Ready for Work: Adapting High-Impact Workforce Training Models in Community College Settings




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Overview

Community colleges are essential providers of the education and training that individuals need to move into high-wage, high-demand careers. Available in nearly every locality throughout the United States, community colleges offer occupational training to the population at relatively low cost. They also have the potential to serve as "engines for equity" because they enroll high percentages of people of color and those from low-income backgrounds. Despite this potential, less than one third of community college students earn a certificate or an associate degree. Furthermore, randomized controlled trials (RCTs) of many interventions for improving student success in community college have revealed few impacts on student outcomes.

In contrast, certain sector-focused workforce training programs—or sectoral programs—have demonstrated remarkable effects on their participants' education, employment, and earnings in RCT studies. These programs often partner with community colleges. Community colleges can learn about the features of effective sectoral programs and consider how to scale these features for their context. The current study draws on a systematic review of the literature and interviews with leaders at three sectoral programs—including Per Scholas, Year Up, and Project QUEST—that have demonstrated effects on participants' education, employment, and earnings for 6 to 11 years after the study began. The study analyzes the common features across their programming and variations in their implementation to identify ways that their successful workforce strategies potentially could be adapted within community college settings.

This report highlights three commonalities in effective sectoral program practices: (a) deep employer involvement, (b) short-term occupational training tailored to employer and labor market needs, and (c) support services and advising that focus on helping participants build workplace skills that employers seek, while providing wraparound supports that help them persist in the program. The report recommends that community colleges give equal weight to developing students' occupational skills and workplace readiness skills, as well as invest heavily in relationships with employers and bring their perspectives into multiple aspects of academic programming and supports. In addition, the report recommends that policymakers incentivize community college–employer partnerships and support more streamlined ways for curriculum changes. Given the dearth of information about community college workforce training practices, researchers should prioritize learning about how successful workforce practices can be adapted and implemented within community college settings and analyze the promise these strategies may hold for increasing students' success.

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Executive Summary

Introduction

Millions of adults in the United States are out of the workforce or have difficulty securing and advancing in jobs that provide family-sustaining wages. This is especially the case among those who do not hold a bachelor's degree or higher and those who live in regions that are in industrial decline (Austin et al., 2018; Autor et al., 2016). Obtaining a postsecondary credential—including a traditional 2-year or 4-year college degree as well as shorter-term training—is among the surest paths to jobs and careers that provide family-sustaining wages (Belfield & Bailey, 2017; Carnevale et al., 2018; Carnevale et al., 2020; Cormier et al., 2022; Daugherty, 2022; Marcotte, 2019; Ruiz & Hearn, 2024). Community colleges are an essential provider of education and training in both these pathways, helping individuals develop the skills they need to move into high-wage, high-demand careers. However, community college students often face challenges progressing in and completing pathways to a credential despite multiple interventions intended to improve their success (Holzer & Baum, 2017; Scrivener & Weiss, 2022).

In contrast, certain workforce training programs—some of which partner with community colleges—have shown dramatic effects on participants' training completion, employment, and earnings in randomized controlled trials (RCTs) (J-PAL Evidence Review, 2022). Researchers have studied these programs—generally referred to as "sector-based workforce programs" or "sectoral programs"—to understand the features that have led to their success (J-PAL Evidence Review, 2022; Katz et al., 2020; Kazis & Molina, 2016; Schaberg, 2020). To date, however, few have considered how these features can be adapted in alternative settings like community colleges to reach the millions of youth and adults who need their services.

With funding from the Strada Education Foundation, the American Institutes for Research® (AIR®) set out to address this gap in knowledge by conducting a systematic review of research on the sectoral programs with the strongest record of success based on RCT studies. We define effective programs as those that have increased participants' earnings 3 or more years after program participation. We identified three programs—Per Scholas, Year Up, and Project QUEST—that meet this standard, each of which provides short-term training (15 weeks to 2 years) to help participants enter high-wage, high-demand jobs. All three programs demonstrated positive effects on participants' earnings 6 or more years after participation in the program. We reviewed implementation studies of the programs and conducted interviews with program leaders to more deeply understand the services they provide, as well as their commonalities and differences. Based on this analysis, we considered whether and how such approaches could be adapted in alternative settings like community colleges.

