod Community College signed an agreement with a local university that allowed grant-funded program participants to access the other institution's housing, reducing relocation challenges for participants (Bellville, Romero, and Hicks 2018).
- Onondaga Community College grant programs were non-credit courses, which are typically excluded from financial aid. To address this challenge, grant staff partnered with agencies such as CenterState CEO and the Onondaga County Office of Economic Development to assemble scholarships for participants (Fiorenza 2018).

6. Connections to Employment Strategies

The Round 4 grant solicitation required grantees to provide work-based learning experiences for participants to expose them to and prepare them for employment, and to assist them in securing jobs in their fields of study.²⁸ Grantees met those requirements through a variety of employment-related activities, including career exploration, career readiness training, simulated work experiences, work-based learning experiences such as internships and apprenticeship, and employment services.

The third-party evaluator final reports highlight the multiple ways grantees helped participants connect to employment. Key findings from the reports are:

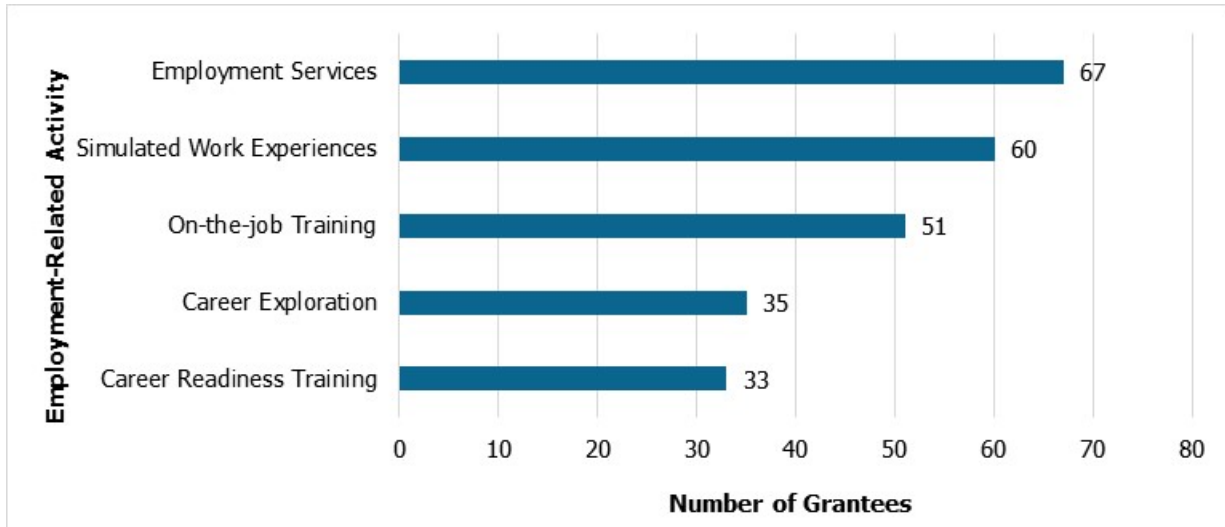
- **The more common strategy grantees implemented was employment-related services.** These services include career counseling and advising (52), job placement assistance (21), sharing job openings (10), job development (6), and assistance with background checks and security clearances (1).
- **Grantees used grant funds to significantly enhance simulated work activities.** Most grantees created new or enhanced training environments to align their programs with relevant occupational tasks and provide real-life work experiences for their participants. Enhancements included purchasing new or upgrading current facilities (31), equipment (50), industry software and other technology (13), and supplies (11). Some grantees had challenges securing funding for facilities, equipment, and software in a timely manner. Others did not have sufficient funding to fully implement simulated workspaces.
- **Grantees provided work-based learning at work sites.** Internships (37) and apprenticeships (22) were the most common activities. Some evaluation reports described these on-the-job training opportunities as being among the most valuable contributions of their employer partners.
- **Grantees provided career exploration activities to help participants understand available careers.** Most frequently, career exploration activities involved employer classroom visits or workplace tours (12), and also job shadowing, capstone courses, and externship experiences (12).
- **Grantees provided career readiness training on transferrable, non-technical skills that participants can apply to any career.** Career readiness training included job search assistance (12), mock interviews (8), professionalism training (7), and resume assistance (6).
- **Grantees used staff, partners, and online tools to provide employment services to participants.** The most common services were career counseling (52) and job placement (21).

This chapter explores how the reports described employment connections and glean lessons learned from the implementation of employment-related activities.

²⁸ For more information, see the grant solicitation, *Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program*, at <https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>.

Grantees implemented a variety of employment-related activities. As **Exhibit 6-1** shows, most grantees implemented employment-related activities. The most common activities were employment services (67), followed by simulated work experiences (60) and on-the-job training (51).

Exhibit 6-1. Most Grantees Provided Employment-Related Services

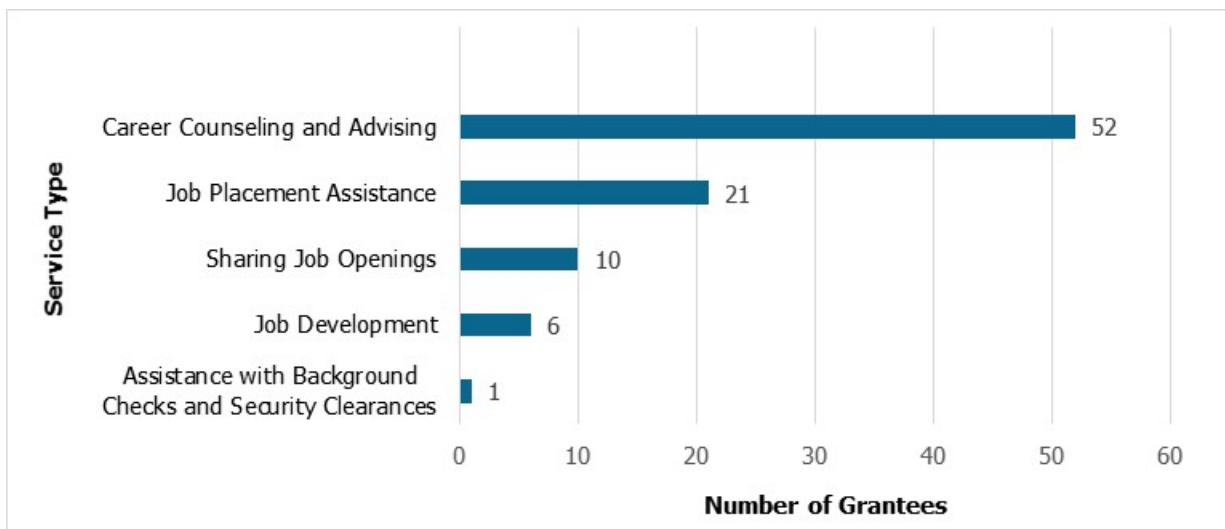


Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: $N=71$. The categories displayed are not mutually exclusive.

Most grantees provided employment services.

Of the 71 grantees, most (67) provided some type of service to help participants find jobs and succeed in their careers (**Exhibit 6-2**). Sometimes grant staff provided the services (e.g., career navigators; see Chapter 5). Other grantees leveraged services provided at the college for their general student population. Additionally, many grantees (53) leveraged their partnerships with the public workforce system to provide employment services for participants (see Chapter 2).

Exhibit 6-2. Career Counseling was the Most Common Type of Employment Service



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: $N=67$. The categories displayed are not mutually exclusive.

Fifty-two (52) grantees provided **career counseling or advising** to participants, including providing information about the requirements for particular occupations and conducting career assessments. Career counseling and advising activities ranged from one-on-one discussions with participants about different occupations to online career advising tools. For example:

- The placement specialist and the success coach at Central Community College met with participants regularly to help them decide on career options and to provide advice about their job direction. Partner colleges in the single-state consortia led by Chippewa Valley Technical College provided individualized career coaching sessions (Shain and Grandgenett 2018b; Price et al. 2018).
- The job coach at Cincinnati State Technical and Community College offered career assessments to program participants to gauge their career interests (New Growth Group 2018c).
- Lawson State Community College navigators provided one-on-one counseling, career matching, assistance in program selection, and information about the local job market (Technology Management Training Group 2018).
- Arapahoe Community College developed a Health Information Technology career map that contained information on the skills and pay associated with jobs in the field (Staklis and Boyette 2018).
- Hawkeye Community College used the Economic Modeling Specialist International (EMSI) Career Coach, an online advising tool, to help participants explore career options, workforce trends, training pathways, and salary data (de la Mora et al. 2018).

Twenty-one (21) grantees provided **job placement services** such as researching job opportunities and matching employer and participant interests, needs, skills, and experience. For example:

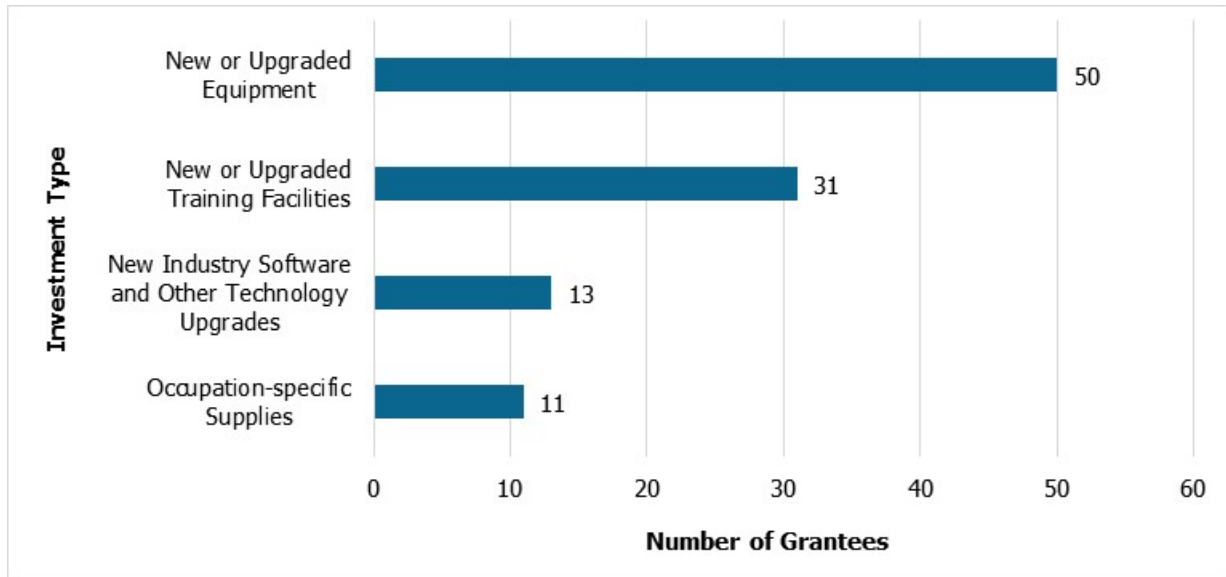
- Thomas Nelson Community College Job Placement Coordinators provided direct job placement services and support to participants (Magnolia Consulting 2018b).
- Southwest Virginia Community College leveraged employer partnerships to guarantee interviews to their program completers (Magnolia Consulting 2018a).

Grantees used grant funds to significantly enhance simulated work activities.

Many (60) grantees invested in facilities, equipment, supplies, and software so that participants could master skills that closely reflected the skills and activities of their field of study (**Exhibit 6-3** below) in both physical and virtual settings. Fifty (50) grantees used grant funds to support new or upgraded equipment, and 31 either acquired new training facilities or upgraded existing facilities.

Work simulation investments included developing or renovating facilities for training to better reflect real-life work environments, using equipment and materials for training that are also used in the field, and using virtual or physical simulations for occupational tasks. In some cases, employer partners played critical roles in providing simulated work experiences (see Chapter 2).

Exhibit 6-3. Grantees Invested in Equipment and Facilities to Provide Simulated Work Experiences



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: $N=60$. The categories displayed are not mutually exclusive.

Washburn University’s Single-State Grantee Consortium Led by Used Simulated Learning for Realistic Training and Workplace-relevant Experiences

As part of the Kansas Technical Re/training Among Industry-targeted Networks (KanTRAIN) grant, four colleges incorporated learning simulations into training programs through simulated workplace experiences, incorporating technology and tools that participants would encounter on the job. For example, at the Washburn Institute of Technology, the use of simulated learning enabled participants to practice realistic patient interactions, perform medical procedures, and receive immediate feedback from instructors. At Flint Hills Technical College, the use of augmented reality welding simulators in the classroom allowed participants to practice welding techniques without using consumable materials. At the Wichita State University Campus of Applied Sciences and Technology (WSU Tech), simulated trainers replaced large, expensive equipment for the Industrial Automation Machine Maintenance program, while still giving participants a chance to develop and practice needed skills. Climate and Energy Control participants at WSU Tech practiced service call interactions and equipment maintenance using simulation software and simulated zonal, automated climate control systems. (Rasmussen et al. 2018)

Examples of simulated work experiences include advanced manufacturing shops, interactive health care simulation equipment, virtual reality labs, and online learning scenarios. For example:

- Danville Community College and Onondaga Community College created simulated shop floors to replicate real-life work environments and equipment for their Advanced Manufacturing training programs (Polzin et al. 2018; Fiorenza 2018).

CHAPTER 6: CONNECTIONS TO EMPLOYMENT STRATEGIES

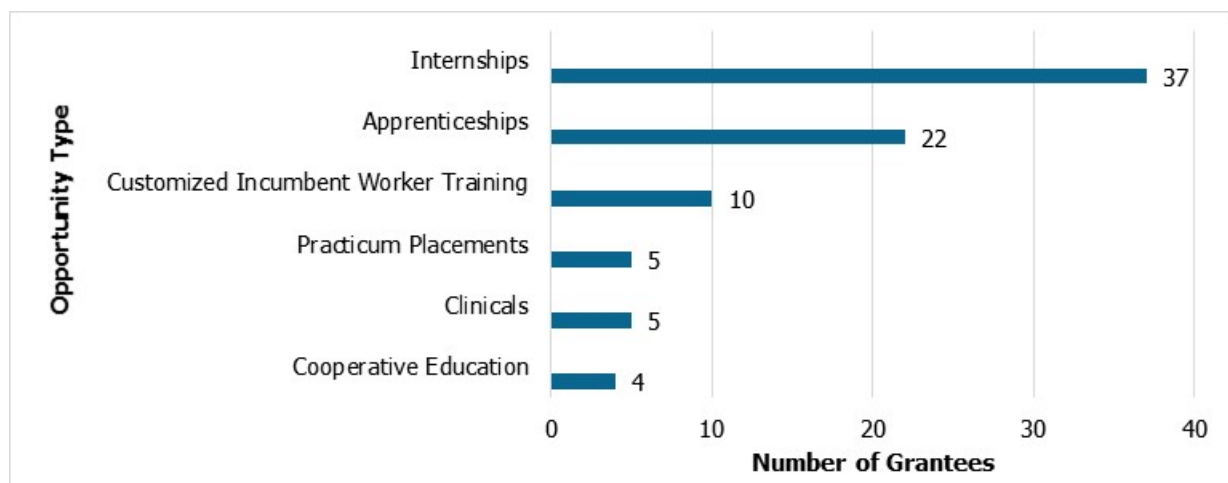
- Cape Cod Community College’s Aviation Maintenance Technology program procured training boards and simulations systems, a turbocharged fuel injection training, a PT-6 turbine engine system, and space to house a hanger plane for participants to work on (Bellville et al. 2018).
- NHTI–Concord Community College included the establishment of a “digital fabrication lab,” a facility used for information technology and industrial design hands-on experience. The grantee also contracted with Game Assembly to provide a space for participants to explore and experiment with game development in a “co-working” setting (Singer 2018).
- Alpena Community College implemented the use of a mobile unit for its Unmanned Aerial Vehicle program, which facilitated training at multiple locations and was also used for demonstration and marketing (Smith 2018a).
- Southwest Tennessee Community College used interactive simulation labs and simulation mannequins for health care training (Sturges et al. 2018).

Internships were the most common on-the-job training opportunities.

Fifty-one (51) grantees provided on-the-job training through employer partners. Examples included internships, apprenticeships, customized training opportunities designed for employer partners, clinicals, practicum placements, and cooperative education placements (**Exhibit 6-4** below). Reports described participant on-the-job training opportunities as the most valuable contributions of their employer partners. The most common on-the-job training opportunities were internships and apprenticeships. For example:

- More than half of Lorain County Community College’s college partners worked with external partners and businesses such as MAGNET, Swagelok, Honda, and Whirlpool to provide paid internships or apprenticeships under their grant (New Growth Group and OERC 2018).

Exhibit 6-4. Most Grantees Provided On-the-Job Training Opportunities Such As Internships and Apprenticeships



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: N=51. The categories displayed are not mutually exclusive.

Thirty-seven (37) grantees supported participants learning through **internships**, in which participants gained practical experience in the workplace, either with or without pay, for a specific time period (e.g., a semester). For example:

- In response to a large national employer, Washburn University implemented an internship program based on a model in Ohio. The evaluation report noted that “site staff worked with this employer and other local employers to design the internship option, including mapping learning objectives and creating a final reflection project” (Rasmussen 2018, p. 13).
- NHTI–Concord’s Community College found that employers generally offered permanent positions to interns who performed well. Employers stated that relative to other job candidates, NHTI interns “know how to program, they know how to manage and administer systems and switches and routers” when they begin work (Singer 2018, p. 30).

Grantees (22) also offered apprenticeship experiences to their participants. An **apprenticeship**²⁹ provides occupational knowledge and skills through a combination of paid work and related instruction. A training agreement describes the length of the apprenticeship, pay scale and timing of pay increases, and hours of related instruction. The text box below describes the apprenticeship program developed by South Central College. For example:

- One college in the Miami Dade College consortium used grant funding to provide an additional point of access for participants at nontraditional program sites to existing pre-apprenticeship and apprenticeship programs at the college, providing participants with foundational skills prior to advancing in programs (Waldman et al. 2018).
- Mitchell Technical Institute created a Registered Apprenticeship program to extend training for graduates of the Power Line program. Developed in collaboration with DOL and Power Line instructors, the apprenticeship was created in 2016 and designed to create a pathway to higher earnings via online coursework and work experience, culminating in a Journeyman Certification and, if desired, an Associate of Applied Science degree (Swanson, Taylor, and Henry 2018).

South Central College Consortium Apprenticeship Program

Colleges in the South Central College consortium established partnerships with more than 550 businesses and industry entities under the grant. According to the evaluation report, developing employer-driven apprenticeship and Dual Training education programs was one of the project’s core objectives. By the end of the grant, in partnership with 53 companies, six colleges provided Dual Training education opportunities and three colleges provided Registered Apprenticeship programs in mechatronics, machining, and welding. As of March 31, 2018 (when grant-supported instruction ended), 213 participants were enrolled in competency-based Dual Training opportunities, and 108 participants were enrolled in Registered Apprenticeships. (Bucci et al. 2018)

²⁹ Registered Apprenticeships are aligned with federal and state standards and are registered with DOL.

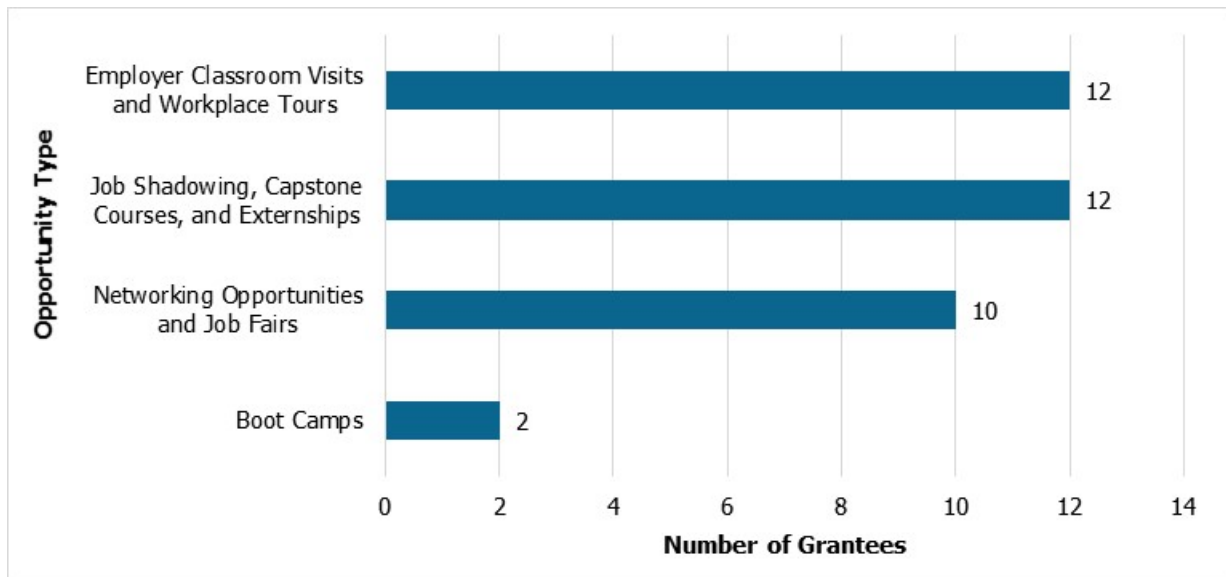
Fewer (10) grantees offered customized training and incumbent worker training.³⁰ For example:

- Lake Area Technical Institute trained 245 incumbent workers through its grant-funded program. The evaluation report describes how innovative learning opportunities like “Learn Where You Earn” provided a unique opportunity to incumbent workers to increase their knowledge and pursue an advanced degree (Taylor et al. 2018).

Career exploration opportunities ranged from low-touch classroom visits and workplace tours to intensive boot camps.

Thirty-five (35) grantees implemented career exploration activities. As **Exhibit 6-5** below shows, grantees introduced their participants to the occupational options through career exploration activities, which helped participants determine what careers were available, helped identify their interests, and highlighted how their skills aligned with the needs of their desired careers.³¹

Exhibit 6-5. Grantees Provided Various Career Exploration Opportunities



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: N=35. The categories displayed are not mutually exclusive.

Twelve (12) grantees provided employer classroom visits, lectures, and/or tours of employer sites. During employer visits to colleges, employer representatives participated in lectures or shared other pertinent information about employment opportunities with participants. Employers also hosted participants at job sites to introduce them to workplace settings. For example:

³⁰ DOL defines **customized training** as (1) designed to meet the specific requirements of single or set of employers; (2) conducted with a commitment by the employer to employ an individual upon successful completion of the training; and (3) paid for at least partially by the employer(s) in accordance with the determination of the local workforce development board working with the employer(s). **Incumbent worker training** is a type of work-based training and upskilling designed to ensure that employees of a company can acquire the skills necessary to retain employment and advance within the company.

³¹ For more information on career exploration and skill development, see: <https://youth.gov/youth-topics/youth-employment/career-exploration-and-skill-development>.