This report highlights three commonalities in effective sectoral program practices: (a) deep employer involvement, (b) short-term occupational training tailored to employer and labor market needs, and (c) support services and advising that help participants persist in the program and graduate with the workplace skills that employers seek. The report recommends that community colleges give equal weight to developing students' occupational skills and workplace readiness skills, as well as invest heavily in relationships with employers and bring their perspectives into multiple aspects of academic programming and supports. It also suggests that policymakers incentivize community college–employer partnerships and support more streamlined ways for curriculum changes that align with changing labor market needs. Given the dearth of information about community college workforce training practices, we recommend that researchers prioritize learning about how successful workforce practices can be adapted and implemented within community college settings and analyze the promise these strategies may hold for increasing students' success.

Building a Blended Evidence Base: Rigorous Evidence on Effective Community College and Workforce Training Practices

Over the last 2 decades, community colleges have implemented a variety of interventions in an effort to improve students' success. Early in the millennium, these interventions tended to be short term or "light touch" and included intensive advising for a semester or a year, courses that taught students strategies for success in college, or learning communities (Rutschow et al., 2012; Scrivener & Au, 2007; Visher et al., 2012). When these interventions proved to be unsuccessful in rigorous RCTs, researchers sought to implement and study more intensive, multi-semester strategies that integrated several approaches to improve persistence and graduation rates (Miller et al., 2020b; Scrivener et al., 2015).

These interventions have been studied extensively in rigorous RCTs. Although some interventions have shown promise in supporting students' short-term success, like course completion and retention, few have demonstrated longer-term effects on educational progress, degree completion, employment, or earnings (see Exhibit ES.1). Of the 15 interventions outlined in Exhibit ES.1, only four improved certificate or degree completion rates, and only two improved earnings. Moreover, the community college interventions that have shown promise tend to focus on supporting students in traditional academic pathways that culminate in an associate degree or transfer to a 4-year college, rather than shorter-term workforce training pathways. At the same time, recent research has shown that many associate degree pathways are poorly aligned with available jobs (Strohl et al., 2024). More information is needed about ways to strengthen community college programs, including shorter-term workforce training programs that provide direct entry into the labor market.

Exhibit ES.1. Impacts of Community College Advising and Support Interventions Studied in RCTs

Intervention	Follow-up period (years)	Percentage-point differences between intervention and comparison group			Difference in annual earnings
		College credits earned	Certificate or degree completion	Employment	
Course-based advising and support					
Learning communities[a]	1.5	0.10	—	—	—
Student orientation and success courses[b]	2	-0.3	—	—	—
Summer bridge programs[c]	2	0.0	—	—	—
Staff mentor paired with college math course[d]	1	0.0	—	—	—
Developmental education reforms					
Accelerated math pathways[e]	5	0.39	2.5	—	—
Course placement using multiple measures[f]	4.5	0.4	-0.3	—	—
Corequisite developmental math courses[g]	7	–	7.7**	—	$4,606*
Modularized developmental math courses[h]	1.5	0.0	—	—	—
Financial aid tied to performance					
Performance-based scholarships[i]	4–5	2.1***	3.3**	—	—
Aid Like a Paycheck[j]	2	0.0	—	—	—
Intensive advising support					
Intensive technology-mediated advising[k]	1	0.89, 0.01, -0.83 (3 sites)	—	—	—
Intensive advising with modest stipend[l]	1	0.0	—	—	—
Comprehensive support					
Scaling Up College Completion Efforts for Student Success[m]	1.5	0.7	—	—	—

Intervention	Follow-up period (years)	Percentage-point differences between intervention and comparison group			Difference in annual earnings
		College credits earned	Certificate or degree completion	Employment	
Accelerated Study in Associate Programs[n]	6	8.2*** (3 years)	15.1***	-0.3	$1,948**
One Million Degrees[o]	3	—	2**	—	—

Note. Statistical significance levels: *10% level, **5% level, ***1% level.
[a] Visher et al. (2012). [b] Rutschow et al. (2012). [c] Barnett et al. (2012). [d] Visher et al. (2010). [e] Sepanik & Barman (2023). [f] Kopko et al. (2023). [g] Douglas et al. (2023). [h] Weiss & Headlam (2018). [i] Mayer et al. (2015). [j] Weissman et al. (2019). [k] Miller et al. (2020a). [l] Scrivener & Au (2007). [m] Sommo et al. (2023). [n] Miller et al. (2020b). [o] Hallberg et al. (2023).

Alongside research on interventions for improving the outcomes of community college students, extensive research on the effectiveness of workforce training models has also been conducted over the last 2 decades, including sectoral programs that train individuals for high-demand jobs in high-wage industries (Hendra et al., 2016; Maguire et al., 2010). These programs typically combine shorter-term occupational training in sectors such as information technology (IT), health care, and advanced manufacturing with career readiness training and other support services (Maguire et al., 2010).

Frequently, studies of sectoral programs have found more positive impacts on participants' education and labor market outcomes than community college interventions (Maguire et al., 2010). But like community college interventions, few sectoral programs have had lasting effects on participants' outcomes in long-term follow-up studies. Three programs—Per Scholas, Year Up, and Project QUEST—were the exception. These programs demonstrated dramatic effects on long-term employment and earnings in studies that followed participants for 6 to 11 years after they entered the program (see Exhibit ES.2; Fein & Dastrup, 2022; Kanengiser & Schaberg; 2022; Roder & Elliott, 2021; Schaberg, 2017). These programs—along with other sectoral programs that demonstrate effects on early employment and earnings—have garnered a great deal of attention in recent years as researchers have sought to understand what might explain their success (e.g., Hendra et al., 2023; J-PAL Evidence Review, 2022; Katz et al., 2020; Peck et al., 2021).[1] To date, however, few have considered how the features of these programs might be adapted in alternative settings such as community colleges, which have the potential to reach many more individuals than sectoral programs can accommodate currently.

[1] Some research studies and syntheses have focused on career pathway programs, most of which are also considered sectoral programs. For instance, Peck et al. (2021) define career pathway programs as programs that offer services similar to the ones that sectoral programs offer (training in a specific sector with a focus on completion of industry-recognized credentials, support services, and employer connections). In addition, career pathway programs offer multiple entry and exit points for individuals as they move up the career ladder. For ease of reference, we refer to these career pathway programs as "sectoral programs" throughout this report.

Exhibit ES.2. RCT Studies of Sectoral Programs With Long-Term Impacts on Education and Earnings

Program	Length of follow-up period	Percentage-point difference in		Earnings difference	Average salary at latest follow-up	
		Completed training or earned credential	Employment[e]		Treatment group	Control group
Per Scholas[a]	7 years	35.9***[d]	3.1	$4,844**	$40,494	$35,651
Year Up[b]	6 years	27.9***[f]	0.5	$8,251***	$35,589	$27,338
Project QUEST[c]	11 years	13.0**	10.1**	$4,616*	$35,500	$29,870

Note. Statistical significance levels: *10% level, **5% level, ***1% level.
[a] Kanengiser & Schaberg (2022) and Schaberg (2017). [b] Fein & Dastrup. (2022). [c] Roder & Elliott (2021). The follow-up period for completing training or earning a credential was 2 years. [d] Hendra et al. (2016). Completion of training or a credential is not fully reported in later follow-up reports. [e] Each of these programs had employment impacts at various times during follow-up studies. [f] Fein et al. (2021).

What Do Effective Sectoral Programs Do and What Are the Implications for Community Colleges?

Our reviews of the implementation studies on Per Scholas, Year Up, and Project QUEST along with interviews with program leaders reveal that these programs share a number of features that distinguish them from traditional community college practices. We found that these three programs shared 21 program features, which we organized into three dimensions: (1) employer involvement; (2) occupational skill training; and (3) student supports and advising.

We also reviewed recent syntheses and meta-analyses of sectoral and career pathway programs that had early effects on participants' training completion, employment, and earnings as well as case studies of promising community college workforce approaches (Davidson et al., 2019; Fuller & Raman, 2022; Katz et al., 2020; Kazis & Molina, 2016; Maguire et al., 2010; Peck et al., 2021; Schaberg, 2020). Of the 10 studies reviewed, we found that all recommend providing occupational skills training in high-wage, high-demand industries and having employers involved in program development. Nine out of 10 suggested focusing on developing an employer-ready candidate, using labor market information (LMI) to inform program planning, and embedding workplace-readiness skills training into the program. Several studies recommended providing individualized coaching or case management, on-the-job training, or work-based learning experiences. Overall, 15 of 21 program features were present or recommended in 8 of 10 of the reports, suggesting a number of commonalities that community

colleges could consider when strengthening their workforce training programs (for more information on these features, see Exhibit 4 in the main report).