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- Minnesota State Community and Technical College used employer partner visits to campus and participant visits to partner worksites, informational sessions, and lectures as part of career exploration (Ho 2018).
- Central Arizona College employer partners hosted tours of company plants and presented about employment opportunities at their sites (Mittapalli et al. 2018).

Grantees (12) also used job shadowing, capstone courses, and externships as a way to introduce participants to career options.³² For example:

- Clover Park Technical College created a capstone project to bring the Mechatronics Associate Degree into closer relationship with local employers. The program encouraged participants to find an actual firm to serve as the client for their capstone project, rather than developing a theoretical project without a specific client. That resulted in applied projects that helped participants develop relationships with specific firms in the region (Kogan et al. 2018).

Ten (10) grantees involved employer partners in networking opportunities and job fairs. Such opportunities provided participants with chances to engage and exchange information with business professionals and to develop professional or social contacts. For example:

- At Onondaga Community College, participants met with employers and were offered opportunities to interview at companies of interest as a result of a job fair (Fiorenza 2018).

Other (2) grantees used boot camps to provide participants with short-term, intensive training programs. For example:

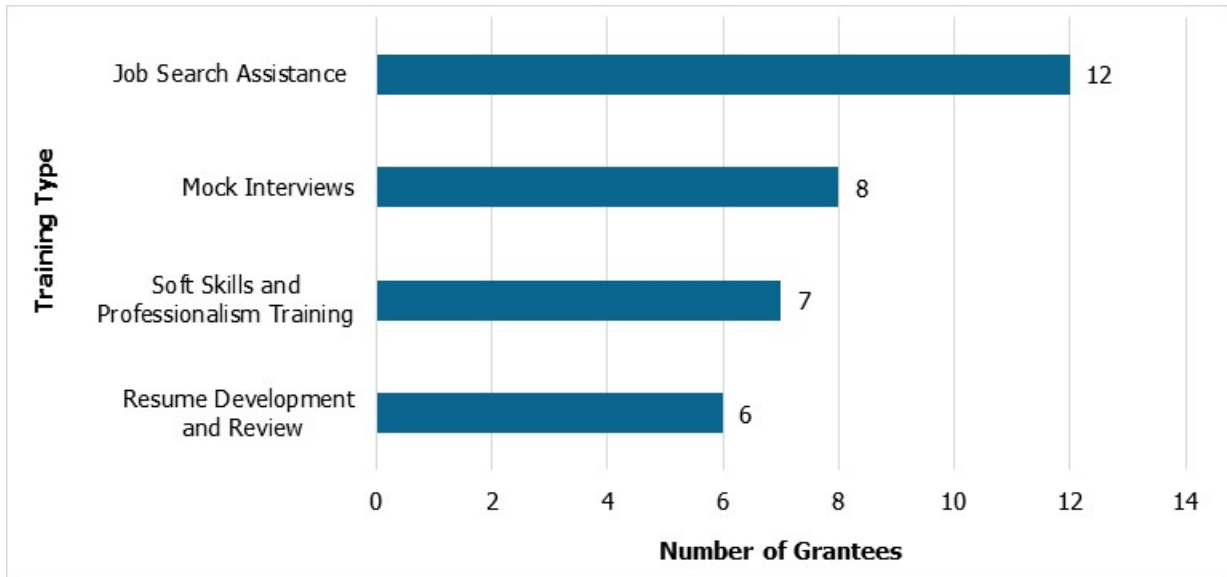
- Alpena Community College's Advanced Manufacturing boot camps provided a five-day, 40-hour training experience in which participants were immersed in activities that exposed them to the manufacturing industry. The boot camp included job shadowing, capstone courses, and externships (Smith 2018a).

Career readiness training focused on job search skills and development of "soft" skills.

Many grantees (33) provided career readiness training opportunities. As **Exhibit 6-6** shows, the most common activities were job search assistance (12) and mock interviews (8). Some (7) grantees also provided soft skills training, designed to develop the nontechnical personal and workplace skills that participants need to succeed on the job, such as critical thinking, problem solving, and effective communication. Grantees (6) provided resume development and review to participants.

³² In **job shadowing**, participants observe ("shadow") employees for a designated period of time to see what the day-to-day activities of a particular position entail. In a **capstone course**, participants synthesize the knowledge and skills gained across several courses and apply what they have learned in a course typically taken in the last semester at the end of an education program. Capstones are designed to simulate the experience of an employer site, with participants using problem-solving skills from the classroom on a project that has been provided by an employer partner or has been designed to mimic what putting skills into practice at an employer site might look like. An **externship** is a brief job shadowing opportunity offered by an employer sponsor, designed to be oriented towards career exploration and much shorter than formal on-the-job training. A participant is placed anywhere from a single day to a few weeks to get an idea of what it is like to work at the company.

Exhibit 6-6. Job Search Assistance was the Most Common Career Readiness Training Offered by Grantees



Source: TAACCCT Round 4 third-party evaluator final reports.
Note: $N=33$. The categories displayed are not mutually exclusive.

For example:

- Lord Fairfax Community College participants used a web portal that included a job search tool (Vorhees 2018).
- Chippewa Valley Technical College sometimes involved employers in mock interviews (Price et al. 2018).

7. Sustainability

DOL intended the TAACCCT grants to spark innovation and development of education and training programs that would continue beyond the life of the grant. In addition, key requirements of the grant, including strategic alignment with the workforce system, sector strategies, and employer engagement, sought to widen the network of support for grant projects and integrate them into local labor markets and approaches to workforce development as a mechanism for sustaining them over time.³³

Third-party evaluations indicate that many grantees took steps towards sustainability, but the degree to which they put in place mechanisms to sustain their innovations by the end of the grant varied. Key findings from the reports are:

- **Grant activities were likely to continue after the end of the grant.** Most grantees (57) mentioned that grant projects would continue in some form after the grant period. However, there was limited detail on which aspects of their models would persist.
- **Grantees identified specific grant activities that grantees expected to sustain.** These included work-based learning or employment supports (21), elements of persistence and completion supports (17), elements of instructional models implemented for accelerated or enhanced learning (15), and specific recruitment strategies (7).
- **Grantees planned to focus on sustaining employers and industry after the end of the grant.** More than half (38) of the grantees signaled the importance of partnerships in sustaining grant activities, with 29 grantees intending to continue partnerships with employers and industry.
- **Grantees took steps to make programs sustainable,** including making financial commitments (22) and investing in data systems (20).

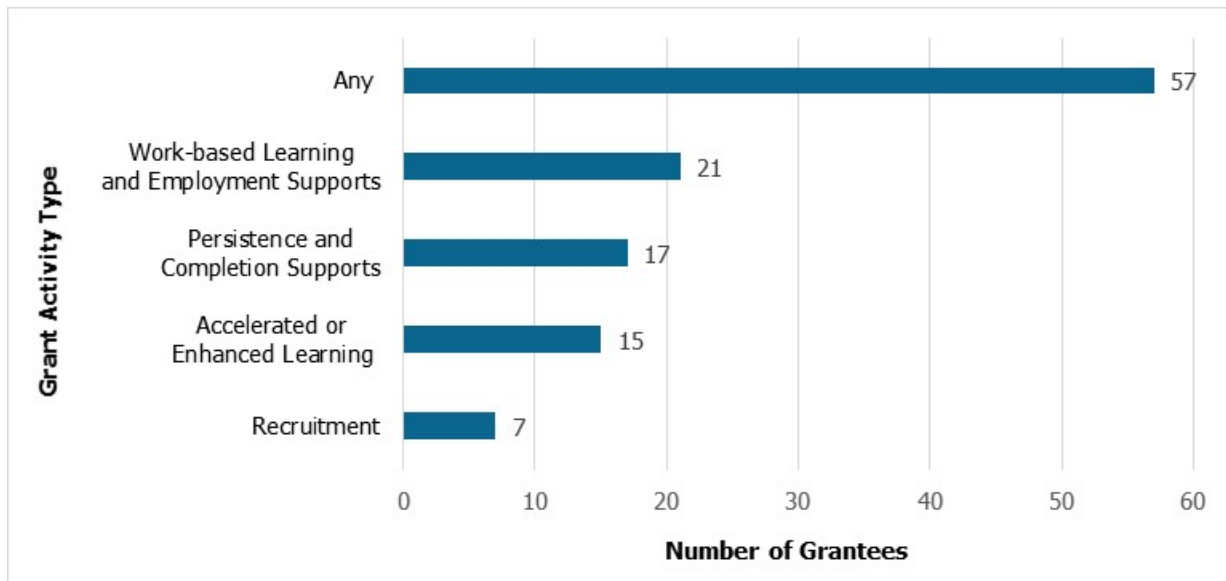
This chapter describes which program aspects grantees expected to continue, how they expected to sustain the grant activities, and the challenges they faced.

Reports signaled that most grantees intended to continue their programs, but provided few details.

Of 71 grantees, 57 expected at least one grant-funded program of study to continue after the grant period ended (**Exhibit 7-1** below), and 5 cited expansions of programs and the types of career pathways conceptual frameworks tested under the grant.

³³ For more information, see the grant solicitation, *Notice of Availability of Funds and Solicitation for Grant Applications for Trade Adjustment Assistance Community College and Career Training Grants Program*, at <https://www.doleta.gov/grants/pdf/SGA-DFA-PY-13-10.pdf>.

Exhibit 7-1. Grantees Expected to Sustain Some Portion of Their Grant Activities after Grant End



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: *N*=71. The categories displayed are not mutually exclusive.

Most grantees were not specific about the durability of specific elements of the grant projects. Some mentioned specific elements of work-based learning and employment services (21), persistence and completion (17), accelerated or enhanced learning (15), or recruitment (7). In some cases, the reports referenced investments in facilities and equipment that would remain available to support simulations and hands-on training. Grantees noted that they leveraged their grant funds to further expand facilities and infrastructure beyond the grant period. For example:

- Valencia College planned to build two new buildings on its Kissimmee campus to scale career training and work-force-oriented degree programs in Osceola County (Swan et al. 2018).

Only a small number of grantees planned to sustain other kinds of work-based learning and employment supports: internships (4), apprenticeships (4), job placement and employment services (3), and job readiness assessments or trainings (2). For example:

- Northwest State established a new staff position in its existing student advising center to take over the responsibilities of the grant-funded Workplace Learning/PLA apprenticeship coordinator. Institutionalizing this role signaled the college’s commitment to continuing and scaling the internship, job readiness, and job placement strategies tested under the grant (Wright State University 2018).

Among grantees that intended to sustain their persistence and completion supports, provided specifics about which types of student advising or supports would continue. Reports discussed sustaining funding for specific staff positions such as career navigators, student success coaches, career coaches, diversity coaches, or career counselors or for types of services such as appreciative coaching, student supports, or enhanced student services. But none specified types of persistence and completion supports (financial, personal, or academic).

Some (15) references to sustaining accelerated or enhanced learning were more specific. For example:

- Texas State Technical College–Waco will continue to support acceleration through use of an accelerated testing facility (Kelly-Smith et al. 2018b).
- Community College of Vermont rolled out a short-term instruction model in non-grant programs (Vallet and Lathem 2018).

Seven grantees signaled sustainable changes in classroom modalities. For example:

- This included switching to hybrid models at Northwest State Community College or online models at Cape Cod Community College, the single-state consortium led by Central Arizona College, and Metropolitan Community College (Wright State University 2018; Bellville, Romero, and Hicks 2018; Mittapalli, delas Alas, and Banerjee 2018; Shain and Grandgenett 2018).
- Mitchell Technical Institute leadership signaled their commitment to accelerated and enhanced learning through sustained investments in an instructional designer, an instructional strategist, and a curriculum coordinator (Swanson, Taylor, and Henry 2018).
- Other grantees, such as the single-state consortium led by Centralia College and the one led by Clark State Community College, will continue to use curriculum developed under the grant, such as I-BEST (Third Sector Intelligence 2018; Haviland et al. 2018a).

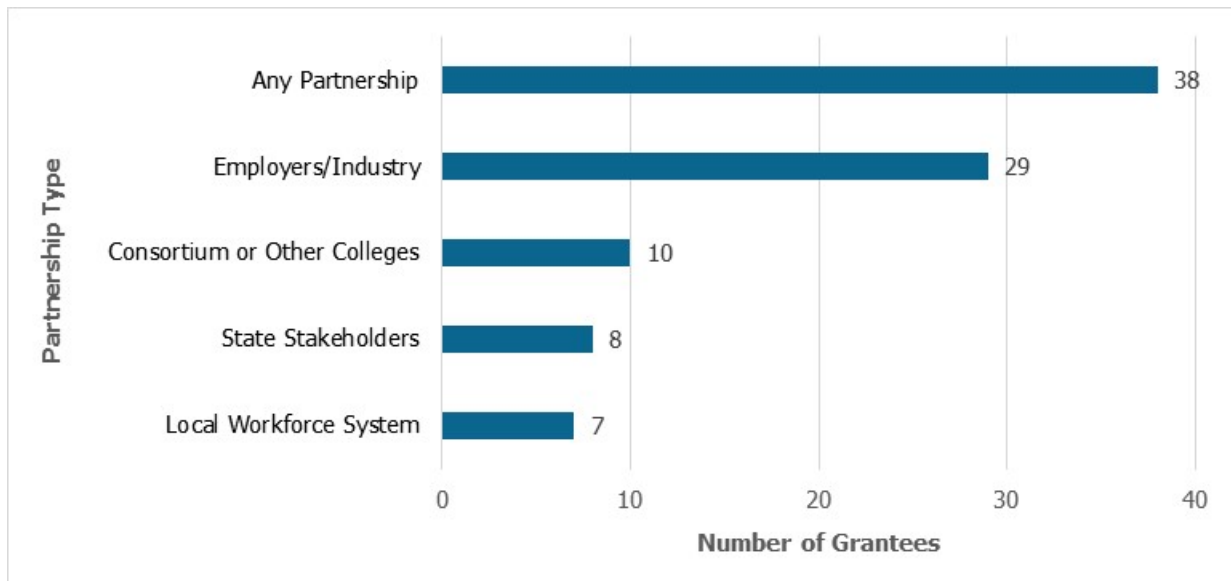
Few grantees mentioned sustaining or improving upon recruitment or targeting strategies (7). For example:

- The single-state consortium led by Missoula College University of Montana developed a new, sustainable pipeline for recruitment when its training program was designated a quality improvement project for critical access hospitals to improve their Centers for Medicare & Medicaid Services survey scores (RTI International 2018a).
- Cape Cod Community College took a deliberate approach to sustaining recruitment for its programs in conjunction with the Federal Aviation Administration by creating a formal one- to three-year program recruitment plan (Bellville, Romero, and Hicks 2018).

Grantees often bolstered the sustainability of their programs with external partnerships.

DOL expected partnerships to be enduring legacies of the grant program. More than half (38) of grantees expected that a grant-developed partnership would sustain (**Exhibit 7-2**). Most commonly, grantees expected to continue relationships with employers and industry partners (29). Less common were plans to sustain other partnerships such as those within consortia and other colleges and universities, state stakeholders, and local workforce system actors.

Exhibit 7-2. Many Grantees Expected to Sustain External Partnerships after Grant End



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: *N*=71. The categories displayed are not mutually exclusive.

Of the 29 grantees that indicated they would sustain partnerships with employers and industry, seven expected employers and industry partners to help sustain work-based learning opportunities and/or financially sustain the programs. For example:

- Valencia College’s employer partners committed to help sustain its Welding program. During the grant period, one fourth of its partner companies either donated needed buildings and/or equipment such as a coordinate-measuring machine or a welding machine or donated employees’ time as instructors or subject matter experts. The third-party evaluations indicated that 32 percent of these companies had made some form of commitment towards program sustainability (Swan et al. 2018).
- Texas State Technical College–Waco intended to ask partner employers to contribute to an endowment (Kelly-Smith et al. 2018b).
- Other evaluations highlighted specific commitments made by industry partners. At Bossier Parish Community College, Red Ball Oxygen committed to donating \$125,000 over five years and Valveworks committed \$120,000 over four years to support the college’s Division of Technology, Engineering, and Mathematics and provide scholarships to participants (Kelly-Smith et al. 2018a).

Some (10) grantees described how the grant enabled them to strengthen relationships with partner colleges, which in turn would help them sustain their grant-supported programs. For example:

- Hawkeye Community College and Santa Fe Community College created communities of practice with their consortium partners (de la Mora et al. 2018; Wright State University 2018).
- Massasoit Community College and the presidents of its partner colleges jointly sustained the website created during the grant period to keep up to date information on their continuing programs of study, fees, contact information, and the course crosswalks (White 2018).
- North Idaho College strengthened its relationship with the workforce divisions of the partner colleges to provide ongoing supports to participants (Negoita et al. 2018).

- For another grantee, this continued coordination aimed to make programs more accessible and seamless for their participants. Bossier Parish Community College signed two memoranda of agreement with the five campuses of Northwest Louisiana Technical College to empower cross-enrollment and reciprocal use of facilities for participants beyond the grant period (Kelly-Smith et al. 2018a).

In other cases, maintaining their relationships with other college partners formed part of grantees' overall funding strategy. For example:

- The University of Hawaii's quarterly cross-campus health care, cybersecurity, and student services meetings that began under the grant helped bolster the college's ability to secure additional post-grant funding through collaborative grant writing (Snodgrass et al. 2018).
- Northwest State Community College joined Ohio TechNet in pursuing philanthropic funding as well as state funding (Wright State University 2018).

Some (8) evaluation reports illustrated how state partners supported sustainability. For example:

- Washburn University purposefully embedded its program model in activities overseen by state agencies (Rasmussen et al. 2018).
- North Idaho College expected to sustain nearly all grant-funded staff positions because of funding from the state (Negoita, Paprocki, and Gutierrez 2018).
- Bismarck State College worked with Job Service North Dakota to aggregate employment and earnings data on participants who completed a Round 4 grant-supported program through the State Longitudinal Data System and collaborated with Job Service North Dakota on an Employment Results Scorecard that aligns with state workforce policies (Dervarics 2018).
- Mitchell Technical Institute received data for tracking employment and earnings increases from the public workforce system (Swanson et al. 2018).

Some (7) grantees planned to leverage newly strengthened relationships with local government and workforce development systems to sustain grant activities. For example:

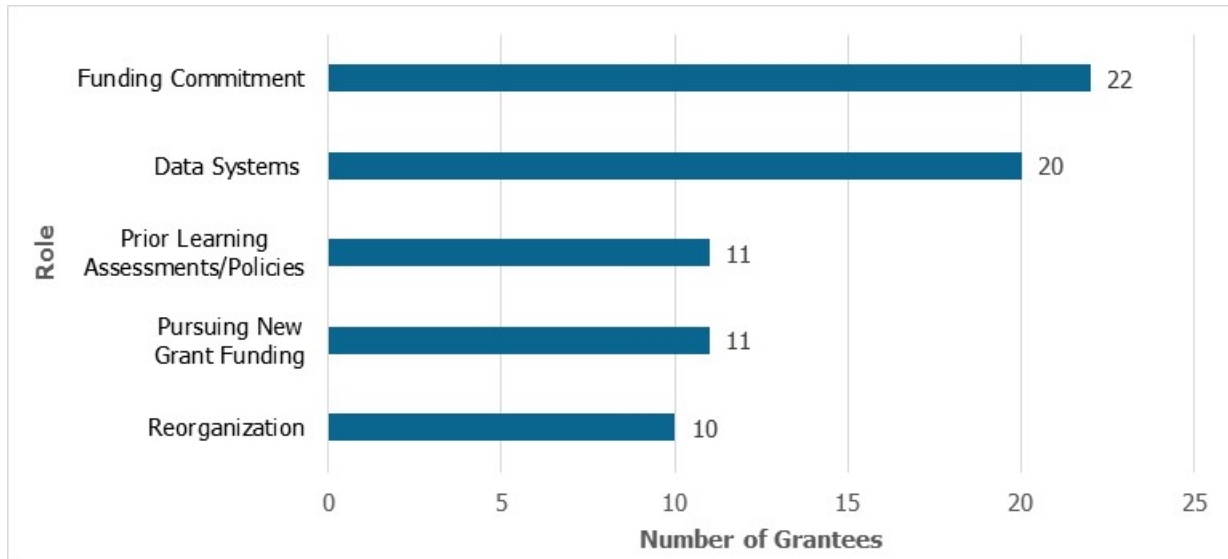
- One of Lorain Community College's partners sought funding through a local \$40 million bond initiative to fund renovation of its engineering building as well as continued students supports (New Growth Group and OERC 2018).³⁴
- Washburn University and its partner colleges established a new agreement with their local workforce centers to co-enroll participants, offer mutual referrals, and streamline career support services (Rasmussen et al. 2018).

³⁴ Unfortunately, the voters rejected the initiative in November 2018. See the article in the News Herald here: https://www.news-herald.com/news/elections/lakeland-community-college-bond-issue-defeated/article_7aa48750-de22-11e8-881e-73f671ac3051.html

Grantees and partner colleges also leveraged their own resources to sustain and expand grant activities.

Grantees also planned to use internal resources to sustain grant-supported activities (**Exhibit 7-3** below). The most common strategies involved funding commitments from college leadership (22) or continuing to invest in data systems to support learning and access to information (20). Less common strategies included maintaining programs with prior learning policies (11) and pursuing new grant funding (11).

Exhibit 7-3. Grantees and Their Partner Colleges Played Key Roles in Sustainability after the Grant Ended



Source: TAACCCT Round 4 third-party evaluator final reports.
 Note: *N*=71. The categories displayed are not mutually exclusive.

Examples of funding commitments:

- Montgomery College’s evaluation did provide specifics, but stressed that leadership’s decision to invest were based on strong program enrollment and the promise of future revenue (Hayman 2018).
- Washburn University of Topeka and Arapahoe Community College planned to sustain their programs by raising funds through their college foundations (Rasmussen et al. 2018; Staklis and Boyette 2018).

Other grantees planned to garner funding from student fees (4) and from fees charged to employers and others using their lab space (3).

Grantees believed data systems developed with grant funds would support sustainability by providing infrastructure for recruitment, ongoing program design, and performance management for newly developed programs. Some data systems helped make information about programs more accessible to participants. In other cases they provided important labor market information to inform ongoing program design or ways to better track participants and understand their outcomes, sometimes linking with state administrative earnings records. For example:

- Lorain Community College’s data systems helped it design and manage its new programs better, and was a major selling point for potential funders (New Growth Group and OERC 2018).

Despite the aforementioned plans, only a few (3) grantees had obtained actual funds to support grant activities. They were:

- Missoula College University of Montana consortium's partnership with critical access hospitals through the Medicare Rural Hospital Flexibility (Flex) program in Montana (RTI International 2018a).
- The state grant that Mountwest Community and Technical College's consortium received to further develop a drone technology program as an outgrowth of the grant project (Horwood et al. 2018).
- The Mid-South Community College consortium's new foundation grants to launch an online career navigation and pathways mapping tool, and a DOL America's Promise grant to provide the college's new grant-funded training programs with industry-recognized credentials free of charge to low-income unemployed and underemployed workers (Patnaik 2018).