Employer Involvement

Engagement with employers is one of the hallmarks of effective sectoral programs, with employer input imbuing nearly every aspect of program development, services, and supports. Employer input was evident across multiple features of Per Scholas, Year Up, and Project QUEST during each RCT (see Exhibit 5). At the start of the RCTs, each program had existed for more than 13 years and had departments and staff dedicated to cultivating and managing relationships with employers. Staff with experience in the relevant industries served as liaisons to employers. They sought employer input to ensure that program services met employers' needs and provided opportunities for employers to interface directly with participants. For example, employers conducted classroom presentations, led mock interviews, or hosted internships or other work-based learning experiences. In interviews, program leaders emphasized the importance of employer relationships in providing ongoing feedback that informed their program adaptations and revisions. They also discussed the reciprocal nature of these relationships, as they were able to cultivate employers' understanding of their student populations, many of whom were from low-income backgrounds. The trust developed also supported employers' commitment to hiring their program graduates.

The employer focus of all three programs contributed to multiple aspects of their development and management, from the content of the training offered to the types of supports provided to students. However, Project QUEST was unique in its partnership with Alamo Colleges District, which fostered connections between the college and industry leaders to build stronger pathways to higher-wage jobs. For instance, when trying to support the growth of high-wage careers in the health industries, Project QUEST interviewed employers to identify key skills and worked with the Alamo Colleges District to revamp its curricula and add new courses that met industry demands. Project QUEST also relied on the trust employers had in their program to negotiate employee-friendly changes, such as increasing wages for particular positions or revising academic skills requirements that were a barrier to workplace entry (Rademacher et al. 2001).

Occupational Skills Training

Occupational skills training, or training in the technical skills that are needed to accomplish specific job tasks, is a key component of sectoral programs. Per Scholas, Year Up, and Project QUEST each focus on high-wage, high-demand industries. RCT program participants at Per Scholas received training in IT while those at Year Up received training in IT and finance, and those at Project QUEST received training in health care (Fein et al., 2021; Hendra et al., 2016; Roder & Elliot, 2018).

This training content was informed by reviews of LMI, which documented key high-wage industries within the regions where the programs operate, along with the types of roles and positions available and the types of skills that are needed to obtain these jobs. Furthermore, all three programs worked with employers and within their communities to validate their LMI findings and to modify their offerings based on current labor market conditions.

The length of time that sectoral programs provided occupational skills training to participants varied. Per Scholas was able to increase participants' long-term earnings with only 15 weeks of training, or less than 4 months. Year Up provided training for just 6 months (followed by a 6-month internship). Project QUEST's training could be as short as 7 months or as long as 2 years, along with one or two semesters of prerequisite courses. The success that these programs achieved with short-term training—including training as short as 15 weeks—reveals that successful skills development can occur outside of multiyear degree or certificate programs.

Furthermore, the experiences of Project QUEST and Year Up reveal that community colleges can be strong partners in developing and providing sectoral training, but they also point to key areas that community colleges might consider strengthening. For instance, Project QUEST leaders noted that the frequent placement of students into developmental education courses often delayed their training and quick entry into work. To navigate this challenge, Project QUEST developed its own pre-training program that upskilled students more quickly. Similarly, Year Up worked extensively with its community college partners one-on-one to overcome issues such as inflexibility in revising for-credit course content, the more regimented academic calendar, and limited opportunities to course correct with students who were struggling academically.

Support Services and Advising

Providing intensive support services and advising alongside occupational skills training is a key feature of the sectoral programs that have improved participants' earnings in the long term (J-PAL Evidence Review, 2022). These supports, which are similar to those provided by many community colleges, include coaching, case management, cohort-based learning communities, and efforts to meet students' basic needs and mental health needs. However, support services and advising in effective sectoral programs have features that distinguish them from programs typically offered in community colleges. We focus on support services in two categories: (a) intensive screening and wraparound supports, and (b) workplace readiness supports.

Intensive Screening and Wraparound Supports

Per Scholas, Year Up, and Project QUEST used intensive screening and admissions processes that measured multiple aspects of students' readiness for success in the program during the RCT. The admissions process could be lengthy, requiring applicants to take skills assessments and

participate in multiple interviews with program staff that assessed their social, emotional, and life needs.

Programs used information gathered during the screening process not only to assess potential participants' readiness for program entry but also to consider what services and wraparound supports might be required to promote their success while in the program. These supports—which can include a range of services such as housing, food assistance, financial support, mental health counseling, or childcare—aim to ameliorate or eliminate nonacademic barriers that could jeopardize student success, and have become an increasingly important strategy that both sectoral programs and community colleges use to increase student success (American Association of Community Colleges, 2024; Coca et al., 2022; Feygin et al., 2022).

Per Scholas, Year Up, and Project QUEST offered a tailored set of services to students based on their identified needs along with mentors, coaches, or advisors who provided individualized guidance in accessing these supports. For example, all three programs had one-on-one case managers or coaches who regularly helped them find services to overcome life challenges such as homelessness, mental health challenges, or food insecurity either within their own programs or through partnerships with local agencies. Although community colleges have similar student support services staff, they generally have less frequent interactions with students. Leaders of effective sectoral programs who worked with community colleges noted that their students had difficulty understanding the availability of these services and how to access them without the one-on-one guidance that they provided. As a result, each of these programs provided these services with their own staff rather than relying on community colleges' supports.

Preemployment and Workplace Readiness Supports

Per Scholas, Year Up, and Project QUEST placed a heavy emphasis on helping students learn about workplace norms and behaviors and demonstrate their mastery of these skills. All three programs had dedicated staff and curricula for building workplace readiness. The programs had weekly meetings or courses that provided instruction in workplace norms, and their students had one-on-one meetings with individual advisors, coaches, or case managers who reinforced these skills. They also placed a strong emphasis on developing soft skills that are important on the job, especially when working in teams, such as problem solving, conflict resolution, workplace ethics, and communication in business environments. In interviews with AIR staff, program leaders pointed to workplace readiness training as the most important feature in students' ability to obtain jobs. They noted that these are the skills that the employers wanted the most and that they had difficulty finding in other job applicants, which led to their further investment in each of these programs' graduates.

In addition, all three programs provided support for participants in obtaining and persisting in jobs through tasks such as résumé development and interview preparation while also maintaining ongoing relationships with employers interested in hiring their graduates (Fein et al., 2021; Hendra et al., 2016; Roder & Elliott, 2021). Each program used its employer-dedicated management team to identify job opportunities and support participants in their outreach to employers. The programs made direct connections between employers and their students, often filtering jobs to find the best match for candidates and providing employers with participants' résumés. To ensure participants' success in their jobs, all three programs provided post-program supports, which researchers have suggested is important for graduates' continued career advancement (Kazis & Molina, 2016; Ratledge et al., 2023; Tessler et al., 2014). These supports included at least 4 months of continued contact with participants after program completion, information about job fairs or opportunities, and re-employment assistance for individuals who lost their jobs.

Rigorous research on community college interventions focused on helping students develop soft skills or explore different careers has shown that these efforts have had few meaningful effects on students' progress through college and their completion of a credential (Rutschow et al., 2012; Scrivener et al., 2009). This finding suggests that a deeper focus by community colleges on workplace readiness skills may provide a more promising avenue for increasing students' success. Community colleges likely need to provide these services more intensively and with more attention to the workplace norms and practices expected in specific industries. Community colleges might consider creating employer advisory boards to help them develop the content for this type of training and better understand the key workplace readiness skills that employers seek in their candidates. Finally, if offering these services internally proves difficult, colleges might consider partnering with local or national organizations that can provide such supports, similar to the partnership that Alamo Colleges District developed with Project QUEST.

What Do These Findings Mean for Strengthening Community College Workforce Training?

The practices of effective sectoral programs—along with rigorous research on previous community college interventions—give us a window into the types of new, potentially more promising interventions that community colleges might consider for improving students' education and labor market success. The following sections present key takeaways on how these learnings might be applied by practitioners, policymakers, and researchers.