There is some evidence that grant investments motivated grantees to take a more proactive approach to grant seeking. For example:

- Staff at college partners in the single-state consortium led by Montgomery College attended grant-writing workshops, and partner colleges made commitments to personnel during grant writing (Hayman 2018).

Most reorganization efforts focused on determining how to maintain persistence and completion supports, career navigation, and/or employment assistance through other college offices. Generally, colleges incorporated these types of services into offices of student and career services. Evaluation reports noted, however, that college stakeholders were unsure how much the services provided in future would resemble those offered with grant funds in the past. Some grantees described how the grant helped them make lasting organizational changes. For example:

- Community College of Vermont reclassified two academic deans so that workforce education would be more fully represented in the college's administrative structure (Vallet and Lathem 2018).
- Ivy Tech's information technology faculty championed the advising model developed under the grant, which will be adopted college-wide, as will its "faculty-mentorship" advising model (Edwards et al. 2018).

8. What Participant Outcomes Did Evaluators Measure?

This chapter examines the participant outcomes that third-party evaluators measured. Outcomes fell into two categories: **education** and **employment**. For both of these categories, the evaluation reports typically identified outcomes that were what the career pathways framework labels as “intermediate” in nature (see **Exhibit 1-2**). **Exhibit 8-1** highlights the outcomes measured as they align with the framework.

The third-party evaluator final reports discussed these outcomes, how they were measured, and their results. Key findings from the reports are:

- **Of the 71 reports, 50 included program completion as an outcome.** For these reports, grantees’ program completion rates ranged between 40 and 80 percent.
- **Forty-two (42) reports included credential attainment as an outcome.** For these reports, participants earned credentials at rates that were broadly similar to program completion rates. Although participants could earn credentials without completing a grant-funded program, the two outcomes seem closely related.
- **Twenty-four (24) reports included credits earned as an outcome.** Generally, these reports showed higher percentages of participants earned credit-hours than achieved other education outcomes. However, reports that highlighted grant-funded programs that included more non-credit courses reported a lower share of participants who earned credit-hours.
- **Thirty-two (32) reports included employment as an outcome, and 25 reports included earnings changes as an outcome.**³⁵ Average post-program employment rates and earnings increases in the reports were more variable than the education outcomes, in part due to the amount of follow-up data collection allowed by the grant evaluation timeline.

Exhibit 8-1. Intermediate Outcomes

OUTCOMES MEASURED BY THIRD-PARTY EVALUATORS

EDUCATION

- **Program completion** – The number of participants who completed their grant-funded program
- **Credential attainment** – The number of participants who earned at least one credential
- **Credits** - The number of participants who earned at least one credit-hour

EMPLOYMENT

- **Post-program employment** – Number of participants who were not incumbent workers at enrollment who were employed directly after the program
- **Post-program earnings gain** – Number of participants who were incumbent workers at enrollment who saw an earnings gain after the program

This chapter reviews the education and employment outcomes measured and the outcome results for the Round 4 grants.

³⁵ Although the TAACCCT performance outcomes refer to “wage” gains and the grantees generally referred to Unemployment Insurance quarterly “wage” records, we use the term “earnings” in this report to reflect the fact that these wage records report total labor income in a quarter, not an hourly wage.

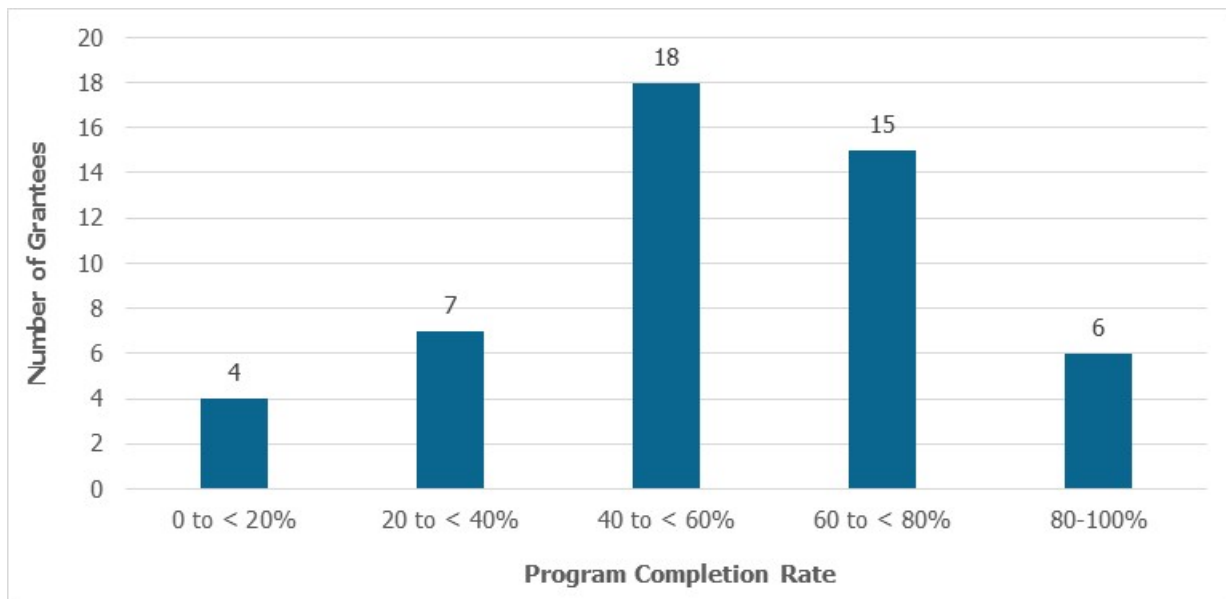
8.1. EDUCATION OUTCOMES

This section highlights the three education outcomes that the reports included—program completion, credential attainment, and credits earned.

Of the 50 reports that included program completion as an outcome, a majority of grantees had completion rates of between 40 and 80 percent.

Fifty (50) reports included completion as an outcome. **Exhibit 8-2** shows the distribution across Round 4 reports of the percentage of participants who completed their grant-funded programs. Grantees had a range of completion requirements and drew on different participant populations, which makes comparisons across grantees difficult to interpret. A short-term certificate program may have a much higher completion rate than a program that lasts for multiple semesters because participants could complete the short program quicker. Additionally, the evaluation timeframe was too short to capture completion of longer-term programs. For example, the Massachusetts Community College Consortium reported a 10 percent completion rate for its associate’s degree programs (White 2018), but higher completion for its certificate programs. With those caveats, a majority of evaluations reported completion rates between 40 percent and 80 percent.

Exhibit 8-2. Most Third-Party Evaluations that Reported Program Completion had Rates Higher than 40 Percent



Source: TAACCCT Round 4 third-party evaluator final reports.

Note: *N*=50. Findings are shown only for reports that included this outcome as part of the evaluation.

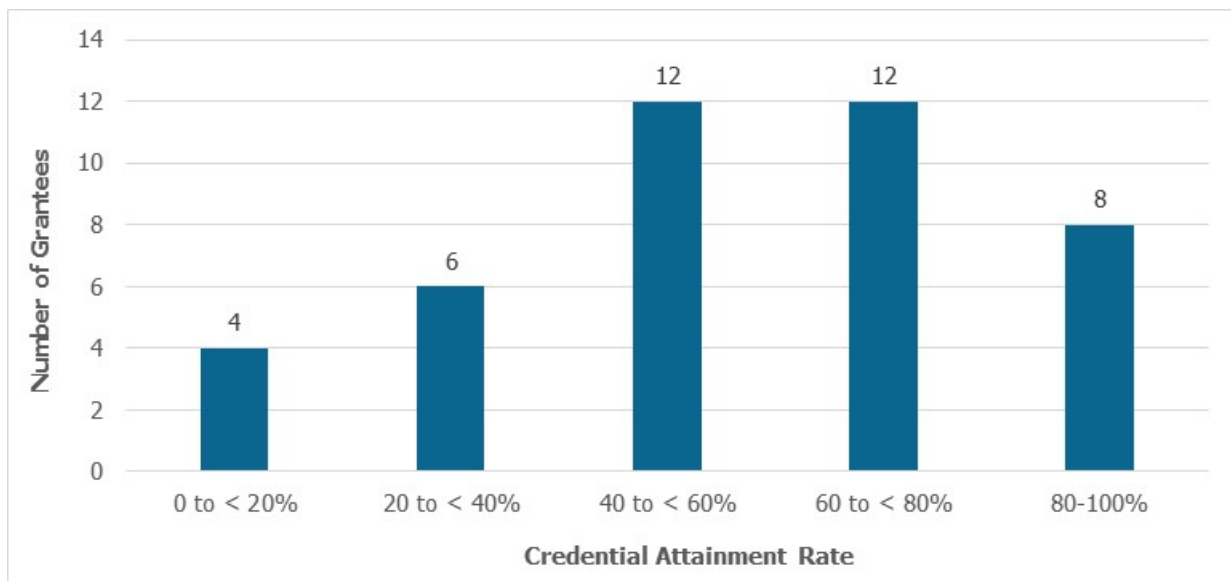
CHAPTER 8: WHAT PARTICIPANT OUTCOMES DID EVALUATORS MEASURE?

Of the 42 reports that included credential attainment as an outcome, most reported that 40 percent or more of their participants earned at least one credential.

Forty-two (42) reports included credential attainment as an outcome. **Exhibit 8-3** below shows the distribution of credential attainment rate across the reports that assessed whether participants earned at least one credential. As for completion rates, comparing credential attainment across grantees is difficult because the types of credentials awarded varied widely. In an associate's degree program, participants might earn only one credential (the degree) during their time in the grant-funded program. However, in a career pathways program that includes stackable short-term credentials, the total number of credentials earned may be much higher, and the number of credentials earned may vary widely across participants who complete the same program. These types of details and variations are documented in greater detail in the reports and in the next section.

The exhibit also reports the rate at which participants earned any credential, rather than focusing on specific types of credentials or the average number of credentials earned by participants. Reporting outcomes in this way ensures consistency across grantees, as this is how most grantees reported credential outcome. Not surprisingly, the distribution of participants who earned at least one credential is similar to the distribution of participants who completed programs (see **Exhibit 8-2**), because completers almost universally earn a credential. Most grantees (32 of 42) had 40 percent or more of their participants earn at least one credential, although 10 grantees reported lower rates.

Exhibit 8-3. Most Third-Party Evaluations that Reported Credential Attainment had Rates of between 40 and 80 Percent



Source: TAACCCT Round 4 third-party evaluator final reports.

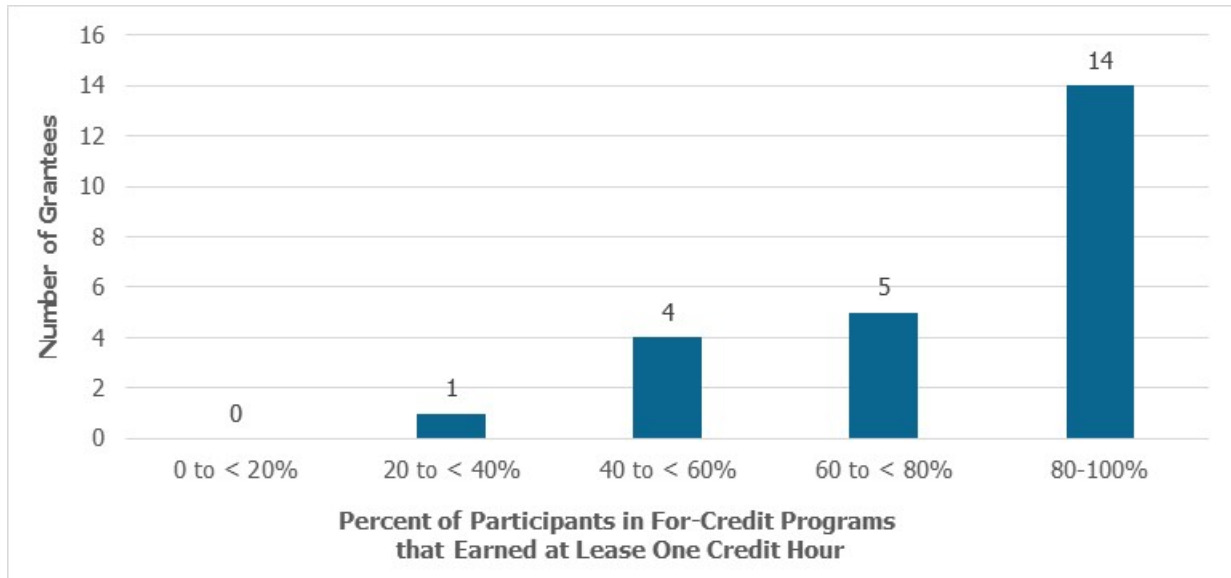
Note: $N=42$. Findings are shown only for reports that included this outcome as part of the evaluation.

CHAPTER 8: WHAT PARTICIPANT OUTCOMES DID EVALUATORS MEASURE?

Of the 24 reports that included credits earned as an outcome, a majority showed that 80 to 100 percent of participants earned at least one credit-hour.

Twenty-four (24) reports included credits earned as an outcome (for participants in for-credit programs). The evaluations that included credits measures found that more participants earned credit-hours than earned credentials or completed their programs (**Exhibit 8-4** below). More than half of grantees (13 of 24) had 80–100 percent of their participants earn at least one credit-hour.

Exhibit 8-4. More than Half of Third-Party Evaluations that Reported on Credit Hours Earned had 80 to 100 Percent of Participants in for-Credit Programs Who Earned at Least One Credit-Hour



Source: TAACCCT Round 4 third-party evaluator final reports.

Note: $N=24$. Findings are shown only for reports that included this outcome as part of the evaluation.

8.2. EMPLOYMENT OUTCOMES

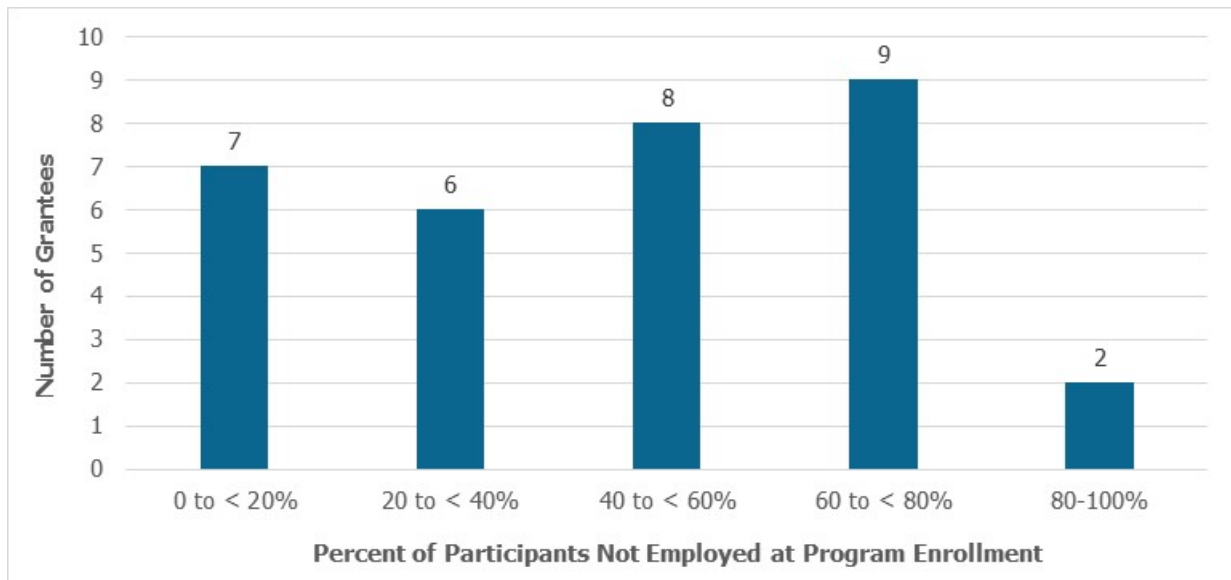
DOL asked grantees to look at different employment outcomes for participants who were and were not employed at the time of enrollment in the grant-funded program. Participants who were already employed were considered “incumbent workers” for reporting purposes. DOL requested different tracking by pre-program employment status because incumbent workers are unlikely to demonstrate improvements in employment rate (as they are already employed), though they may experience an earnings gain. Accordingly, in this report **employment post-program** is reported only for participants who were not working at enrollment, whereas **earnings gain** is reported only for incumbent worker participants.

CHAPTER 8: WHAT PARTICIPANT OUTCOMES DID EVALUATORS MEASURE?

Employment rates varied more than completion or credential attainment rates in the 32 reports that included employment as an outcome.

Thirty-two (32) reports included employment as an outcome for participants who were not employed at enrollment (**Exhibit 8-5** below). Participants had a much wider range of post-program employment rates than completion rates, with many reports showing high participant employment, and many reports showing low employment rates. Multiple factors may be driving this wide range of employment rates. One factor affecting employment outcomes is related to available data: the short time horizon for tracking participants after they completed their program. Other factors are causal, meaning that measurement truly captured variation in employment. A possible explanation is that some grantees had strong relationships with employers, which may have helped them increase the employment rates of their program participants because the grantees were meeting employer demand for skilled workers. Conversely, participants not employed at the time of enrollment may have had other barriers to employment that weakened their labor market attachment before enrollment in the grant-funded program and so were harder to employ.

Exhibit 8-5. Employment Rates Varied across Third-Party Evaluations for Participants Who Were Not Employed at Program Enrollment



Source: TAACCCT Round 4 third-party evaluator final reports.

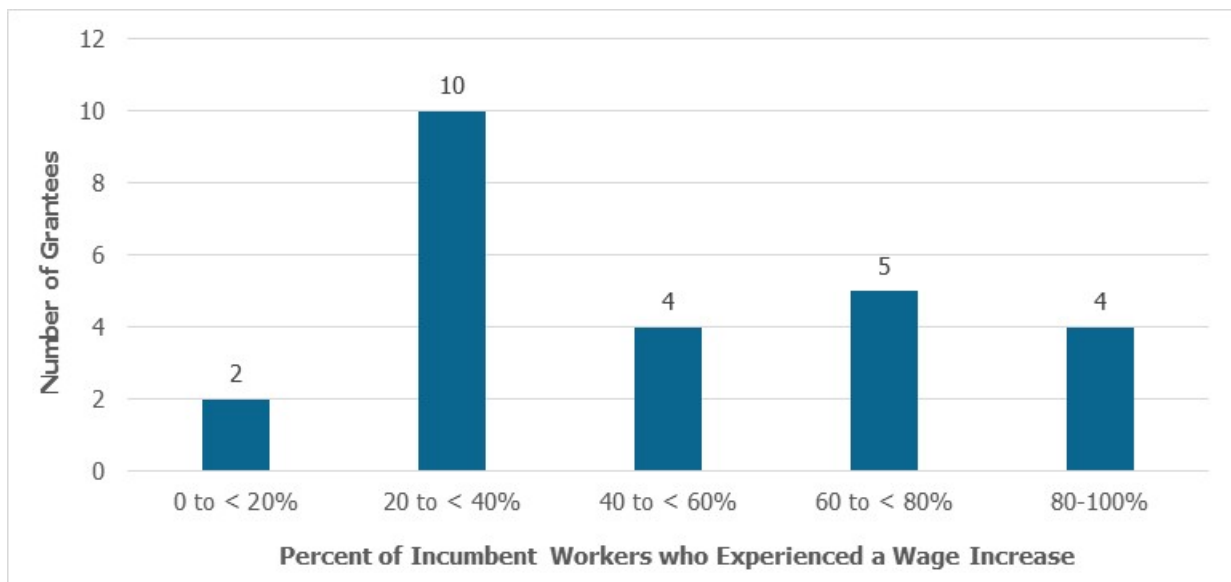
Note: $N=32$. Findings are shown only for reports that included this outcome as part of the evaluation.

CHAPTER 8: WHAT PARTICIPANT OUTCOMES DID EVALUATORS MEASURE?

Of the 25 reports that included earnings gain as an outcome, most showed modest shares of participants that experienced increases.

Twenty-five (25) reports included earnings gains among incumbent workers as an outcome. A participant is counted as having an earnings gain if their post-program earnings were higher than their earnings at enrollment. As shown in **Exhibit 8-6**, the share of incumbent worker participants experiencing earnings increases were modest across the reports. Ten (10) grantees reported that 20–40 percent of participants experienced an earnings gain. Only half as many grantees reported earnings gain rates in each of the next three quintiles of the distribution (i.e., 40–60 percent, 60–80 percent, 80–100 percent). As with the employment outcome, many third-party evaluators noted that a short follow-up period made it difficult to capture accurate and complete earnings information, particularly for later cohorts of participants.

Exhibit 8-6. A Modest Percent of Incumbent Workers Experienced Wage Increases across Third-Party Evaluations



Source: TAACCCT Round 4 third-party evaluator final reports.

Note: $N=25$. Findings are shown only for reports that included this outcome as part of the evaluation.

9. What Was the Impact of TAACCCT on Participants’ Education and Employment Outcomes?

This chapter presents the **impact findings** from the **25 of 71 Round 4 third-party evaluation final reports that provided experimental or quasi-experimental impact analyses** (see Chapter 1, Third-party Evaluation Synthesis text box). DOL encouraged third-party evaluators to use the most rigorous design feasible for their impact study.³⁶ Because of challenges associated with implementing an experimental design, only one Round 4 third-party evaluator used experimental evaluation methods, and only about a third (24 of 71) of the evaluators used quasi-experimental methods.³⁷

To understand the impact of Round 4 of the TAACCCT program on participants’ education and employment outcomes, the national evaluation team reviewed and synthesized the results and methods of 25 impact evaluations. The team extracted and analyzed key information from the reports, including how the third-party evaluators designed and conducted their impact study and the impact estimates they produced. The team used a review process for the Round 4 synthesis similar to the process used for the Rounds 1-2 and Round 3 syntheses (Eyster, 2020; Kuehn and Eyster, 2020).

This chapter provides a synthesis of the methods used and impact findings for the 25 impact evaluations. It is organized into the following sections:

1. Describes the impact analyses for those third-party evaluations.
2. Presents an overarching synthesis of education and employment impact findings.

³⁶ An **experimental design** assigns individuals to participate or not participate in the intervention at random, so differences in outcomes can be attributed to TAACCCT with greater certainty due to the control that evaluators have over assignment to treatment. In an experiment, the experiences of participants can be compared to the experiences of non-participants to estimate the impact of the TAACCCT project. See for example the “gold standard” evaluation of WIA adult and dislocated worker programs at <https://www.dol.gov/asp/evaluation/completed-studies/WIA-30mo-main-rpt.pdf>.

A **quasi-experimental design** is used if participants cannot be randomly assigned, potentially resulting in confounding differences between participants and non-participants. In a quasi-experimental design, treatment and comparison groups are formed using non-random methods including waitlists, or administrative data on a similar group of individuals who are not program participants. A confounding difference between participants and non-participants would be some factor that is related to both treatment status and the outcome, but which is not caused by the treatment. For example, in training programs an individual’s underlying, unmeasured motivation to build their skills and better themselves is a potential confounding factor. In a quasi-experimental design, researchers try to statistically control for these differences, typically through a combination of matching participants to similar non-participants and multivariate regression modeling. The quality of a quasi-experimental design largely relies on the design’s success in controlling for confounding factors.

³⁷ The remaining third-party evaluators either did not produce an impact analysis or used methods such as multiple regression that include outcomes as dependent variables without an identifiable quasi-experimental design. Although regression analysis and outcomes analysis are informative, these methods are not able to estimate program impacts.

3. Explores the strategies used by the 12 of 25 grantees that had positive impacts on participants to better understand what strategies and program features might be associated with program success.³⁸
4. Describes the methods and results in detail across all 25 grantees that included an impact study in their third-party evaluator final report, regardless of whether the study identified positive impact findings.
5. Discusses how to interpret the impact findings.

Synthesizing the findings in this report is complicated by several factors.

- First, the grant programs varied significantly in what they hoped to accomplish. In some cases, the grants were used for narrow improvements in existing programs; in others, grantees developed entirely new programs and career pathways.
- Second, the quality of the third-party evaluations varied. Some evaluations were more rigorous than others, so differences in impacts may in some cases be due to differences in evaluation methods rather than true differences in impacts.
- Third, the counterfactuals were not consistent across third-party evaluations. In some cases, evaluations compared the grant-funded programs of study with an earlier version of the same program; in others, the comparison was with a different program.
- Fourth, while some evaluations drew the comparison group from the same college at the same time as the treatment group; in other cases, the comparison group was drawn from different geographic areas or a different time period.

These variations mean that the treatment group–comparison group differential means different things in different evaluations. Thus, it is difficult to synthesize the findings across grantees.

There are both **advantages and disadvantages to the third-party evaluation approach**. By asking each grantee to direct and support its own third-party evaluator, the evaluations were tailored to each grantee’s project to capture the outcomes of most local or regional interest. The downside is that grantees and their partner colleges might ask somewhat different evaluation questions, and the evaluators might employ different methods and assumptions. Such variation complicates comparing impact findings across grantees and, thus, synthesizing the evaluation findings.

Definition of an Evaluation Synthesis for the TAACCCT National Evaluation

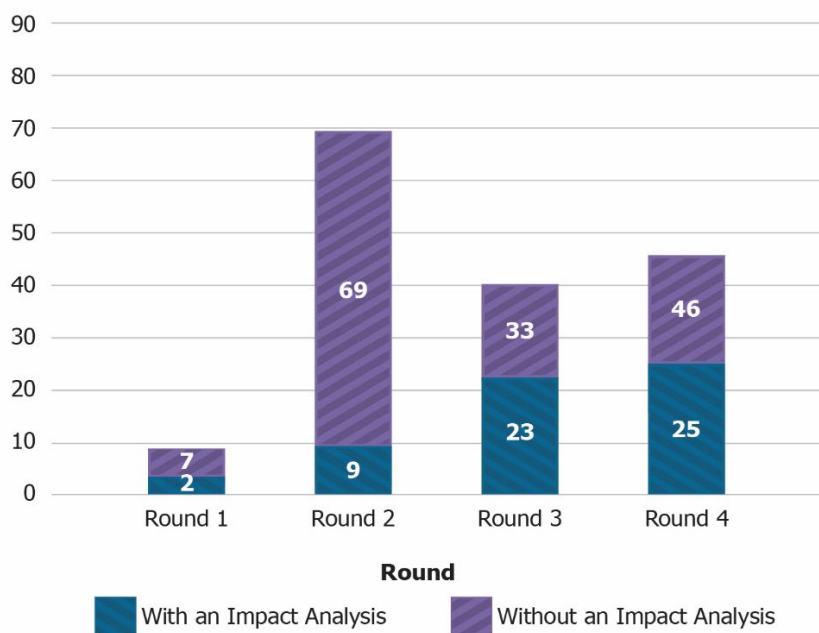
A synthesis combines the findings of evaluations of similar programs to better understand the typical impact of such programs on participants. Syntheses often combine research that uses somewhat different methods, data, or outcomes and summarizes research results across studies. A synthesis generally does not attempt to assess the strength of the evidences, which a systematic review does.

³⁸ Impacts are considered to be “positive” if at least one estimate is positive and statistically significant and none of the main results presented is negative and statistically significant. Statistical significance levels were set by the third-party evaluators but were no higher than 0.10.

9.1. THIRD-PARTY EVALUATION DESIGNS FOR ESTIMATING EDUCATION AND EMPLOYMENT IMPACTS ON PARTICIPANTS

Exhibit 9-1 shows the total number of grants awarded in each of the four TAACCCT grant rounds and the number of third-party evaluations in each round determined by the national evaluation team to have conducted an experimental or quasi-experimental impact analysis.³⁹ The number of third-party evaluations that included an impact study has grown steadily from Round 1 to Round 4, from two in Round 1 (which did not require a third-party evaluation) to 25 in Round 4.

Exhibit 9-1. The Number of Third-Party Evaluations that included an Impact Analysis Increased over Four Rounds of TAACCCT Grants



Source: National evaluation team assessment of TAACCCT Rounds 1-4 third-party evaluator final reports.
 Note: $N=214$. DOL did not require third-party evaluations for the Round 1 grants. One Round 3 grantee ended their grant early.

In Rounds 2–4, DOL required that third-party evaluations include a *project implementation analysis* and a *participant outcome and/or impact analysis*.⁴⁰ Per the grant solicitation, the participant outcome and impact analysis had to assess education and employment outcomes such as program completion, credential attainment, placement into employment, and employment retention; but third-party evaluators could also use other outcome measures (e.g., time to completion, employment in a related field) to reflect the goals of the program interventions being tested.

³⁹ Of the 71 Round 4 evaluations, 45 third-party evaluators indicated they were conducting an impact study. Only 25 evaluations met the national evaluation team’s standards for inclusion in this section of the report. Details on how the national evaluation team determined that a valid impact study was conducted are discussed below.

⁴⁰ The national evaluation team provided guidance on the final report and a recommended outline for an executive summary. See <https://www.taacccteval.org/third-party-evaluator-reports/> for more information on the TAACCCT final evaluation reports.

CHAPTER 9: IMPACT ON EDUCATION AND EMPLOYMENT OUTCOMES

The synthesis addresses a key research question from the national evaluation: *What was the impact of the grant-funded programs on participants' education and employment outcomes?* To address this question, the national evaluation team initially identified and reviewed 45 third-party evaluation final reports that had indicated they had conducted an impact study. The purpose of that review was to determine whether each impact study design employed a **recognized experimental or quasi-experimental method**. This review found that 25 of those 45 analyses met the standard to be included in the synthesis. The evaluations that were excluded attempted an impact estimate but did not include a recognized experimental or quasi-experimental design.

To be included in the synthesis, third-party evaluators had to have used a recognized experimental or quasi-experimental design for identifying program impacts. A regression analysis alone, without an experimental or quasi-experimental strategy for addressing selection bias and other types of bias in the impact estimates, was not sufficient. That is, the evaluator was required to have used some type of design-based strategy for mitigating bias. This synthesis report does not systematically assess the *rigor* of the third-party evaluation methods as a systematic review would. Many of the 25 third-party evaluations had important limitations or weaknesses. In addition to synthesizing findings, the national evaluation team also sought to better understand the challenges evaluators had faced in evaluating the grant-funded programs, in order to help inform future initiatives. Key challenges the national evaluation team identified included major threats to internal validity such as finding a viable comparison group, a lack of data on comparison group members, intervening unobservable characteristics,⁴¹ and small sample sizes.

Thus, this synthesis can only *suggest* whether the impact findings reported offer some evidence of a grantee program's effectiveness. However, these TAACCCT third-party evaluations may be included in the Clearinghouse for Labor Evaluation and Research (CLEAR), administered by DOL, which formally reviews and assesses the strength of a study's evidence.⁴²

9.2. SYNTHESIZING IMPACT FINDINGS BY EDUCATION AND EMPLOYMENT OUTCOMES

The Round 4 third-party evaluation impact studies measured numerous different types of outcomes. Of the 25 Round 4 impact analyses, 21 estimated the impact of a grantee's program on participants' education outcomes. The most common education outcomes evaluated included program completion, credentials attained, and credits earned, although some evaluations tested other outcomes, including grade point average (GPA), grades, retention, and pursuit of further education. Which outcomes was determined in part by the focus of the grantee. For example, grantees that focused on non-credit programs did not measure impacts on credits earned. For grantees that did focus on credit programs, credits earned was often an important outcome for participants.

⁴¹ Unobservable characteristics that may affect impact estimates for grant projects include participants' underlying abilities or skills, motivation to complete the program of study, or family support networks. These characteristics are not randomly distributed across participants; they may be correlated both with enrollment in grant activities and with outcomes.

⁴² Information on CLEAR and its review process can be found at <https://clear.dol.gov/>.

CHAPTER 9: IMPACT ON EDUCATION AND EMPLOYMENT OUTCOMES

Twelve (12) of the 25 Round 4 impact analyses tested whether grantee programs had an impact on labor market outcomes, such as employment and earnings. Again, which outcomes was determined in part by the focus of the grantee, although the third-party evaluators tested a narrower range of labor market outcomes than education outcomes. Still each analysis varied in how long or how frequently it was able to track those outcomes for participants.

Looking across all 25 third-party evaluations that included impact analyses, **Exhibit 9-2** summarizes whether the impacts on education or employment outcomes were positive, negative, not significant, or not tested, by grantee. In many cases, a third-party evaluator reported impact estimates for multiple educational or employment outcomes.⁴³ In these cases, impacts were considered “positive” if any of the estimates were positive and statistically significant and none were negative and statistically significant. Impacts are considered “negative” if any estimates were negative and statistically significant and none were positive and statistically significant. No third-party evaluation reported a mix of positive and negative impacts that were both statistically significant.

Sixteen (16) of the 21 Round 4 impact analyses estimated positive impacts of grantee programs on educational outcomes, and only 2 estimated negative impacts on educational outcomes. Seven (7) of the 12 Round 4 impact analyses estimated positive impacts of grantee programs on employment outcomes, and only 2 estimated negative impacts on employment outcomes.

Exhibit 9-2. Direction of Education and Employment Impact Estimates for Round 4 Evaluations with Experimental or Quasi-Experimental Findings

TAACCCT Grant Program, Grantee, Evaluation	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
Accelerated Career and Education Pathway Program (ACEPP) Texas State Technical College–Waco	Not tested	Negative
Adult Competency-Based Education Design (ACED) Salt Lake Community College	Positive	Positive
Advancing Careers and Training (ACT) Chippewa Valley Technical College	Positive	Positive
Advancing Manufacturing to Compete in a Global Economy (AMCGE) Clark State Community College	Not significant	Not tested
Building Illinois’ Bio-Economy (BIB) Southeastern Illinois College	Positive	Not tested
The Greater Memphis Alliance for a Competitive Workforce (GMACWorkforce) Mid-South Community College	Positive	Not tested
Health Care Career Works! (HCW) Southern Regional Technical College	Positive	Not tested
Heroes for Hire (H4H) Mountwest Community and Technical College	Positive	Not tested

⁴³ Exhibit 9-2 reflects the main impact estimates reported in Exhibit 9-5. In some cases, third party evaluators reported impacts by program or college that might differ from the main reported impact for the grant. Third party evaluators also estimated impacts for outcomes not considered in this synthesis. These impacts are also not reflected in Exhibit 9-2.

CHAPTER 9: IMPACT ON EDUCATION AND EMPLOYMENT OUTCOMES

TAACCCT Grant Program, Grantee, Evaluation	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
Hospitality and Tourism and Health Care Administration Training programs University of the District of Columbia Community College (UDC-CC)	Positive	Not significant
Idaho Center of Excellence Health Care Partnership North Idaho College	Positive	Not tested
Industrial Automation Manufacturing Innovative Strategic Training Achieving Results (IAM iSTAR) Northwest State Community College	Not tested	Not significant
Kansas Technical Re/training Among Industry-targeted Networks (KanTRAIN) Washburn University	Positive	Not significant
Knowledge to Work (K2W): A Portal for Competencies and Individualized Learning Lord Fairfax Community College	Not significant	Not tested
Mechatronics Re-Envisioned (MRE) Central Piedmont Community College	Positive	Not tested
Minnesota Advanced Manufacturing Project (MnAMP) South Central College	Negative	Not tested
M-PATH: Advanced Manufacturing Valencia Community College	Positive	Positive
New Jersey Health Professions Pathways to Regional Excellence Project (NJ-PREP) Bergen Community College	Not tested	Negative
The Ohio Technical Skills Innovation Network (Ohio TechNet /OTN) Lorain County Community College	Positive	Positive
Pathways to Information Technology Ivy Tech Community College	Not significant	Not tested
Pennsylvania's Advanced Training and Hiring Program Northampton Community College	Positive	Not tested
PluggedIn and WorkREADY! Southwest Virginia Community College	Positive	Positive
Preparing Alaskans for Mining Careers Through Short, Industry-Informed Training Programs University of Alaska	Not tested	Positive
Skill-UP Network Pathways Acceleration in Technology and Health Care (SUN PATH) Santa Fe Community College	Positive	Positive
Training for Regional Energy in North Dakota (TREND) Bismarck State College	Positive	Not tested
Veterans-Focused Engineering Technology Project Richland College	Negative	Not tested

Source: 71 TAACCCT Rounds 4 third-party evaluator final reports.

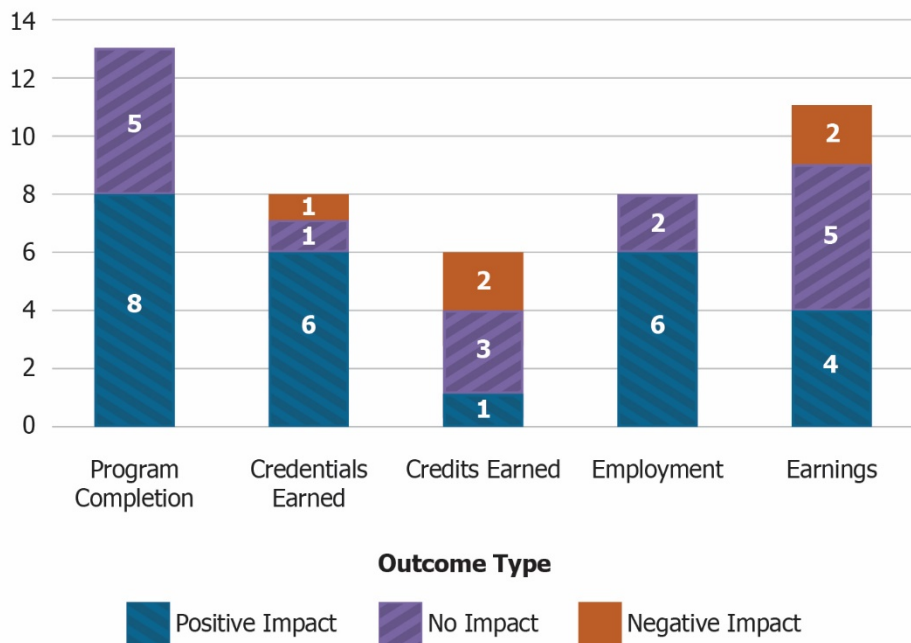
Note: $N=25$. Findings are reported for third-party evaluator impact studies that included the outcome. Statistical significance levels were set by the evaluators but were no lower than 0.10. Positive = at least one statistically significant positive impact and no statistically significant negative impact. Negative = at least one statistically significant negative impact and no statistically significant positive impacts. The table reflects main results described in Exhibit 9-5.

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This synthesis focuses on five outcomes collected across multiple grantees: (1) program completion, (2) credentials attained, (3) credits earned, (4) employment, and (5) financial changes. Often evaluators operationalized these outcomes in different ways. For example, some impact analyses tested the impact of the grant activities on the probability that a participant earned any credentials, whereas others tested the impact the activities had on the number of credentials earned.

Looking across all 25 third-party evaluations that included impact analyses, **Exhibit 9-3** reports the number of impact estimates that were statistically significant and positive, estimates of no statistically significant effect, and estimates that were statistically significant and negative.⁴⁴ The impact findings were largely positive for program completion (8 of 13 grantees), credential attainment (6 of 8), and employment (6 of 8) for the evaluations that estimated these outcomes. Fewer evaluations saw positive findings on earnings (4 of 11 grantees), and only one evaluation (of 6 grantees) saw a positive impact on credit attainment.

Exhibit 9-3. Third-Party Evaluation Impact Analyses Indicated Program Completion, Credentials Earned, and Employment Outcomes Were More Likely to Show Impact of Grantee Program Participation than Were Credits Earned and Earnings Outcomes



Source: 71 TAACCCT Rounds 4 third-party evaluator final reports.

Note: $N=25$. Findings are reported for third-party evaluator impact studies that included the outcome. Statistical significance levels were set by the evaluators but were no lower than 0.10.

⁴⁴ The national evaluation team allowed the third-party evaluators to determine their own statistical significance thresholds. No third-party evaluators used p -values greater than .10 as a threshold, although it is possible that some required lower p -values for statistical significance and did not report it. Standard errors and the number of tails for significance tests were typically not reported.

9.2.1 EDUCATION IMPACTS

Round 4 third-party evaluation impact analyses largely found positive impacts of a grantee's program on participants' education outcomes.

Of the 25 impact analyses, 21 estimated the impact of a grantee's program on participant education outcomes; the other four did not. Although not every evaluation testing an education outcome found positive impacts, they did in general. Each evaluation captured a somewhat different set of education outcomes: 13 estimated impact on program completion, eight on credential attainment, and six on credits earned. Some evaluations estimated impacts of a grantee's program on alternative education outcomes, such as GPA or continued education after completion, although not enough evaluations investigated these impacts to be synthesized.

Key takeaways from the findings on the impact of the grantees' programs on participants' education outcomes are:

- Of the 13 evaluations that estimated the impact on program completion, eight found statistically significant, positive effects. This finding suggests that for most programs, strategies adopted by the grantees, such as accelerated learning and persistence and completion supports, may have helped participants complete their programs of study. Participants may also have been motivated to complete because the TAACCCT programs were relevant to the local labor demand.
- Of the eight evaluations that estimated the impact on credential attainment, six found statistically significant, positive effects—either a higher likelihood of earning any credential or a higher number of credentials earned. This finding suggests that the career pathways conceptual framework, which aims to accelerate learning by embedding shorter-term, stackable credentials in occupational training, may help participants earn more credentials than they would have otherwise.
- Of the six evaluations that estimated the impact on credits earned, only one found statistically significant, positive effects.

9.2.2 EMPLOYMENT IMPACTS

Round 4 third-party evaluation impact analyses largely found mainly positive impacts of a grantee's program on participants' employment, but the results were more mixed for earnings.

Of the 25 impact analyses conducted in Round 4, 12 estimated the impact of a grantee's program on employment outcomes, compared to 21 impact estimates on education outcomes. Of those 12 impact analyses of employment outcomes, eight estimated impacts on post-program employment and 11 estimated impacts on earnings.

Key takeaways from the findings on the impact of the grantees' programs on participants' employment outcomes are:

- Of the eight evaluations that estimated the impact on post-program employment, six found statistically significant, positive effects. This finding suggests that grantee efforts to connect participants to employment, such as work-based learning and career navigation, may have supported their efforts to find employment during or after their program participation. It may also indicate that grant-funded certificates or credentials are aligned with employer needs.

- Of the 11 evaluations that estimated the impact on earnings, only four found a statistically significant, positive effect. These weaker impacts on participants' earnings are consistent with the findings from earlier rounds and suggests that the grant programs could improve connections to employers or their targeting of higher-wage occupations. It could also suggest that the follow-up period for the evaluation was not long enough to capture employment and earnings effects that took longer to emerge. For example, some participants could have still been in enrolled in a program of study as the grant was ending.

Blume et al. (2019) draws similar conclusions about the impact of the grant programs, using a meta-analysis of impact findings from evaluations across all rounds of the grants.⁴⁵ They find that the grant funding increased the likelihood of program completion and credential attainment by 91 percent and the likelihood of increases in employment rates or earnings gains by 27 percent (with the lower end of the confidence interval close to zero).

9.3. EXPLORING THE STRATEGIES USED BY GRANTEEES WHOSE EVALUATIONS FOUND POSITIVE IMPACTS

In its TAACCCT grant announcements, DOL encouraged grantees to test a range of capacity-building strategies to build career pathways and improve systems that serve adult learners. Accordingly, grantees developed and implemented a wide variety of strategies to build their capacity for providing education and training programs to adult learners, guided by a career pathways conceptual framework. As a result, the third-party evaluations examined grant-funded programs that comprised a combination of strategies. Although each program was different in its details and its focus, grantees typically implemented strategies in three categories identified by the national evaluation team—(1) **accelerated learning**, (2) **college persistence and completion**, and (3) **connections to employment**. Described in Chapters 4–6, these three strategies are closely associated with outcomes studied in the grantees' impact evaluations:

1. Accelerated learning strategies are aimed at reducing the duration of the course of study, resulting in **earning more credentials and more credits** quicker.
2. College persistence and completion strategies providing academic, personal, financial supports are aimed at improving **GPA**s, rates of **program completion**, and **credential attainment**.
3. Connections to employment strategies include providing work-based learning experiences, to expose participants to and prepare them for employment, and assisting them in securing jobs in their fields of study with the aim of improving their **employment rates, earnings gains, and retention in employment**.

This section describes the strategies used by each of the 12 grantees whose evaluations reported positive impact estimates. For purposes of the synthesis, impacts are considered to be positive if at least one estimate in the third-party evaluator final report is statistically significant and positive and none of the main results presented is statistically significant and negative.

⁴⁵ *Meta-analyses*, such as Blume et al.'s (2019), combine estimates across multiple studies to statistically determine a common effect.

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These summaries provide a general sense of how the grantees’ programs affected their participants. However, the third-party evaluations were generally unable to test the effect of specific strategies or a particular intervention model, as grant programs typically bundled multiple strategies for a comprehensive and customized learning experience that was targeted to the workforce needs of local and regional employers. Combining multiple strategies within a program was often critical for meeting the needs of participants and employers, but it makes it difficult to attribute the source of those impacts. Neither this synthesis nor Blume et al.’s (2019) meta-analysis approach could analytically assess the relationship of specific strategies to specific impacts.

Grantees’ strategies within each of the categories varied substantially in focus, design, and implementation (**Exhibit 9-4** below). For example, programs employing a college persistence and completion strategy might focus on contextualized learning or might provide enhanced student supports as a way to operationalize that strategy. In addition, colleges within a consortium often implemented strategies in any category in different ways to align their local programs with the needs of their participants and local employers.