Practitioners

Effective sectoral programs have demonstrated that it is possible to make significant strides in supporting individuals' advancement in the labor market within a short period of time if deep investments are made in the programs' relationships with employers. Community colleges should consider developing similar connections with employers. Like effective sectoral programs, community colleges should focus on bringing employers' perspectives into multiple aspects of program development and implementation and ground their programming in employers' wants and needs. Strategies such as developing integrated employer and college task forces to build program curricula or gathering feedback from employers on the success of their graduates and adapting their programming accordingly could be helpful. These types of strategies and relationships would also foster employers' trust in their programs and interest in hiring their program graduates, further supporting their students' labor market success.

Second, community colleges should focus on building students' workplace readiness skills throughout their time in college. Leaders of effective sectoral programs note that workplace readiness skills training is even more critical to their participants' success than occupational skills training. The programs ensure that students have concurrent, ongoing, and intensive workplace readiness skills, which has facilitated employers' trust and hiring of their graduates (Barclays & Per Scholas, 2022; Hendra et al., 2023). In addition to providing explicit instruction in workplace readiness skills, community colleges can build these skills by fostering direct contact between employers and students through internships and other work-based learning opportunities.

Third, community colleges should provide one-on-one guidance to help students access supports and navigate career exploration and employment. Effective sectoral programs provide coaches, mentors, or advisors who know students' strengths and challenges and who can connect them with a variety of supports. These individuals play a critical role in building students' knowledge of available supports but also help them to access the supports. If providing such services is too resource intensive and requires substantial staffing, colleges might consider partnering with outside organizations that specialize in skills.

Finally, community colleges should look to build stronger connections between their noncredit and credit programs. Leaders of effective sectoral programs highlighted the need for flexibility in programming to adapt to labor market changes, a practice that is often more easily accomplished in community colleges' noncredit programs than those that are for-credit. As conditions allow, colleges might later adapt these programs into for-credit degrees and certificates. Alternately, colleges could consider providing college credit for students' knowledge building after the fact as some colleges are doing for adult students and those that come in with specialized skills.

Policy

Federal and state policy has a strong voice in community college practices and resources. Policymakers can support the integration of effective sectoral program practices into community college programming by devoting resources to developing quality programming for short-term programs, including noncredit courses, and establishing mechanisms to track students' progress through these courses and into the workforce. For instance, developing integrated education and labor market databases that can be used to monitor students' education, employment, and earnings would help colleges track their students' labor market success and trace this back to the education and training they received (Syverson et al., 2020).

Second, policymakers can incentivize and support colleges' collaborations with employers and industry connections. Some federal policies, such as the Workforce Innovation and Opportunity Act, have encouraged these collaborations, and the recently developed Bipartisan Workforce Pell Act may provide new resources to fund shorter-term training that employers seek (Campbell & Love, 2016; Deming et al., 2023). Similarly, providing support for colleges' development and implementation of these collaborations might also help. Examples of this type of work can be seen in seen in Jobs for the Future's Talent of Tomorrow Fellowship, the Strada Education Foundation's efforts to increase the capacity of employers and community colleges to partner with one another to build work-relevant education and training pathways for students (Bonilla & Freeman, 2022; Leavitt & Leigh, 2023).

Finally, policymakers can support efforts to build more streamlined processes for reviewing and approving course and program content changes. Although providing rigorous curricula is important, policymakers should consider whether more expedient or employer-informed processes can be developed to measure program content and quality. Some alternatives have been suggested by organizations such as the U.S. Chamber of Commerce Foundation and would allow for more employer voice in defining the skills and knowledge needed for future employment (Goger et al., 2024; U.S. Chamber of Commerce Foundation, 2016).

Researchers

Researchers should seek to build knowledge about the practices that community colleges can use to strengthen students' employment and career advancement. These efforts could start with highlighting colleges that are providing comprehensive workforce readiness supports, which would help further the field's knowledge of how these practices can be implemented more systematically in postsecondary settings. Likewise, descriptive studies can serve as an initial effort to help us understand which approaches hold the most promise for improving student outcomes. Once these foundations are established, researchers should prioritize more rigorous

evaluations of the impact of these strategies on students' educational and labor market progress.

Additionally, efforts should be made to track employers' perspectives of and relationships with community colleges. In focusing only on the voices of community college leaders, we leave out a critical measure of how well community colleges are integrated with their local labor markets and how effectively they are meeting employers' needs. Researchers should seek to understand whether and how community colleges are collecting and integrating employer feedback and whether the services they provide align with employers' needs. Given that employers are the ones who provide the opportunities for employment and advancement, inclusion of their voices and perspectives is key to assessing the performance and success of community colleges.