Exhibit 9-4. Impacts on Participants among Grantees with No Estimated Negative Impacts on Participants

TAACCCT Grant Program	TAACCCT Grantee (Lead College)	On Program Completion?	On Credential Attainment?	On Credits Earned?	On Employment?	On Earnings?
Adult Competency-Based Education Design (ACED)	Salt Lake Community College	✓			-	✓
Advancing Careers and Training (ACT)	Chippewa Valley Technical College		✓		✓	✓
Building Illinois’ Bio-Economy (BIB)	Southeastern Illinois College	✓				
Greater Memphis Alliance for a Competitive Workforce (GMACWorkforce)	Mid-South Community College		✓			
Heroes for Hire (H4H)	Mountwest Community and Technical College	✓				
Idaho Center of Excellence Health Care Partnership	North Idaho College	✓				
Kansas Technical Re/training Among Industry-targeted Networks (KanTRAIN)	Washburn University		✓	✓		-
Mechatronics Re-Envisioned (MRE)	Central Piedmont Community College	✓				
Ohio Technical Skills Innovation Network (Ohio TechNet)	Lorain County Community College		✓		✓	-
Pennsylvania’s Advanced Training and Hiring Program	Northampton Community College	✓				
PluggedIn and WorkREADY!	Southwest Virginia Community College	✓	✓		✓	
Preparing Alaskans for Mining Careers Through Short, Industry-Informed Training Programs	University of Alaska				✓	✓

Source: Selected TAACCCT Round 4 third-party evaluator final reports. “✓”=positive and statistically significant impact, “-”= null effect. None of the studies in Exhibit 9-4 had statistically significant negative impacts.

Note: *N*=12. Statistical significance levels were set by the evaluators but were no higher than 0.10.

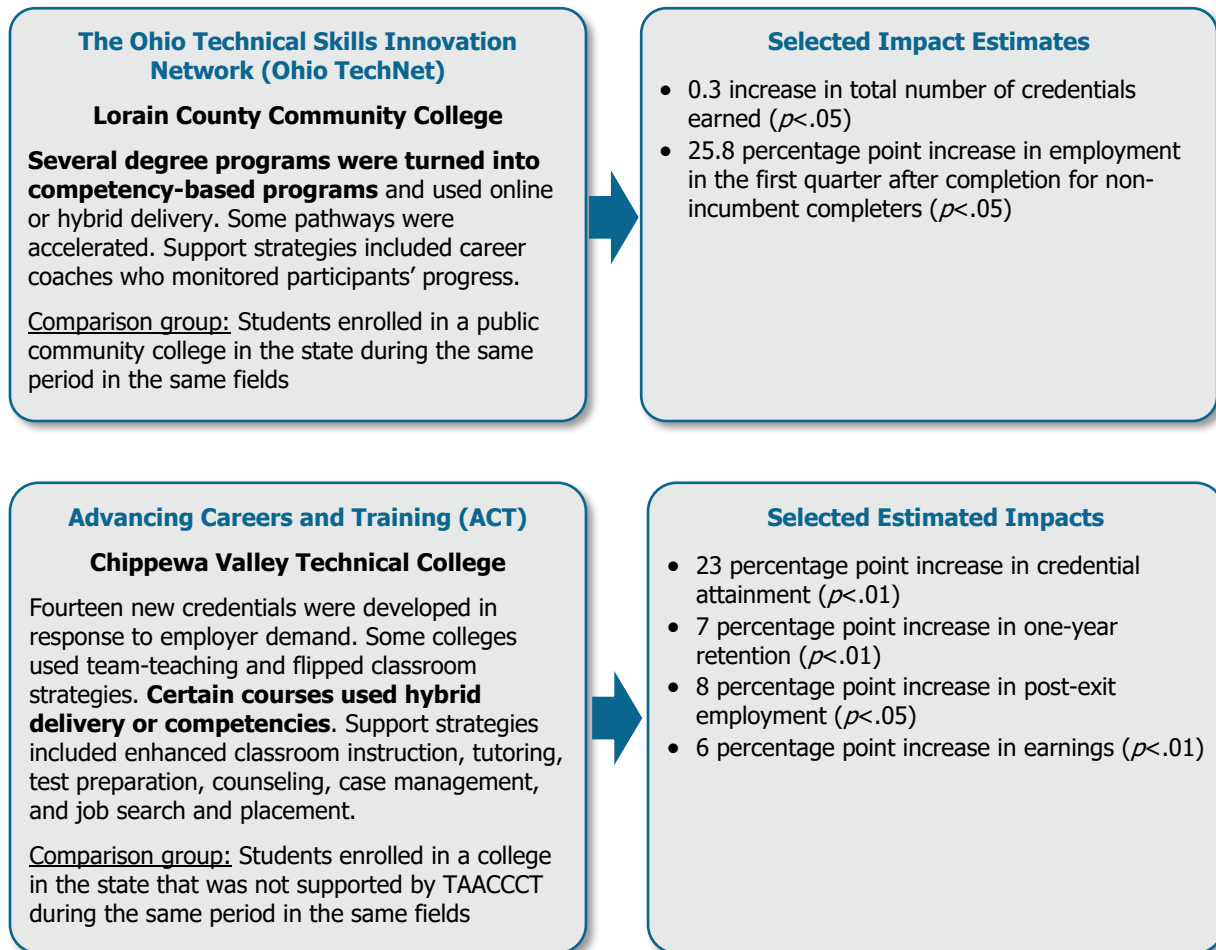
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Half of grantees with positive impacts used competency-based education models.

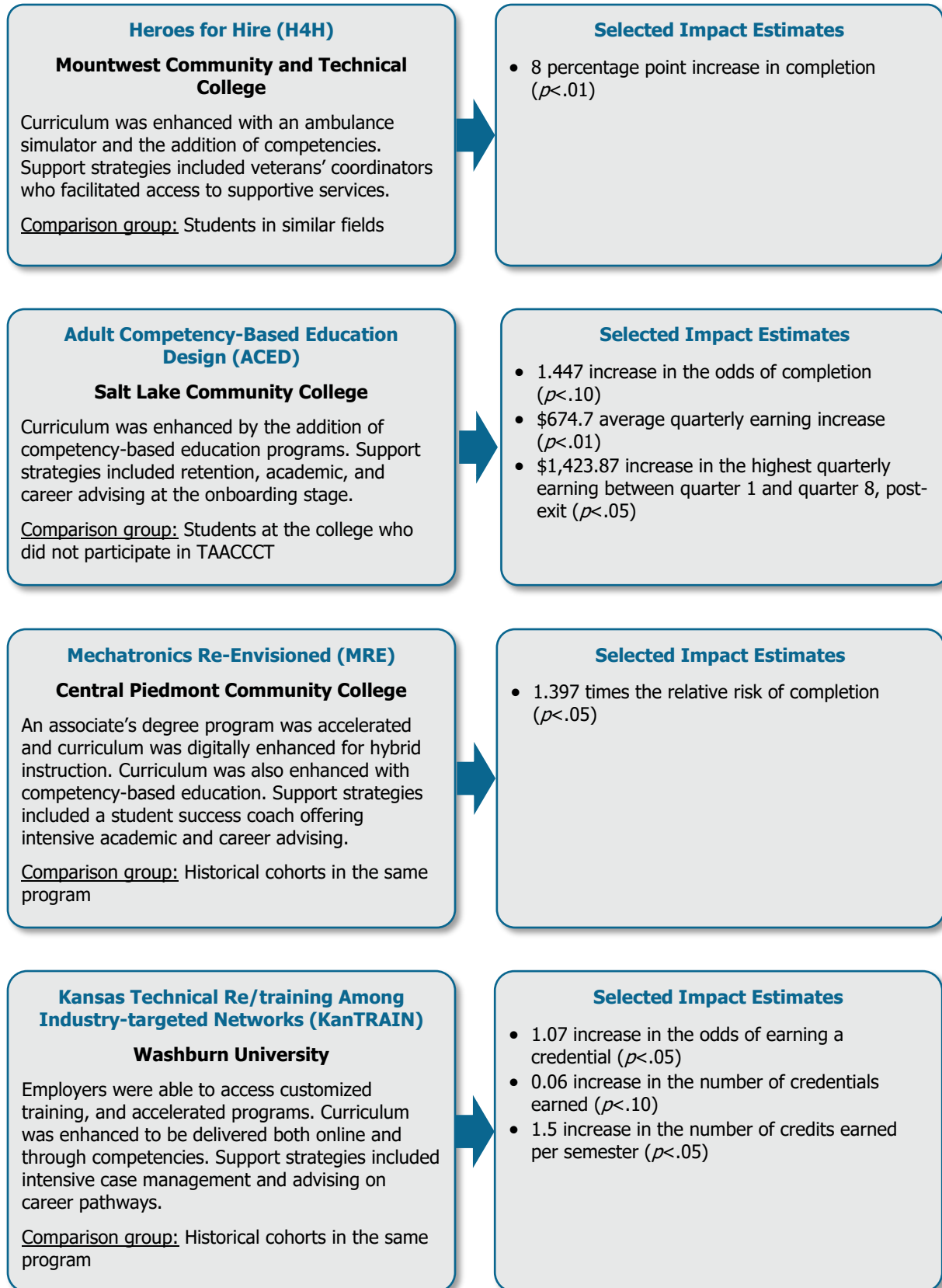
Of the 12 Round 4 grantees with consistently positive impact estimates, six enhanced their curriculum with competency-based education models. Competency-based education ties classroom instruction and advancement through a program of study to mastery of skills and competencies, rather than through seat time. Competency-based education is a persistence and completion strategy for improving learning outcomes, but it can also accelerate program completion by allowing students to advance once they have mastered a competency, rather than their graduating on a slower traditional course schedule.

In general, grantees used competencies only in some of their grant-funded programs of study. However, one grantee built its entire program around competency-based education. The Adult Competency-Based Education Design (ACED) program at Salt Lake Community College implemented competency-based education across all 20 career and technical education programs supported by the grant. The third-party evaluation of the ACED program estimated positive impacts on both participant program completion and post-program earnings.

Below are 6 grantees that provided competency-based programs and demonstrated improvements:



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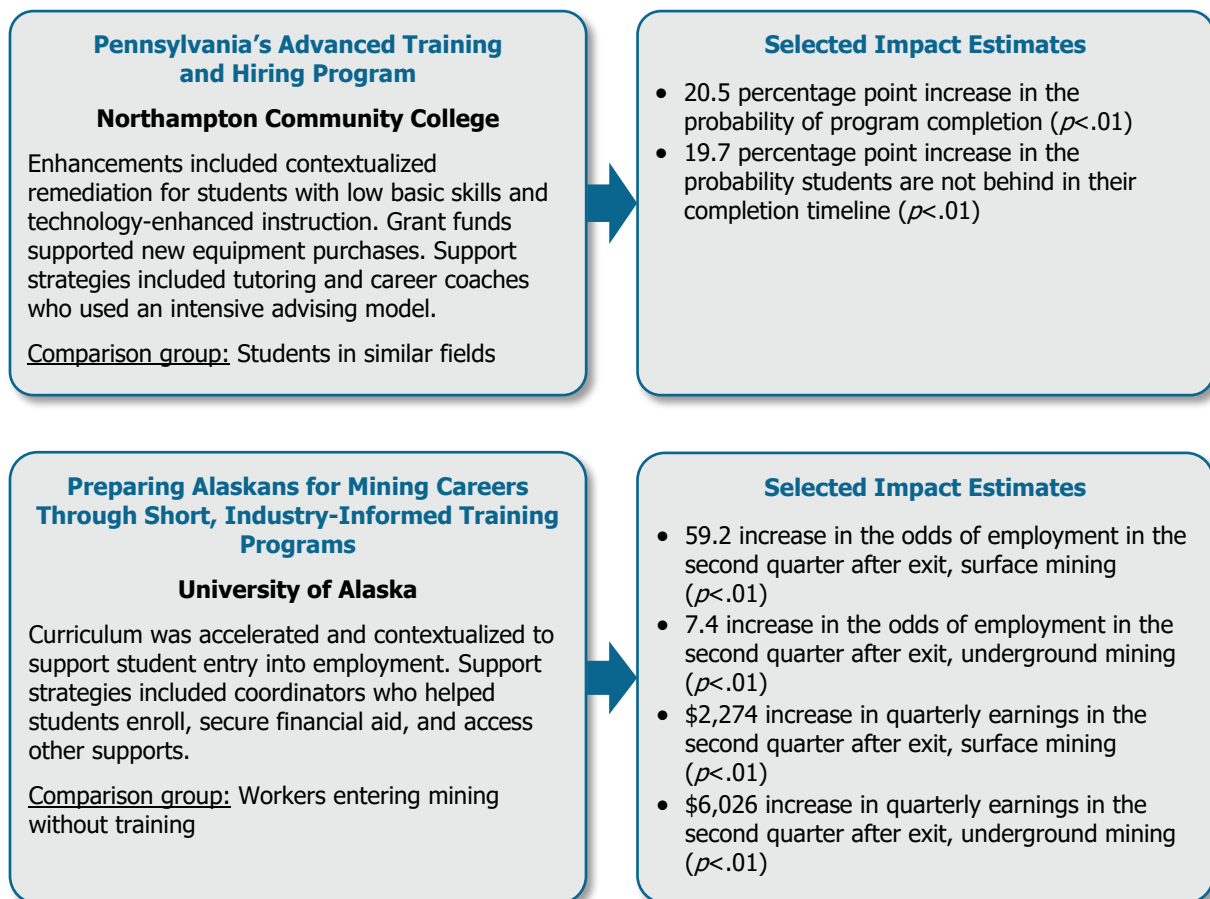
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Four grantees with positive impacts contextualized or integrated basic skills training into their technical training.

About 60 percent of community college students enter college needed to enroll in at least one developmental education course, where students can improve their academic skills to be prepared for college-level instruction (Bailey 2009). Inadequate preparation and low basic skills levels can hamper progress through programs of study, reduce completion rates, and lengthen the time to completion. Four grantees with positive impacts contextualized or integrated basic skills training into their technical training to better serve students with low basic skills levels. Contextualization was designed to help participants acquire basic skills faster, accelerate learning of technical skills and competencies, and support program persistence and completion.

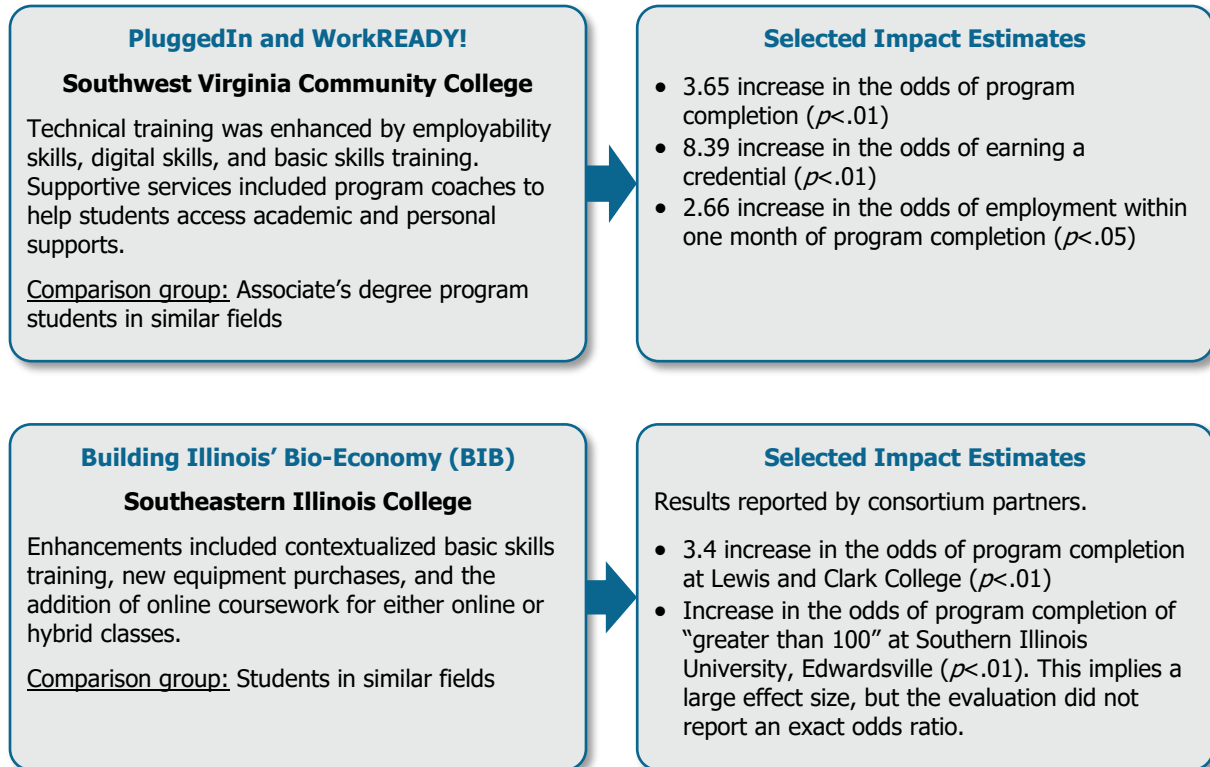
Although most contextualized basic skills training focused on math and reading skills, some grantees also addressed the barriers caused by low digital skills literacy.⁴⁶ Recognizing the importance of digital skill deficiencies, the PluggedIn and WorkREADY! program at Southwest Virginia Community College offered digital skills training to its participants as an enhancement of the grant-funded technical training.

Below are 4 grantees that provided contextualized or integrated basic skills training into programs and demonstrated improvements:



⁴⁶ Hecker, I., & Loprest, P. (2019). *Foundational Digital Skills for Career Progress*. Washington D.C.: The Urban Institute.

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All grantees with consistently positive impacts used a dedicated staff person to support participant success.

The most common strategy used across grantees with positive estimated impacts was the inclusion of a dedicated staff person to support participant success. These staff members, often with the job title of coordinator, coach, navigator, or case manager, provided one-on-one guidance to participants and helped them access a range of academic, personal, financial, and employment supports. Some participants were unfamiliar with postsecondary education, especially the structured nature of career pathway programs, making support from dedicated staff members particularly important for their educational success and eventual connection to the labor market.⁴⁷

Often these dedicated staff focused on guiding participants through a specific facet of their program experience. For example, coaches at the Greater Memphis Alliance for a Competitive Workforce (GMACWorkforce) helped design and guide participants' program experiences from the point of intake through individualized education plans (IEPs).⁴⁸ Incoming participants completed a form that helped to determine their IEP, which guided their academic pathway at the college. Coaches associated with the program met monthly with each participant to ensure that he or she was still on the pathway outlined in the original IEP, and to refer participants to any supportive services they needed to maintain progress. GMACWorkforce had a positive impact on participants' credential attainment. Other grantees, such as the

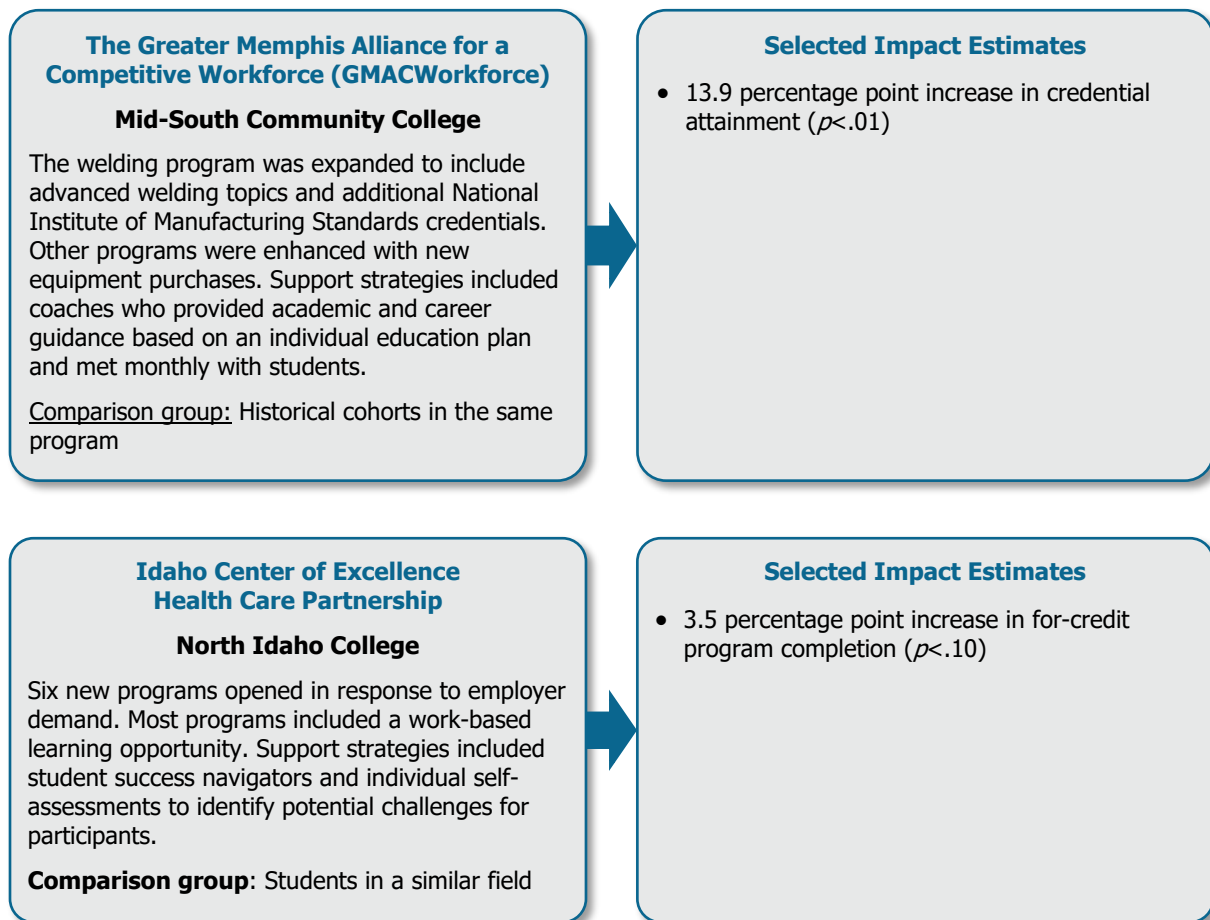
⁴⁷ For background on the importance of guidance for community college success see: Bailey, T. R., Jaggars, S. S., & Jenkins, D. (2015). *Redesigning America's community colleges*. Harvard University Press; and Holzer, H. J., & Baum, S. (2017). *Making college work: pathways to success for disadvantaged students*. Brookings Institution Press.

⁴⁸ The GMACWorkforce IEP should not be confused with an individualized education plan developed for students with disabilities in primary and secondary schools.

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Salt Lake Community College’s Adult Competency-Based Education Design program, used career coaches more narrowly focused on advising participants during job search and helping them make connections to employers. Mountwest Community and Technical College’s veterans’ coordinator was tasked with finding and coordinating supportive services for returning service members. Although the details of these coordinator or coach roles vary across grantees, all 12 grantees with positive impacts had some type of coordinator or coach on its staff.