Conclusion

Community colleges are one of the most important providers of education and training throughout the United States. However, to date, we know very little about what practices they might employ to support students' direct entry into the labor market and whether this can be accomplished in new and unique ways that may go beyond colleges' traditional academic focus. Effective sectoral programs provide a strong model for what practices may be most important, but much more needs to be learned about how these strategies can be successfully adapted to community college settings, given the very different parameters under which they operate. Experimenting with these new innovations—and assessing their effectiveness in supporting students' success—could provide an important bulwark against recent critiques of postsecondary institutions' relevance, strengthen colleges' future enrollments, and build employers' trust in their graduates. Most importantly, investments in new strategies to support students' workplace readiness are likely to help them in reaching one of the biggest goals they have when entering college: to land a well-paying job that will help them build toward the strong economic foundation that they deserve. Finding new ways to help them accomplish this task seems a small price to pay for the chance at making this dream a reality.

Introduction

Equitable access to high-quality postsecondary education and workforce training programs is critical for the attainment of good jobs.[2] Millions of adults in the United States are out of the workforce or have difficulty securing and advancing in jobs that provide family-sustaining wages. This is especially the case among those who do not hold a bachelor's degree or higher and those who live in regions that are in industrial decline (Austin et al., 2018; Autor et al., 2016). These challenges disproportionately affect people of color and those from low-income backgrounds (Fuller & Raman, 2017; Groshen & Holzer, 2021).

Obtaining a postsecondary credential—especially a 2-year or 4-year college degree—is among the surest paths to jobs and careers that provide family-sustaining wages (Belfield & Bailey, 2017). However, shorter-term training programs also may provide a pathway to economic mobility (Carnevale et al., 2018; Carnevale et al., 2020; Cormier et al., 2022; Daugherty, 2022; Marcotte, 2019; Ruiz & Hearn, 2024). Shorter-term certificate and non-degree programs in high-wage fields can lead to jobs with earning potential upwards of $75,000 (Carnevale et al., 2020). Furthermore, training in these programs can be as short as 15 weeks, enabling individuals to enter the workforce more quickly (J-PAL Evidence Review, 2022).

Community colleges are an essential provider of education and training in both these pathways, helping individuals develop the skills they need to move into high-wage, high-demand careers. However, community college students can face challenges progressing in and completing pathways to a credential despite multiple interventions for improving their success (Holzer & Baum, 2017; Scrivener & Weiss, 2022). In contrast, workforce training programs—some of which partner with community colleges—have shown dramatic effects on participants' training completion, employment, and earnings (J-PAL Evidence Review, 2022). Researchers, policymakers, and practitioners across the nation have been examining these programs—called "sector-based workforce programs," or "sectoral programs"—to understand the features that have led to their success (J-PAL Evidence Review, 2022; Katz et al., 2020; Kazis & Molina, 2016; Schaberg, 2020). To date, however, few have considered how the features of effective sectoral programs can be adapted in alternative settings, such as community colleges, to reach the millions of youth and adults who need their services.

With funding from the Strada Education Foundation, the American Institutes for Research® (AIR®) conducted a systematic review to identify the sectoral programs with the strongest record

[2] Good jobs are those that promote economic security and mobility; offer safe, healthy, and accessible workplaces; support workers in feeling that they are valued members of the organization; pay a stable and predictable wage; provide opportunities for advancement; and offer a workplace free from discrimination where all workers have equal opportunity. See the U.S. Department of Labor's Good Jobs Principles for more information: https://www.dol.gov/general/good-jobs/principles.

of success based on rigorous randomized controlled trials (RCTs) and to learn about the features of these programs. We define effective programs as those that have increased participants' earnings 3 or more years after program participation. We identified three programs—Per Scholas, Year Up, and Project QUEST—that meet this standard, and we considered whether and how their approaches could be adapted in alternative settings such as community colleges.

The Strada Education Foundation provided funding for the American Institutes for Research® to investigate how the supports and services offered in sectoral programs that have demonstrated positive, long-term impacts on individuals' labor market outcomes could be scaled to community colleges.