Depending on the type of support that the dedicated staff person provided, this strategy could be designed to support either accelerated learning (if guidance through career pathways was provided), college persistence and completion (if academic and other supportive services were provided), or connections to employment (if career guidance was provided).



The 12 Round 4 evaluations with consistently positive impacts provide a guide for thinking about strategies that may be important for ensuring participant success on education and employment outcomes. Although the third-party evaluations were not designed to identify the most effective program strategy, broad patterns in the strategies used by programs with consistently positive impacts provide some indications of which strategies could be important to participant success.

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All 12 grantees with consistently positive estimated impacts used a dedicated staff person to work closely with participants to help ensure their education and labor market success. Half of the grantees enhanced their programs with competency-based education, and four provided contextualized basic skills training. One of the grantees with consistently positive impacts used IEPs to guide participants along a career pathway; another provided work-based learning opportunities to participants.

Other programs with less positive estimated impacts used many of the same strategies as the programs with consistently positive impacts. For that reason, this synthesis of the most successful Round 4 programs is only suggestive of what strategies might be most important for community colleges to adopt.

9.4. SYNTHESIZING IMPACTS ACROSS 25 ROUND 4 GRANTS

This section summarizes the impact of the grant-funded programs on participants' education and employment outcomes. **Exhibit 9-5** (beginning on the next page) reports key information on the 25 third-party evaluations, including the intervention being evaluated, estimation methods, sample sizes of treatment and comparison groups, data, limitations cited by authors of the report, and the impact estimates (education, employment).

When an evaluation presented multiple impact estimates, the exhibit reports the estimates associated with the *most rigorous quasi-experimental or experimental methods* and with *results across all participants* instead of results for a subset of participants if both were available. **Exhibit 9-5** is followed by a discussion of the methods and results of the third-party evaluations, and the limitations of their analyses.

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Exhibit 9-5. Round 4 Evaluations with Experimental or Quasi-Experimental Findings on Education and/or Employment Outcomes for Participants

TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Accelerated Career and Education Pathway Program (ACEPP)</p> <p>Texas State Technical College–Waco</p> <p>Kelly-Smith et al. 2018b</p>	<p>Advanced manufacturing programs were accelerated (reduced to 16 weeks) and incorporated content to prepare participants to test for industry-recognized credentials</p> <p>Advanced Manufacturing</p>	Propensity score matching with regression adjustment	<p><u>Treatment group:</u> TAACCCT participants in welding <i>N</i>=93</p> <p><u>Control group:</u> students in similar non-TAACCCT welding programs <i>N</i>=78</p>	College administrative records and Unemployment Insurance wage records	Data available on earnings covered only a small number of post-program quarters because of the reporting timeframe	Not tested	<u>Quarterly earnings post-program</u> = -\$2,920***
<p>Adult Competency-Based Education Design (ACED)</p> <p>Salt Lake Community College</p> <p>Bragg et al. 2018</p>	<p>The grantee applied competency-based education to a wide range of career and technical education and applied technology programs</p> <p>Information Technology, Health Care, and Advanced Manufacturing</p>	Propensity score matching with regression adjustment	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=724</p> <p><u>Comparison group:</u> “non-program participants” at the college <i>N</i>=724</p>	College data and Unemployment Insurance wage records	Missing data on potentially important control variables for matching may have limited the study. Certain outcomes (such as mastery of competencies) were only available for the treatment group.	<u>Program completion:</u> odds ratio ^c = 1.447*	<p><u>Employment in Q1 post-program,</u> odds ratio^c = 1.267</p> <p><u>Employment in any quarter post-completion,</u> odds ratio^c = 1.288</p> <p><u>Average quarterly earnings increase</u> = \$674.70***</p> <p><u>Highest earnings, Q1 to Q8 post-program</u> = \$1,423.87**</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Advancing Careers and Training (ACT)</p> <p>Chippewa Valley Technical College</p> <p>Price et al. 2018</p>	<p>Further strengthen career pathways across the state by engaging educators, employers, workforce systems, the Department of Veterans Affairs, and the Wisconsin Technical College System to expand, enhance, and deliver industry-relevant training to adult learners</p> <p>Health Care</p>	<p>Propensity score matching with regression adjustment</p> <p>Balancing tests establishing the degree of baseline equivalence</p>	<p><u>Treatment group:</u> TAACCCT participants receiving grant-funded support services <i>N</i>=2,289</p> <p><u>Comparison group:</u> health care students at the colleges not supported by TAACCCT <i>N</i>=2,289</p>	<p>Student academic records and Unemployment Insurance wage records</p>	<p>Sample size limitations prevented the assessment of employment outcomes for subgroups</p>	<p><u>Credential attainment</u> = 23*** percentage points</p> <p><u>One-year retention</u> = 7*** percentage points</p>	<p><u>Employment</u> = 8** percentage points</p> <p><u>Earnings</u> = 6*** percentage points</p>
<p>Advancing Manufacturing to Compete in a Global Economy (AMCGE)</p> <p>Clark State Community College</p> <p>Haviland et al. 2018a</p>	<p>Reformed and expanded the school's offerings in Manufacturing and Engineering Technology, added new lab spaces and equipment, extended student support services, and built bridges to local workforce development and employers</p> <p>Advanced Manufacturing</p>	<p>Propensity score matching without regression adjustment</p>	<p><u>Treatment group:</u> TAACCCT participants who are first-time college students <i>N</i>=305</p> <p><u>Comparison group:</u> first-time Clark State students in information technology programs <i>N</i>=547</p>	<p>College administrative data</p>	<p>The sample size of around 200 participants per academic year was small. Administrative data are lacking covariates that would be useful for matching</p>	<p><u>Graduation rate within 2 years</u> = 9 percentage points</p> <p><u>Retained for 2 terms</u> = -1 percentage points</p> <p><u>Total credits earned within 2 years</u> = 1.71 credits</p>	<p>Not tested</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Building Illinois' Bio-Economy (BIB)</p> <p>Southeastern Illinois College</p> <p>New Growth Group 2018b</p>	Expanded use of Prior Learning Assessment and redesigned developmental education instruction, internships and work-based learning, and strengthening online learning	Propensity score matching (only used for completion rate effects, by program)	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=1231</p> <p><u>Control group:</u> students in a similar program <i>N</i>=571</p>	College records and participant intake forms	Possibility of some missing or inaccurate data	<p><u>Completion:</u></p> <p>Carl Sandburg College, odds ratio = 0.8</p> <p>Lewis & Clark Community College, odds ratio = 3.4***</p> <p>Lincoln Land Community College, odds ratio = 1.9</p> <p>Southeastern Illinois College, odds ratio = 5.5</p> <p>Southern Illinois University Edwardsville, odds ratio = "greater than 100" with $p < .01$</p>	Not tested

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>The Greater Memphis Alliance for a Competitive Workforce (GMACWorkforce)</p> <p>Mid-South Community College</p> <p>Patnaik 2018</p>	<p>Contextualized, integrated basic skills remediation, technology-enabled instruction and/or online programming, work-based learning opportunities, entrepreneurship modules, and job coaches</p> <p>Transportation, Distribution, and Logistics (TDL)</p>	Propensity score matching without regression adjustment	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=1,490</p> <p><u>Comparison group:</u> students in programs, historical cohorts <i>N</i>=508</p>	College records	Some important characteristics such as prior labor market experience, household size, and family characteristics were not available	<u>Credential attainment:</u> = 13.9*** percentage points	Not tested
<p>Health Care Career Works! (HCW)</p> <p>Southern Regional Technical College</p> <p>WorkED Consulting 2018b</p>	<p>Redesign of nursing coursework through technology-enhanced instruction, embedded technology, and an enhanced infrastructure. Expanding stacked and latticed credentials</p> <p>Health Care</p>	Genetic matching	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=521</p> <p><u>Comparison group:</u> prior cohorts in similar programs <i>N</i>=523</p>	College student records	Actual earnings figures (\$) were not available for the program participants	<p><u>Completion rate</u> = 11 percentage points (significance not indicated)</p> <p><u>Time to program completion</u> = -2.3 months (significance not indicated)</p>	Not tested

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Heroes for Hire (H4H)</p> <p>Mountwest Community and Technical College</p> <p>Horwood et al. 2018</p>	<p>Implement consistent practices that improve educational opportunities, improve student support services, improve educational programming through online and technology-based learning and professional development</p> <p>Health Care, Chemical Technology, and Geospatial Technology</p>	Propensity score matching without regression adjustment	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=902</p> <p><u>Comparison group:</u> similar programs within college (there were a few programs used as comparisons)</p>	Student tracking data, workforce and Unemployment Insurance data, National Student Clearinghouse tracker data	Not able to find a match for each Pathway student without matching with replacement	<p>Completion rate = 8*** percentage points</p> <p>GPA = -0.05 points</p>	Not tested

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Hospitality and Tourism and Health Care Administration Training programs</p> <p>University of the District of Columbia Community College (UDC-CC)</p> <p>ICF International 2018</p>	<p>The program included enhancements such as contextualized learning, work-based learning, accelerated classes, technology-enabled classes, staff development, and a customized interest profile for student intake</p> <p>Hospitality and Health Care</p>	<p>Randomized controlled trial for Health Care Administration program (<i>reported here</i>)</p> <p>Propensity score matching for the Hospitality and Tourism program</p>	<p><u>Treatment group:</u> health care TAACCCT participants who received contextualized learning <i>N</i>=291</p> <p><u>Control group:</u> health care TAACCCT participants who did not receive contextualized learning <i>N</i>=188</p> <p>Only 64 randomized participants were included in the estimate of the average earning impact</p>	<p>College administrative data, surveys, and Unemployment Insurance earning records</p>	<p>Survey nonresponse and the possibility of control group contamination were identified as possible limitations. Treatment cases that decided to enroll in additional UDC-CC training could have created differences in treatment dosages</p>	<p><u>Earned a certificate</u> = 26 percentage points (statistical significance not identified)</p> <p><u>Completed program</u> = 11 percentage points (statistical significance not identified)</p>	<p><u>Average Quarterly Earning (1 quarter post)</u> = -\$1902 (not statistically significant)</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Idaho Center of Excellence Health Care Partnership</p> <p>North Idaho College</p> <p>Negoita, Paprocki, and Gutierrez 2018</p>	<p>Develop stackable and latticed credentials and technology-based and online learning strategies to reach students living in rural regions</p> <p>Health Care</p>	Difference-in-differences	<p><u>Treatment group:</u> TAACCCT program participants <i>N</i>=13,345 (pre-period), 426 (post-period)</p> <p><u>Control group:</u> similar program participants <i>N</i>=7,330 (pre-period), 7,161 (post-period)</p>	College records	Many credit-bearing programs that were created as a result of the grant-funded initiative were still at an early stage, and therefore estimation of individual-level impact for these programs was premature	<p><u>Course completion (for credit)</u> = 3.5* percentage points</p> <p><u>Passing grade (for credit)</u> = 2.2 percentage points</p> <p><u>Course Completion (non-credit)</u> = -4.1 percentage points</p> <p>(The text suggests these are logistic regression coefficients, but the equations and values indicate a linear probability model)</p>	Not tested
<p>Industrial Automation Manufacturing Innovative Strategic Training Achieving Results (IAM iSTAR)</p> <p>Northwest State Community College</p> <p>Dockery 2018</p>	Conversion of traditional programs into a modularized hybrid format, using competency-based curriculum, virtual trainers, open labs, and career coaching	Propensity score matching without regression adjustment	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=232</p> <p><u>Comparison group:</u> Ohio students in similar programs <i>N</i>=228</p>	Ohio Longitudinal Data Archive (OLDA), which includes college records and wage records	Small sample sizes for non-incumbent workers and missing education data (particularly GPA)	Not tested	<u>Earnings increase post-enrollment (incumbent workers)</u> = -3.7 percentage points

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Kansas Technical Re/training Among Industry-targeted Networks (KanTRAIN)</p> <p>Washburn University</p> <p>Foster et al. 2018</p>	<p>Align programs with statewide initiatives as well as expand institutional capacity and develop career pathways conceptual frameworks</p> <p>Advanced Manufacturing and Health Care</p>	Propensity score matching with regression adjustment	<p><u>Treatment group:</u> TAACCCT participants</p> <p><u>Control group:</u> participants in similar programs in an earlier cohort</p> <p>Total <i>N</i>=4,617</p>	Program data, college administrative data, and wage records	Short follow-up period	<p><u>Average course credits per semester</u> = 1.50** credits</p> <p><u>Average technical course credits per semester</u> = 1.97** credits</p> <p><u>Earned credential:</u> odds ratio^c = 1.07**</p> <p><u>Credentials</u> = 0.06* credentials</p>	<p><u>Logged quarterly earnings</u> = 0.03 (interpreted as ~3 percent increase in quarterly earnings)</p>
<p>Knowledge to Work (K2W): A Portal for Competencies and Individualized Learning</p> <p>Lord Fairfax Community College</p> <p>Voorhees 2018</p>	<p>Training was enhanced with plans for competency-based learning made available on platform</p> <p>Information Technology, Health Information Management, and Advanced Manufacturing</p>	Propensity score matching without regression adjustment	<p><u>Treatment group:</u> TAACCCT participants in competency-based Principles of Public Speaking course <i>N</i>=33</p> <p><u>Comparison group:</u> students in a Principles of Public Speaking course that was not competency based <i>N</i>=33</p>	College records	None identified in the report	<p><u>Program completion</u> = 9.1 percentage points</p> <p><u>Passed course</u> = -12.1 percentage points</p> <p><u>Subsequent term GPA</u> = -0.1 points</p>	Not tested

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Mechatronics Re-Envisioned (MRE)</p> <p>Central Piedmont Community College</p> <p>North Carolina State University and Industry Expansion Solutions 2018</p>	Enhancement with competency-based education, hybrid (face-to-face and online) instruction, comprehensive supports, and structured programs of study	Propensity score matching without regression adjustment	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=110</p> <p><u>Control group:</u> historical cohorts in the same program <i>N</i>=393</p>	College records	Lack of available data regarding employment changes, earnings, and raises prevented any analysis of employment outcomes	<p><u>Retention:</u> relative risk ratio^b = 0.897</p> <p><u>Completion:</u> relative risk ratio^b = 1.397**</p>	Not tested
<p>Minnesota Advanced Manufacturing Project (MnAMP)</p> <p>South Central College</p> <p>Bucci et al. 2018</p>	Designed and developed advanced manufacturing pathways in mechatronics, machining, and welding that feature a core curriculum and embedded, stackable, and portable industry-recognized and academic credentials	Inverse probability weighting with regression adjustment	<p><u>Treatment group:</u> MnAMP participants <i>N</i>=3,452</p> <p><u>Comparison group:</u> students in similar programs enrolled prior to the MnAMP grant <i>N</i>=3,417</p>	Program data collected using the third-party evaluator's data tracking system	Missing employment data prevented estimating an impact on labor market outcomes	<p><u>Credential earned</u> = -30*** percentage points</p> <p><u>GPA</u> = -0.10 points</p> <p><u>Total credits earned</u> = -2.0*** credits</p>	Not tested
<p>M-PATH: Advanced Manufacturing</p> <p>Valencia Community College</p> <p>Swan et al. 2018</p>	Innovative and effective methods for curriculum development and delivery that address industry needs	Propensity score matching without replacement	<p><u>Treatment group:</u> TAACCCT participants in Year 2 <i>N</i>=147</p> <p><u>Comparison group:</u> students enrolled in similar program <i>N</i>=244</p>	Students' institutional records and Unemployment Insurance wage records	Treatment group members were observed for a longer period of time than comparison group members. Another concern was that the comparison group had few or no students with certain individual characteristics	<p><u>Completed program:</u> odds ratio = 4,368***</p> <p><u>Still enrolled in education (for program completers):</u> odds ratio = 0.02***</p>	<p><u>Employment (for non-incumbents who completed the program):</u> odds ratio = 25.67***</p> <p><u>Experienced a earnings increase:</u> odds ratio = 1.49</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>New Jersey Health Professions Pathways to Regional Excellence Project (NJ-PREP)</p> <p>Bergen Community College</p> <p>Van Noy et al. 2018</p>	<p>Promote the development of career pathways in health professions by creating clearer program pathways, integrating technology into the curriculum, providing supports for participants, and engaging with local employers and the workforce system</p> <p>Health Care</p>	<p>Bayesian additive regression trees and propensity score matching for employment and earnings outcomes</p> <p>Alternative matching designs and a difference-in-differences design to produce alternative impact estimates</p>	<p><u>Treatment group:</u> NJ-PREP completers <i>N</i>=1,282</p> <p><u>Comparison group:</u> health sciences program completers enrolled in at least one for-credit course at a NJ college <i>N</i>=5,155</p> <p>An alternative comparison group was also used that did not require comparison cases to have enrolled in a for-credit course. This comparison group was not matched on characteristics included in the college data</p>	<p>TAACCCT Student Enrollment and Tracking data, New Jersey higher education data, Unemployment Insurance wage data, and New Jersey Consumer Report Card of training providers data</p>	<p>New Jersey UI wage data eliminates anyone who found employment in NY or PA. The report also notes concerns about sample size because individuals completed as late as early 2018; these participants' outcomes were not captured in the data collection</p>	<p>Not tested</p>	<p><u>Employment, Q1:</u> Odds ratio^c= 1.105</p> <p><u>Employment, Q2:</u> Odds ratio^c=-0.819</p> <p><u>Employment, Q3:</u> Odds ratio^c= 1.0</p> <p><u>Employment, Q4:</u> Odds ratio^c= 0.741</p> <p><u>Earnings, Q1:</u> = -\$162.96***</p> <p><u>Earnings, Q2:</u> = -\$20.69***</p> <p><u>Earnings, Q3:</u> = -\$244.59***</p> <p><u>Earnings, Q4:</u> = -\$112.29***</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>The Ohio Technical Skills Innovation Network (Ohio TechNet /OTN)</p> <p>Lorain County Community College</p> <p>New Growth Group LLC and OERC 2018</p>	<p>Create mechanisms for statewide collaboration among consortium and workforce development allies in Ohio. Transform instructional design, expand best practices for student intake, success, and placement</p> <p>Advanced Manufacturing</p>	<p>Propensity score matching (one-to-one nearest neighbor) without replacement</p> <p>Impact estimates calculated as the difference in means between the treatment and comparison group</p>	<p><u>Treatment group:</u> OTN TAACCCT participants <i>N</i>=1,471</p> <p><u>Comparison group:</u> students who enrolled in a public community college in Ohio during the grant period, in an OTN-relevant subject area <i>N</i>=1,470</p>	<p>Program-collected participant data, Higher Education Information (HEI), and Ohio Longitudinal Data Archive (OLDA)</p>	<p>There are no matches for the HEI records for the most recently enrolled or completed participants because of the delay in wage record reporting. The HEI system tracks only for-credit activity, and because this grant had non-credit programs, not all participants are captured. Wage records are not available for those who gain employment outside Ohio</p>	<p><u>Continued in further education</u> = 15.1** percentage points</p> <p><u>Earned any credential</u> = 8.2** percentage points</p> <p><u>Total credentials earned</u> = 0.3** percentage points</p> <p><u>Grant affected credit hours</u> = -0.1</p>	<p><u>Employed Q1 Post-Completion, Non-Incumbent Completers</u> = 25.8** percentage points</p> <p><u>Employed 3 Consecutive Quarters Post-Completion, Non-Incumbent Completers</u> = 28.1** percentage points</p> <p><u>Earnings Increase Post-Enrollment, Incumbent Worker Earnings</u> = 0 percentage points</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Pathways to Information Technology</p> <p>Ivy Tech Community College</p> <p>Edwards et al. 2018</p>	<p>Purchase of supplies to support hands-on learning; the addition of professional development opportunities for faculty; the redesign or enhancement of program pathways; the development of a student advising tool and student competitions; and the expansion of employer outreach and connections with the workforce system</p> <p>Information Technology</p>	<p>Propensity score matching without regression adjustment</p> <p>Matching with difference-in-differences (<i>reported here</i>)</p>	<p><u>Treatment group:</u> Ivy Tech IT participants <i>N</i>=4,806</p> <p><u>Comparison group:</u> Ivy Tech students pursuing coursework and credentials in advanced manufacturing <i>N</i>=1,933</p>	College administrative records	Insufficient sample size in the comparison group limited the quality of the matching, and not enough pre-treatment demographic data to create a robust matching model	<p><u>Number of terms enrolled</u> = 0.01</p> <p><u>Total credits earned after six terms</u> = -0.13</p>	Not tested

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Pennsylvania’s Advanced Training and Hiring Program</p> <p>Northampton Community College</p> <p>Davis and Bill 2018</p>	<p>Created three communities of practice across the colleges to research and implement evidence-based approaches in contextualized remediation, technology-enhanced learning, and strategic employer engagement</p> <p>Advanced Manufacturing, Health Care, and Logistics/Transportation</p>	<p>Inverse probability weighting with regression adjustment (<i>reported here</i>)</p> <p>Nearest neighbor and propensity score matching</p>	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=753</p> <p><u>Comparison group:</u> students in similar programs <i>N</i>=1,659</p>	College administrative data	Employment and earnings data were not available for the comparison group	<p><u>Program Completion</u> = 20.5*** percentage points</p> <p><u>Academic progress (students are not behind predicted completion timeline)</u> = 19.7*** percentage points</p>	Not tested
<p>PluggedIn and WorkREADY!</p> <p>Southwest Virginia Community College</p> <p>Styers et al. 2018</p>	<p>Accelerated training modeled after the I-BEST program</p> <p>Advanced Manufacturing</p>	Propensity score matching with regression adjustment	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=251</p> <p><u>Comparison group:</u> associate’s degree pathway in similar programs <i>N</i>=145</p>	College records and Unemployment Insurance wage records	None identified in the report	<p><u>Completion</u>: odds ratio = 3.65***</p> <p><u>Earned a credential</u>: odds ratio = 8.39***</p> <p><u>Pursued further education</u>: odds ratio = 1.00</p>	<p><u>Employment within one month of program completion</u>: odds ratio = 2.66**</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Preparing Alaskans for Mining Careers Through Short, Industry-Informed Training Programs</p> <p>University of Alaska</p> <p>Hanson et al. 2018</p>	<p>Short-term, occupational-focused training programs that incorporate experiential hands-on learning with holistic academic, nonacademic, and career supports</p> <p>Mining</p>	<p>Coarsened exact matching</p>	<p><u>Treatment group:</u> Participants in surface mining programs <i>N</i>=27</p> <p><u>Treatment group:</u> Participants in underground mining programs <i>N</i>=43</p> <p><u>Comparison group:</u> Workers entering mining without MAPTS training, matched to surface mining students <i>N</i>=2,610</p> <p><u>Comparison group:</u> Workers entering mining without TAACCCT training, matched to underground mining students <i>N</i>=6,832</p>	<p>Employment and residency data from the Alaska Department of Labor and Workforce Development</p>	<p>The treatment sample is small. Because the comparison group is workers entering mining, there are no education outcomes on this comparison group</p>	<p>Not tested</p>	<p><u>Employment (surface), Q2:</u> odds ratio = 59.2***</p> <p><u>Employment (underground), Q2:</u> odds ratio = 7.4***</p> <p><u>Employment (surface), Q4:</u> odds ratio = No difference</p> <p><u>Employment (underground), Q4:</u> odds ratio = 9.4***</p> <p><u>Quarterly earnings (surface), Q2:</u> = \$2,274**</p> <p><u>Quarterly earnings (underground), Q2:</u> = \$6,026***</p> <p><u>Quarterly earnings (surface), Q4:</u> = \$1,844*</p> <p><u>Quarterly earnings (underground), Q4:</u> = \$7,630***</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Skill-UP Network Pathways Acceleration in Technology and Health Care (SUN PATH)</p> <p>Santa Fe Community College</p> <p>Dauphince and Bishwakarma 2018</p>	<p>Expand and improve career pathways; align education, workforce, and employer</p> <p>Health Care</p>	<p>Propensity score matching (nearest neighbor) with regression adjustment</p>	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=1,821</p> <p><u>Comparison group:</u> similar programs <i>N</i>=4,278</p>	<p>College records and employment data from the Department of Workforce Solutions</p>	<p>None identified in the report</p>	<p>Graduation: odds ratio^c = 4.726***</p>	<p>Employed: odds ratio^c = 1.397***</p> <p>Pay raised: odds ratio^c = 1.279**</p>
<p>Training for Regional Energy in North Dakota (TREND)</p> <p>Bismarck State College</p> <p>Devarics et al. 2018</p>	<p>The program purchased new equipment, software, and related licensing to support learning. The grant also provided funding for career navigators</p> <p>Energy</p>	<p>Inverse probability weighting with regression adjustment (IPWRA)</p> <p>Matched bivariate regressions (<i>not included</i>)</p>	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=1,094</p> <p><u>Comparison group:</u> historical cohort of students in similar programs from 2009-2012, before the award of the Round 2 TAACCCT grant <i>N</i>=1,066</p>	<p>College records</p>	<p>Evaluator relied primarily on Bismarck students for the comparison group in this study, as this was the primary college that offered similar programs during the pre-grant period. In addition, individual-level employment data were not available for either the treatment or comparison groups</p>	<p>GPA = 0.094*** points</p> <p>Credential attainment = 0.390***</p> <p>Retention: odds ratio^c = 2.286***</p>	<p>Not tested</p>

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TAACCCT Grant Program, Grantee, Evaluation	Intervention for impact study, industry	Estimation Methods	Sample (matched <i>N</i>)	Data	Limitations Noted by Authors in Reports ^a	Impact Estimates for Education Outcomes	Impact Estimates for Employment Outcomes
<p>Veterans-Focused Engineering Technology Project</p> <p>Richland College</p> <p>Haviland et al. 2018b</p>	<p>Creating new labs with new equipment, reforming and expanding the program’s curricula, offering extended student support and advising services, and working to engage local employers with the program and the school</p> <p>Engineering</p>	<p>Propensity score matching with regression adjustment</p>	<p><u>Treatment group:</u> TAACCCT participants <i>N</i>=294</p> <p><u>Comparison group:</u> students in similar programs <i>N</i>=114</p>	<p>College records</p>	<p>Small sample size and short follow-up time. College records do not include potentially important matching variables</p>	<p><u>Retention rate, 1 year</u> = 8 percentage points</p> <p><u>Credits earned within 1 year</u> = -2.99* credits</p> <p><u>Retention rate, 2 years</u> = 3 percentage points</p> <p><u>Credits earned within 2 years</u> = -6.9 credits</p>	<p>Not tested</p>

Source: TAACCCT Round 4 third-party evaluator final reports.

Notes:

^a Nearly all evaluation reports acknowledge that the quasi-experimental methods used cannot rule out other explanations for the findings due to unobserved characteristics not included in the analysis.

^b The relative risk ratio is the ratio of a treatment group’s probability of an outcome divided by a comparison group’s probability of the same outcome. For small probability events, the relative risk ratio is approximately the same as the odds ratio. Unlike the logit model coefficient, it is not possible to convert a relative risk ratio to an odds ratio with the information provided.

^c Odds ratios are calculated from reported logistic regression coefficients.

*.10 significance level, **.05 significance level, ***.01 significance level.

Third-party evaluators generally relied on quasi-experimental methods comparing participants to students in similar programs to conduct impact analyses.

Third-party evaluators received technical assistance from DOL and the national evaluation team to design the most rigorous impact evaluation possible. The national evaluation team helped third-party evaluators understand their options and the strengths and weaknesses of different designs. Generally, the third-party evaluators relied on quasi-experimental methods to compare participants to students in similar programs.

In Round 4, only one evaluator used the more rigorous design of a randomized controlled trial to estimate the impact of its grant program.⁴⁹ The remaining 24 impact evaluations reported results from some type of quasi-experimental method. If performed well, quasi-experimental methods can attribute the difference between participants' education and employment outcomes and those of a similar group of individuals who did not participate in grant-funded activities. However, quasi-experimental methods are not considered as strong as an experimental design as their analyses often cannot account for all characteristics that affect an individual's participation in the grant-funded programs.

Almost all of the remaining 24 grantees used some sort of matching design to estimate impacts, where participants are statistically matched to members of a comparison group of similar community college students. Matching designs can be implemented in a variety of ways, depending on data availability and the priorities of the researcher. For example, when a large comparison group is available, evaluators typically prefer to match multiple comparison group members to a single treatment group member. This practice strengthens the quality of the match.

Three third-party evaluators reported difference-in-difference estimates as an enhancement to matching.⁵⁰ Difference-in-difference estimates report the difference in the *change* in an outcome between the treatment and comparison group rather than just the difference in the outcome itself. Another third-party evaluator enhanced propensity score matching with a Bayesian additive regression tree analysis.⁵¹ Bayesian additive regression trees allow the evaluator to model more flexibly the relationship between participation in a grant-funded program and outcomes.

9.4.1 EDUCATION IMPACTS

TAACCCT programs increased program completion for most grantees.

Of the 25 third-party evaluations, 13 estimated the impact of a grantee's programs on program completion. These estimates were produced using either a logistic regression or a linear probability model.⁵² Often third-party evaluations that did not estimate credential attainment impacts estimated closely related program completion impacts instead. Five of the 25 third-party evaluations did not provide estimates for impacts on either credential attainment or program completion.

⁴⁹ Hospitality and Tourism and Health Care Administration Training programs at the University of the District of Columbia Community College.

⁵⁰ New Jersey Health Professions Pathways to Regional Excellence Project (NJ-PREP) at Bergen Community College; Pathways to Information Technology at Ivy Tech; and Idaho Center of Excellence Health Care Partnership at North Idaho College.

⁵¹ NJ-PREP.

⁵² Modeling choices affect whether the results are expressed as odds ratios or percentage point changes. Alternative estimates are not directly comparable to each other.

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Of the 13 evaluations estimating impact on program completion, eight identified a positive impact of the grant program, whereas five found no statistically significant impact. None of the evaluations identified a negative impact. The estimated statistically significant impacts ranged from an 8 percentage point increase in the completion rate associated with the Heroes for Hire (H4H) program to a 400-fold increase in the odds of completion for M-Path: Advanced Manufacturing at Valencia Community College. Its large impact may be attributable to a very low completion rate for the comparison group.

Some programs that did not show a statistically significant impact on program completion had small sample sizes (e.g., Knowledge to Work at Fairfax Community College, with 33 treatment and 33 comparison group members). For the most part, sample sizes were comparable to grantees with positive impact, but one of the five programs that found no statistically significant on completion (Health Care Administration Training at the University of the District of Columbia Community College) was the only randomized controlled trial. This result is notable because randomized controlled trials are considered to provide stronger evidence of impact than quasi-experimental designs (U.S. Department of Labor 2015). However, the University of the District of Columbia Community College evaluation shared many of the weaknesses of the quasi-experimental evaluations. First, like many other evaluations, its sample size was relatively low: 188 TAACCCT participants and 291 control group students. In addition, randomization into treatment was conducted by class section rather than individual. Although this approach to randomization is valid, it may introduce greater degrees of non-random variation between the treatment and control groups than would random assignment at the individual level.

Grant-funded programs increased credential attainment for most grantees.

Of the 25 third-party evaluations, eight estimated the impact of a grantee's program on the attainment of a credential, using either a logistic regression or a linear probability model to estimate whether any credential was earned or an ordinary least squares regression to estimate the number of credentials earned.⁵³ Of the eight evaluations, six showed positive impacts of the programs on credential attainment, one evaluation did not identify a statistically significant impact, and one evaluation showed a negative impact.

The Minnesota Advanced Manufacturing Project at South Central College, the only grantee with a negative impact on credentials, reduced credentials earned by 30 percentage points. In contrast, the PluggedIn and WorkREADY! program at Southwest Virginia Community College had the largest positive effect on credentials, increasing the odds of earning a credential more than eight-fold (odds ratio of 8.39). Minnesota's evaluation study design was comparable to the other grantee evaluations, and it had a relatively large sample size (3,452 treatment cases and 3,417 comparison cases). Like most other of the third-party evaluations, it used a matching design and participants in similar programs as its comparison group.

Credit-bearing grant-funded programs did not have a positive impact on credits earned and were more likely to reduce credits earned than increase them.

Of the 25 third-party evaluations, six estimated the impact of a grantee's credit-earning program on the number of credits earned by participants. Only one of the six evaluations showed positive impacts. Three evaluations did not identify a statistically significant impact on credits earned, and two evaluations

⁵³ Modeling choices affect whether the results are expressed as odds ratios or percentage point changes. Alternative estimates are not directly comparable to each other.

showed negative impacts. Grantees were, therefore, more likely to have decreased the number of credits a participant earned than they were to increase credits, in stark contrast to the broadly positive effects of grantees on program completion and credential attainment.

The impact of these programs on credits earned ranged from a decrease of 3.0 credits earned within one year in the Veterans-Focused Engineering Technology Project at Richland College to an increase of 2.0 credits in the Kansas Technical Re/training Among Industry-targeted Networks project at Washburn University.

One reason grantees might have experienced less positive impacts on the number of credits is that the participants may have earned a credential or completed a program more quickly due to grant-funded strategies aimed to accelerate training. Thus, TAACCCT participants may not have needed to take as many classes, and earned fewer credit hours than students who were not in grant-funded programs. In this case, the mixed impact of grant programs on credits earned may not be as unfavorable an outcome for participants as it first appears.

9.4.2 EMPLOYMENT IMPACTS

Grant-funded programs increased post-program employment for most grantees.

Of the 25 evaluations, eight estimated the impact of a grantee's program on employment, either through logistic regression or linear probability models.⁵⁴ Of the eight evaluations estimating impacts on employment, six identified the impact as positive, two found no statistically significant impact, and none identified the impact as negative. The largest estimated impact of grant-funded enhancements on employment was for Preparing Alaskans for Mining Careers Through Short, Industry-Informed Training Programs at the University of Alaska. Surface miners participating in that program experienced an increase in the relative odds of employment of 59.2. Underground miners in that program experienced an increase in the relative odds of employment of 7.4.

Grant-funded programs increased post-program earnings for most grantees.

Of the 25 third-party evaluations, 11 estimated the impact of a grantee's program on earnings, typically using a linear regression model, although one used a logistic regression model. Of the 11 evaluations estimating impacts on earnings, four identified a positive impact, five found no statistically significant impact, and two identified a negative impact.

The New Jersey Health Professions Pathways to Regional Excellence Project at Bergen Community College had the lowest estimated impact on earnings. Its participants experienced a \$245 decrease in mean quarterly earnings relative to the comparison group in the third quarter after exit from the project. Participants at the Preparing Alaskans for Mining Careers Through Short, Industry-Informed Training Programs at the University of Alaska involved in underground mining experienced the largest earnings impacts. These participants had mean quarterly earnings that were \$7,630 higher than the comparison group.

Like the education impacts, few patterns in strategies implemented by grantees' programs explain the positive and negative employment and earnings impacts. Previous studies (e.g., Maguire et al. 2010)

⁵⁴ Modeling choices affect whether the results are expressed as odds ratios or percentage point changes. Alternative estimates are not directly comparable to each other.

might have predicted that sector strategies and employer partnerships would have a particularly strong effect on employment and earnings outcomes. In practice, however, these strategies are difficult to correlate with positive and negative impact estimates because most, if not all, grantees had some form of employer engagement. The University of Alaska had strong labor markets, and its program's third-party evaluation was distinguished by a particularly high treatment contrast. Most third-party evaluations compared participants to a group of students enrolled in similar programs, but the Alaska evaluation compared program participants to workers entering mining without training. The stronger treatment contrast in this case may have contributed to its larger earnings impacts.

Beyond program characteristics, perhaps the strength of the local labor market affected estimated impacts in important ways. Grant programs may have been more effective in stronger labor markets where more jobs were available, or more effective in weaker labor markets where employers were more selective. Whichever the case, no evaluation directly explored the possible role of local labor market conditions on impacts.

However, it is clear across multiple education and employment outcomes that grant-funded programs had a more consistently positive impact on program completion and credential attainment than they did on employment outcomes. This is a common finding in career pathways evaluations (e.g., Anderson et al. 2017; Blume et al. 2019) and may indicate that programs could improve their connection to the local labor market. Weaker employment impacts may also be attributable to evaluation design challenges such as short follow-up periods, which could have a greater effect on employment impact estimates than on education impact estimates.

9.5. CHALLENGES AND SUCCESSES OF THE ROUND 4 THIRD-PARTY EVALUATIONS

Third-party evaluators faced several common challenges in their evaluations.

Third-party evaluators noted several challenges to their impact analyses, particularly limitations that prevented them from conducting randomized controlled trials or that might have affected the interpretation of their results. The major limitations associated with the impact findings fall into two categories: data and study design.

Data Limitations

The great majority of limitations identified by the Round 4 third-party evaluators related to lack of adequate data or inadequate sample size. These and other data limitations include:

- **Unobservable characteristics for the quasi-experimental analyses.** Quasi-experimental study designs generally require data on criteria used for selection into the program and variables that affect the outcomes of interest. For example, a key assumption in propensity score matching is that all the variables that affect either program participation or outcomes are available for the analysis. Third-party evaluators noted the lack of data on student motivations, lagged earnings, and other variables as a limitation of their analysis. Of the 25 third-party evaluations that included an impact study, 20 evaluators noted that their ability to obtain the data they needed for their analyses was limited.

- **Difficulty obtaining employment data.** Third-party evaluators typically lacked the resources to conduct surveys to obtain employment and earnings data,⁵⁵ and administrative employment data collected by state Unemployment Insurance programs is often difficult to obtain in a timely manner. Thus, some third-party evaluators were unable to obtain data for employment and earnings outcomes. Several evaluators mentioned they were unable to obtain employment and earnings data for treatment and comparison group members who were employed after the program in another state. This issue was raised for Bergen Community College in New Jersey, a relatively small state with a significant proportion of residents working in nearby states. Data related to education outcomes were generally maintained by the grantees, so evaluators had fewer problems obtaining them.
- **Short follow-up periods for estimating impacts.** The time requirements of the grants limited the follow-up time that third-party evaluators were able to capture employment data, particularly for participants entering the program late in the grant period. Short follow-up periods due to the requirement that evaluators turn in their final reports when the grantee's funding period ends can provide a misleading picture of program impacts, particularly for employment and earnings. First, participants sometimes require many weeks if not months to find a job after completing a training program, which could depress impacts if estimated too soon. Conversely, because gains in some training programs can decay over time, estimating impacts early can inflate them.
- **Small sample sizes.** Sample sizes among the evaluations ranged from less than 50 to several thousand. Some grantees implemented several programs and elected to have their evaluator compute impacts separately for each, thus reducing the sample size for each analysis. Grantees responded in various ways to small samples. Some grantees did not conduct impact studies for small samples; some conducted impact studies but noted that their small samples were likely to produce results that were not statistically significant; and some did not comment on the small sample size. More than a dozen of the 25 evaluations noted small sample size as a limitation. No evaluators reported conducting a power analysis or calculating minimum detectable effects⁵⁶ to assess the adequacy of their sample size for drawing statistical inferences.

Study Design Limitations

Several of the Round 4 third-party evaluators noted limitations associated with study design. These include:

- **Inability to conduct experimental evaluations.** DOL's CLEAR has noted that randomized controlled trials are the most rigorous approach to program evaluation, but none of the third-party evaluations in Rounds 1–3 was able to make use of such a design. Among the Round 4 third-party evaluations, only one evaluator used a randomized controlled trial. Round 4 third-party evaluators cited the open-access mission of their colleges as the primary reason for conducting quasi-experimental evaluations.⁵⁷ Use of quasi-experimental methods, such as propensity score matching, may provide unbiased estimates of program impacts, but they often rely on strong untestable

⁵⁵ Only the third-party evaluator for the University of the District of Columbia Community College collected survey data for its evaluation.

⁵⁶ Power analyses are prospective analyses that use information or estimates of sample size, mean outcomes, and standard deviations to calculate the smallest possible effect of a treatment that the analysis will be statistically significant.

⁵⁷ An experimental design requires randomizing and then denying services to some portion of the study participants in order to form the control group.

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assumptions, such as the assumption that there are no unobserved factors affecting both treatment status and the outcome of interest.

- **Difficulty identifying a viable comparison group.** Typically, the third-party evaluator used students in similar programs as the comparison group. However, it can be difficult, or in some cases impossible, to identify a viable comparison group. First, grant programs may be different from other training offered by the grantee, and no other students at the grantee or other local institution provide a reasonable counterfactual. Second, the data required for the evaluation may not be available for the comparison group. This was a limitation for evaluators for at least two grantees, East Central Community College and Hawkeye Community College; they reported that because they could not find a suitable comparison group, they did not report impact findings (and so do not appear in [Exhibit 9-5](#)).
- **Low treatment contrast.** In the grant program evaluations with impact analyses, some of the grantees' service innovations may not have been that different from the services received by the comparison group (typically students enrolled in a similar program). When services received by treatment group and comparison group are very similar, estimation of program impact can be difficult. Small differences in services received between the groups often mean that the differential impact will be small, and a very large sample will be needed to detect it. Lacking a very large sample makes it likely that real differences in outcomes could not be estimated, and many of the third-party evaluations had relatively small samples. The University of Alaska's program was unique in that its evaluation did not use a similar group of students as the comparison group. Instead, the evaluation used workers entering mining who were not in any training program. Its study design provided a larger treatment contrast than the other evaluations, which may explain the strong positive impacts it had on employment and earnings outcomes.

Other Limitations

One evaluation mentioned that the grantee's program was too new to draw conclusions about its impacts (Center of Excellence Health Care Partnership at North Idaho College) and the timing of the training for the treatment and comparison groups was poorly aligned (M-PATH: Advanced Manufacturing at Valencia Community College).

[Exhibit 9-5](#) reports the evaluation limitations identified by the third-party evaluators themselves. Most evaluators (12) identified one limitation, some (10) identified more than one limitation and a few (3) did not identify limitations. Moreover, identification of limitations was not consistent across third-party evaluators. For example, evaluators were inconsistent in when they identified small sample size as a limitation.

Third-party evaluators had important successes in evaluating TAACCCT.

Although the third-party evaluations had important limitations and their reports focused on these limitations, the evaluators had many successes, as well. First, more third-party evaluations included an impact study than in any of the prior rounds, and one evaluation even included a randomized controlled trial. Evaluators successfully established data agreements to obtain high-quality administrative data, building evaluation capacity at grant-funded colleges and in the evaluation community. The third-party evaluators also experimented with nontraditional methods, including Bayesian additive regression trees (NJ-PREP at Bergen Community College), coarsened exact matching (Preparing Alaskans for Mining Careers Through Short, Industry-Informed Training Programs at University of Alaska), and genetic

matching (Health Care Career Works! at Southern Regional Technical College). Finally, many third-party evaluators participated in evaluation support activities provided by the national evaluation team and foundations that helped them improve their evaluation designs and implementation.

9.6. SUMMARIZING THE IMPACT FINDINGS

To build the evidence on career pathways conceptual frameworks, the TAACCCT Round 4 third-party evaluations produced 25 final reports (of 71 total), each estimating the impact of a grantee's program on participant outcomes using a rigorous experimental or quasi-experimental designs.⁵⁸ These impact findings offer insights into how well participants fared in completing programs, earning credentials and credits, and increasing their employment and earnings. This report synthesizes these findings to assess what can be learned from the fourth round of grants to be useful for policymakers, practitioners, and researchers.

In summary:

- Grant-funded programs had broadly positive impacts on two education outcomes: program completion and credential attainment. Of the 13 evaluations studying **program completion**, eight grantees had positive impacts. Of the eight evaluations studying **credential attainment**, six grantees had positive impacts. Programs aimed at introducing or enhancing short-term certificates embedded in a career pathways conceptual framework.
- The grant programs did not typically have a positive impact on **credits earned**. Only one evaluation, which looked at credit-hours, found the grant-funded program increased credit-hour attainment (KanTRAIN at Washburn University). The limited findings of positive impacts on credit-hours may reflect grantees' strategies targeting program acceleration.
- The grant programs had a positive impact on **employment** in a majority of the evaluations that estimated these outcomes (six out of eight evaluations). TAACCCT was less likely to have a positive impact on earnings than employment. Four out of the 11 evaluations investigating **earnings** identified a positive impact.

⁵⁸ Most impacts were estimated at the grantee level, although some third-party evaluations provided impacts at the college program or at the college level. See Exhibit 9-5 for these impact estimates. This information is useful for individual college planning, but difficult to synthesize across grantees in a meaningful way. The vast majority of third-party evaluations did not estimate impacts for other sub-groups.

10. Implications for Future Community College and Workforce Initiatives and Evaluations

The 71 Round 4 TAACCCT third-party evaluation reports highlight how grantees developed partnerships, recruited adult learners for programs, and implemented a range of strategies identified in the TAACCCT career pathways conceptual framework to support participants' success. The reports also present the outcomes and impacts of the grant activities on participants' education and employment and grantees' strategies that were associated with positive impacts on participants. In this final chapter, the research team presents implications based on the implementation, outcomes, and impact findings for future community college and workforce initiatives to guide policymakers and practitioners. The chapter concludes by offering implications for future evaluations of community college initiatives similar to the TAACCCT grants.

Collectively, the third-party evaluation reports show that 71 grantees developed an array of partnerships within their colleges, with consortia colleges (as relevant), employers, and workforce systems. Grantees targeted a range of adult learners for programs and services, most commonly veterans and TAA-eligible workers. The reports also describe the types of capacity-building strategies grantees implemented. In terms of accelerated and enhanced learning strategies, grantees designed and implemented new programs or enhanced existing ones and implemented accelerated learning instructional approaches like online learning. The reports documented college persistence and completion strategies implemented, including academic supports, personal supports, and financial supports. Strategies that connected participants to employment included creation of new or enhanced training environments, career exploration and on-the-job experiences, and employment services. Finally, the 25 reports described impacts ranging from program completion and credential attainment to employment and wages.

10.1. IMPLICATIONS FOR FUTURE COMMUNITY COLLEGE AND WORKFORCE INITIATIVES

The implementation and impact findings from the third-party evaluation reports offer a rich set of information on how grantees implemented their grant activities to support career pathways for participants. Below, the implications follow the order of the report, but most importantly, align with the following components of the TAACCCT conceptual framework:

- Inputs (partnerships and participant recruitment)
- TAACCCT strategies (accelerated and enhanced learning, persistence and completion, and connections to employment)

The implications draw from the synthesis of implementation findings, integrated with the synthesis of impact findings. They also incorporate the successes and challenges identified in the reports.

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To help policymakers and practitioners as they seek to replicate and improve on the strategies implemented by Round 4 grantees, the research team offers the following implications for future community college and workforce initiatives:

Grantees that used a consistent strategy for employer engagement perceived success in developing their employer partnerships.

The third-party evaluation reports often highlighted strategies for developing strong partnerships with employers. As suggested by the implementation findings, one promising strategy for grantees was establishing connections with industry partners very early on and then consistently throughout the grant. Grantees also hired dedicated staff to coordinate and communicate with employers to ensure the partnerships were successful. Some grantees expanded existing employer partnerships, developing industry partnerships to make recommendations on matching industry needs with academic programs, course standards, curriculum, and industry certifications. Grantees that struggled to develop strong employer partnerships had inconsistent communication with employers and constraints on the time that program staff could dedicate to partnership development and maintenance.

Grantees perceived that deliberately aligning processes and staffing with the public workforce system strengthened implementation and increased capacity.

Reports sometimes cited limited capacity of grantee and public workforce staff as well as lack of a defined strategy as barriers to collaboration. Grantees that had a WIOA representative on campus, who served as a liaison connecting participants to the workforce system, or that established formal agreements with their local workforce centers to co-enroll participants, offer mutual referrals, and streamline career support services and financial assistance perceived more effective collaboration.

Successful participant recruitment requires partner referrals, dedicated staff, and flexible outreach strategies.

The evaluation reports often described difficulties grantees had reaching target populations, including challenges from internal administrative barriers; local labor market conditions that drew prospective students into employment rather than school; weak relationships with community partners that could serve as a recruitment or referral pipeline; and difficulties identifying qualified students. In contrast, grantees also identified outreach and recruitment strategies that seemed effective in meeting enrollment targets and overcoming barriers, including leveraging community partners for recruitment efforts, broadening the grantee's service area, intensifying recruitment activity (e.g., adding staff, working with community partners), and changing programs to make them more enticing for prospective participants.

Accelerated and enhanced learning strategies appeared to contribute to student success, but colleges may need time to test and revise strategies to overcome implementation challenges.

Successful accelerated and enhanced learning strategies that were highlighted in the evaluation reports included competency-based education and integrated instruction, which grant staff generally perceived as increasing student success and accelerating completion. In addition, of the 12 evaluations with consistently positive impact findings, six used competency-based education models and four used integrated instruction. Other promising approaches also included incorporating shorter-term programs to help participants find jobs more quickly in high-growth occupations and, alternately, making accelerated classes longer in some cases to account for participant difficulties with completion. Reports also identified

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restructuring class schedules, such as adding evening courses or implementing block or cohort scheduling, as successful to meet the needs of adult learners and to support acceleration.

However, some evaluators suggested that grantees needed time to test and improve their strategies to overcome implementation challenges due to unfamiliarity with the approach within their institution or across their state. For example, reports highlighted challenges with online learning for participants and faculty. Some participants wanted more face-to-face time with instructors; some instructors were uncomfortable with the online learning platform and found it challenging to interact with participants. Ensuring colleges made time to adjust to new approaches and technology—especially for faculty—may be needed to ensure the more successful approaches are sustained and improved over time.

Career navigators promote persistence and completion.

The evaluation reports showed that grantees tested a variety of persistence and completion strategies, but career navigation stood out as a promising strategy. Some evaluators noted that grantees found the career navigator role (also known as coach, advisor, coordinator, and case manager) to be the most useful innovation in promoting student persistence and completion. In fact, all 12 evaluations with consistently positive impact findings used a dedicated staff person to support participant success. According to several reports, career navigators and coaches provided important advising and monitoring roles to help participants identify their strengths and weaknesses and to keep them on track for program completion. Other reports indicated that career navigators helped ensure that participants had the resources they needed to successfully complete the program and transition into further education and employment. A few reports also mentioned that tutoring services, intrusive advising models, and financial assistance promoted student success. Making these staff and resources accessible to students in future initiatives could help mitigate the challenges many working adult learners or those with families face in completing their program.

Software can help colleges provide simulated work experiences that teach relevant skills and at a lower cost than a physical simulation laboratory.

Some grantees found success in providing work-based learning opportunities using technology rather than fully equipped physical simulation labs, while others were not able to procure all the equipment or supplies they needed to fully implement simulated work experiences. Some grantees found that low-cost technology solutions could provide quality experiences without having to make large capital investments. Some grantees acquired industry-specific software for work simulations and practicing skills with technology they would use on the job. The software could run both on campus and on participants' home computers. Other grantees purchased and implemented software that offered a virtual simulated work experience. This strategy could be especially useful when in-person hands-on training is not available or classroom space is limited.

Colleges need to better align their work-based learning opportunities with the needs of adult learners, who often worked while in school.

Evaluation reports highlighted some instances where a training program's work-based learning opportunities were the on-the-job type, which made it difficult for adult learners to participate. Many participants were already employed and only wanted to upgrade their skills, so they believed on-the-job experience was unnecessary. Some evaluations reported that taking on an internship or other work-based opportunity on top of participants' regular employment could be difficult and burdensome. Other evaluations reported that unpaid work-based learning opportunities could cause not only a time crunch

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for participants, but also a financial strain; many simply could not afford to quit their part-time jobs to attend a non-paying internship, for example. Developing *paid* work-based learning opportunities or relying, in part, on simulated work experiences or both could offer flexibility in how participants coordinate with their regular jobs.

Colleges can build partnerships to provide services they have not traditionally provided to connect participants to employment.

According to some evaluation reports, grantees did not have enough staff or dedicate enough staff to create employment opportunities for participants or to otherwise help connect them to jobs. Some colleges hired additional staff to focus on work-based learning opportunities, job development, job placement, and other employment services. Grantees also leveraged other resources and partnerships to support employment services, such as working more closely with American Job Centers. A few grantees built partnerships with employers to develop capstone projects for participants, to provide them practical job experience and increase their employability. Some grantees were able to guarantee jobs to training program completers, assist with individual job placement, or provide guaranteed interviews through partnerships with employers.

Tracking and documenting student outcomes after the grant ends may help lay the groundwork for long-term sustainability.

For colleges with new or enhanced programs that need additional funding to sustain beyond the grant, it is often difficult to make the case to their institution, to alternate funders, and ultimately to state and federal policymakers. The evaluation impact findings often highlighted short-run participant success—more consistently with education outcomes such as program completion and credential attainment. But some of the most compelling outcomes for these grant-funded programs may only be achieved in the medium to long term and so may not be detectable in the third-party evaluations. Several evaluators highlighted that it was too early to measure the impact of the program on participants' employment outcomes, but that showing such impact could become increasingly important to justify the expense of the program.

10.2. IMPLICATIONS FOR FUTURE EVALUATIONS OF SIMILAR INITIATIVES

This section highlights implications for evaluating future community college and workforce initiatives. The TAACCCT third-party evaluations offer important lessons for shaping evaluation efforts under new initiatives. They also support developing rigorous evidence about the approaches being tested by future grantees.

Third-party evaluations with longer follow-up periods, which may be beyond the end of the grant, can improve the assessment of outcomes and impacts, especially on employment.

One challenge of evaluating large federal initiatives is that grantees may be testing strategies under a larger umbrella model—*career pathways*, in the case of TAACCCT—but they may package the strategies in different ways. This makes it difficult to isolate the effect on participant outcomes of a specific strategy, such as online learning or career navigators. Both funders and grant applicants developing the initiatives could benefit from bringing third-party evaluators to the table during the application process and start-up phase of the grant, in order to help ensure that rigorous methods can be used to answer

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key questions about what works and for whom. Starting with an *evaluability assessment*, which assesses and identifies the most feasible evaluation designs, could support the development of more rigorous evidence about strategies being tested. Then, third-party evaluators could develop a detailed evaluation design based on the evaluability assessment. A national evaluator could support these activities with one-on-one or more intensive technical assistance and would be able to assess the level of evidence that the evaluations would be able to provide across the initiative.

Third-party evaluations with longer follow-up periods, which may be beyond the end of the grant, can improve the assessment of outcomes and impacts, especially on employment.

Round 4 third-party evaluators focused on short-term intermediate participant outcomes of the grant activities because the evaluations were contracted to end when the grants ended. Thus, the time limits on the evaluations made it impossible to evaluate the “longer-term outcomes” (additional credentials, jobs and earnings progressions) that the TAACCCT conceptual framework hypothesizes to occur. In particular, the limits condensed the follow-up period that third-party evaluators were able to capture from employment data, particularly for participants entering the program late in the grant period. Short follow-up periods can provide a misleading picture of program impacts, particularly for employment and earnings, as it may take participants some time after their program to find a job. In addition, because gains in some training programs can decay over time, estimating impacts early can inflate them. The study timeframe needed in order not to miss long-term employment and earnings gains can be determined in an evaluability assessment.

For third-party evaluators to select appropriate evaluation methods, they may need to take into consideration if and when in the grant period the implementation of the strategies being tested will reach a “steady state.”

Trying out and then evaluating new ideas is important to moving any field forward—postsecondary education, in this case. The TAACCCT grants allowed community colleges to explore promising new strategies for providing adult learners with education and training in high-demand occupations. But for many of the grantees, it took them much of the grant period to develop, test, and refine their strategies. When implementation of a new intervention has not yet reached the point when it is in place and performing as intended (what evaluators call “a steady state”), it can be challenging to also apply a rigorous evaluation design (experimental or quasi-experimental) well. But that challenge does not mean new strategies should not be evaluated. Again, evaluability assessments and involving evaluators early in the design phase can help balance these needs and identify the most feasible, most rigorous approach possible for the initiative.

11. References

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Appendix A: Workforce Innovation and Opportunity Act of 2014 (WIOA) Definition of Career Pathways

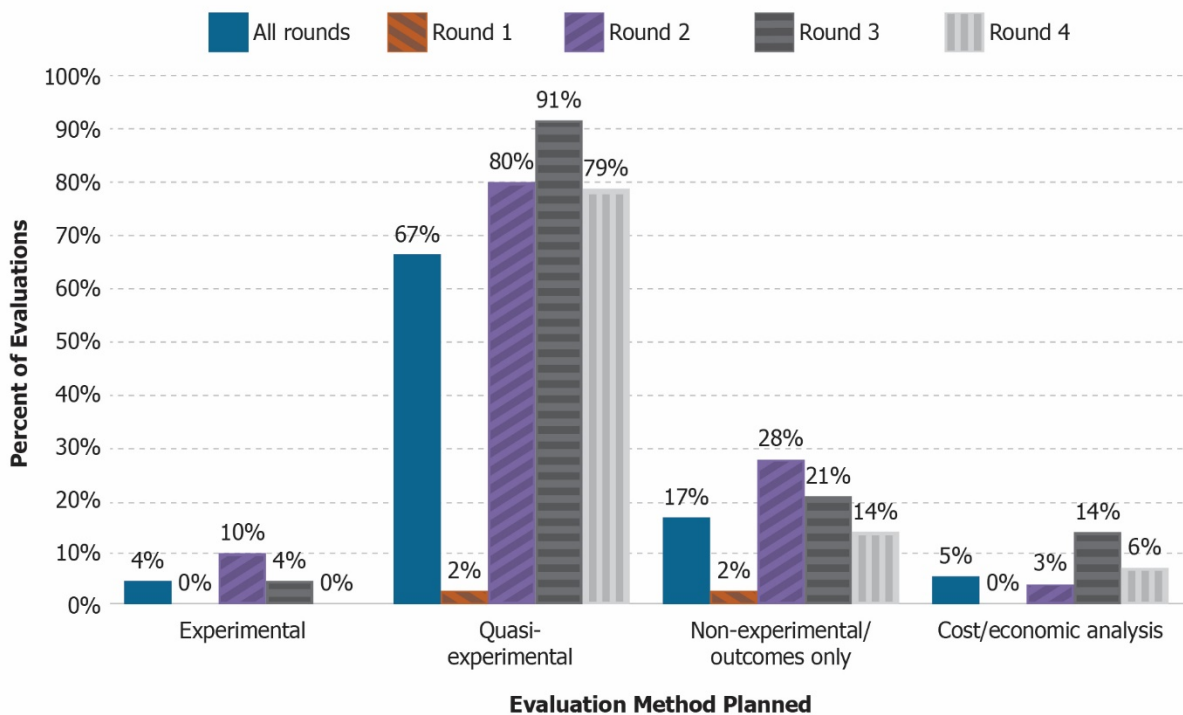
A combination of rigorous and high-quality education, training, and other services that—

- (A) aligns with the skill needs of industries in the economy of the State or regional economy involved;
- (B) prepares an individual to be successful in any of a full range of secondary or postsecondary education options;
- (C) includes counseling to support an individual in achieving the individual's education and career goals;
- (D) includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster;
- (E) organizes education, training, and other services to meet the particular needs of an individual in a manner that accelerates the education and career advancement of the individual to the extent practicable;
- (F) enables an individual to attain a secondary school diploma or its recognized equivalent, and at least 1 recognized postsecondary credential; and (G) helps an individual enter or advance within a specific occupation or occupational cluster" (29 U.S. Code § 3102 Definitions).

Appendix B: Third-Party Evaluation Designs and Data Sources

A brief on the TAACCCT grants from Cohen and her co-authors (2017) highlights information on the third-party evaluations, gleaned from the Rounds 1-4 grant applications and evaluation designs. Information is minimal for Round 1 grants as there was no evaluation requirements for that round. These exhibits from the brief provide summary information on the evaluation designs, quantitative and qualitative data sources, and groups that evaluators had planned to use. However, they are not necessarily what evaluators finally did use, as the feasibility or appropriateness of the evaluation approaches proposed may have changed during the grant activities.

Exhibit B-1. Grant Evaluations Planned to Use Various Methods to Measure Outcomes and Impacts, Rounds 1-4

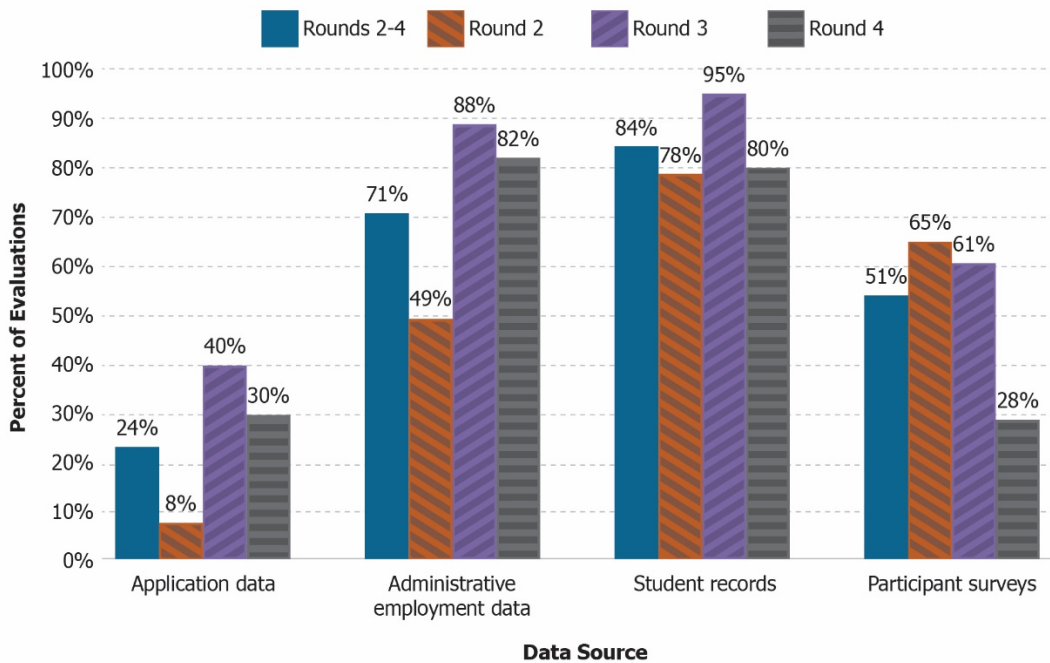


Source: Cohen et al. (2017).

Note: In Round 1, an evaluation plan was not required, and 48 of the 49 grantees did not submit an evaluation plan. Round 2 grantees were required to submit 10-page summary evaluation plans, and their planned evaluation methods were culled from those summaries. Round 2 awarded a total of 79 grants, and 10 grantees did not report on any outcomes. In Rounds 3 and 4, grantees were required to select an independent third party to conduct a rigorous evaluation of their project and to submit a detailed evaluation plan. In Round 3, all 57 grantees submitted a detailed evaluation plan. In Round 4, 11 grantees had not submitted an approved detailed evaluation plan at the time this brief was published. The Experimental category consists of evaluation plans with a full experimental design or regression discontinuity. The Quasi-experimental category includes evaluation plans with designs using propensity score matching. The non-experimental category includes evaluation plans using outcomes or correlational and pre/post analysis.

APPENDIX B: THIRD-PARTY EVALUATION DESIGNS AND DATA SOURCES

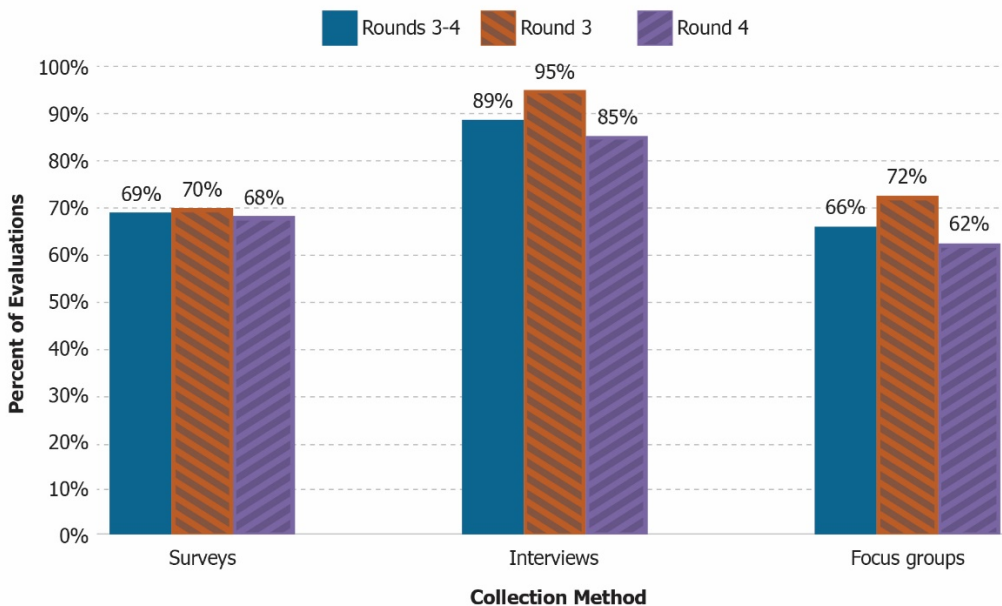
Exhibit B-2. Grant Evaluations Planned to Use Various Quantitative Data Sources, Rounds 2–4



Source: Cohen et al. 2017.

Note: In Rounds 2 and 4, some grantees did not report their quantitative data sources. Four Round 4 grantees had not submitted an approved detailed evaluation plan at the time this brief was published.

Exhibit B-3. Grant Evaluations Planned to Use Various Qualitative Data Collection Methods, Rounds 3–4

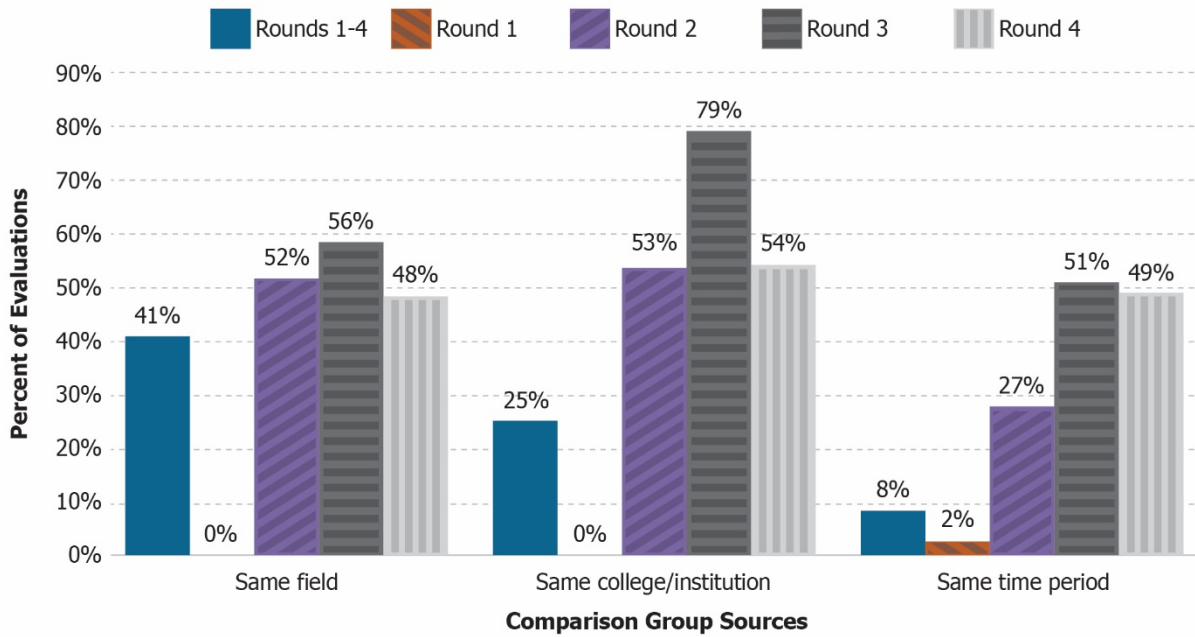


Source: Cohen et al. (2017).

Note: This information is not available for Rounds 1 and 2. Four Round 4 grantees had not submitted an approved detailed evaluation plan at the time this brief was published.

APPENDIX B: THIRD-PARTY EVALUATION DESIGNS AND DATA SOURCES

Exhibit B-4. Grant Evaluations Planned to Use Various Sources of Comparison Groups, Rounds 1–4



Source: Cohen et al. 2017.

Note: Four Round 4 grantees had not submitted an approved detailed evaluation plan at the time the brief was published.