We begin by discussing findings from research on efforts to improve student outcomes in community colleges to date. We focus on advising and other student success interventions, which have received considerable attention as promising practices for improving college degree completion (Feygin et al., 2022). We then describe the current study, including its methodological approach. Drawing on rigorous research on sectoral programs, current syntheses of the research,[3] and data from interviews with program leaders, we highlight the features of the three focal programs—Per Scholas, Year Up, and Project QUEST—that may contribute to their success. We examine commonalities and differences, and we draw lessons for scaling the programs in community colleges.[4] We conclude with recommendations for practitioners, policymakers, and researchers.

Research on Advising and Student Success Interventions in Community Colleges

Each year, more than 10 million students enroll in community colleges, which provide education and training at a fraction of the cost of their 4-year counterparts. Community colleges have the potential to serve as "engines for equity" as they disproportionately enroll people of color and those from low-income backgrounds (American Association of Community Colleges, 2024). However, community colleges face challenges in helping students complete the credentials they need to obtain a good job. Completion rates at community colleges are low, and students experience mixed labor market returns after they have earned a credential (Backes et al., 2015; Belfield & Bailey, 2017; Holzer & Baum, 2017).[5] Over the last 2 decades, community colleges have implemented a variety of interventions in an effort to improve students' success (see

[3] See, for example, J-PAL Evidence Review, 2022; Katz et al., 2020; Kuehn & Eyster, 2020; Peck et al., 2021; and Streke & Rotz, 2022.
[4] Since the RCTs were conducted, all three programs have been modified. However, we began our analysis with a focus on the program that individuals received during the RCT study period because these were the services that had an impact on participants' earnings.
[5] Based on data from the National Center for Education Statistics (NCES), the graduation rate for cohort year 2019 within 150% of normal time at 2-year public institutions was 31% (NCES, 2024).

Exhibit 1). Early in the millennium, these interventions tended to be short term or "light touch." They included intensive advising for a semester or a year, courses that teach students strategies for success in college, or learning communities (Rutschow et al., 2012; Scrivener & Au, 2007; Visher et al., 2012). When these interventions proved to be unsuccessful in rigorous RCTs, researchers sought to implement and study more intensive, multi-semester strategies that integrated several approaches to improve persistence and graduation rates.

What Is a Randomized Controlled Trial?

Considered the gold standard in educational research, RCTs randomly assign study participants to a group that will receive an intervention or to a group that will not receive the intervention. Because each student has an equal chance of being placed into either group, RCTs help ensure that the observed differences in student outcomes can be attributed to the intervention rather than to the characteristics of the students (Weiss et al., 2023).

Although some interventions have shown promise in supporting students' short-term success, few have demonstrated longer-term effects on educational progress, degree completion, employment, or earnings (see Exhibit 2). Of the 15 interventions outlined in Exhibit 2, only four improved certificate or degree completion rates, and only two improved earnings. Two lower-intensity programs are among those that had education or labor market effects: Performance-based scholarships improved certificate and degree completion rates, and corequisite developmental education improved certificate and degree completion rates as well as earnings. The other two programs (Accelerated Study in Associate Programs [ASAP]) and One Million Degrees [OMD]) provide comprehensive, multiyear academic and financial supports; both improved certificate and degree completion rates, and ASAP improved earnings.

The community college interventions that have shown promise tend to focus on supporting students in traditional academic pathways that culminate in an associate degree or transfer to a 4-year college, rather than shorter-term workforce training pathways. For example, ASAP—widely held up as a proven model for increasing degree attainment—specifically targets students seeking an associate degree (Scrivener et al., 2015). Far fewer studies assess the outcomes of students in shorter-term certificate programs. Furthermore, recent research has shown that many associate degree pathways are poorly aligned with available jobs. For example, a recent study of 565 U.S. labor markets revealed that more than one half of the associate degrees offered by community colleges are misaligned with the needs of the regional labor market (Strohl et al., 2024). These challenges indicate that much more information is needed about ways to strengthen community college programs and what strategies are most effective in helping students obtain jobs with family-sustaining wages.

Exhibit 1. Community College Student Success Interventions Studied in RCTs

Intervention	Intervention features
Course-based advising and support	
Learning communities[a]	• Co-enrollment of a cohort of students in two or more linked courses (often linking a developmental course to a college-level course). • Faculty collaboration to integrate the curriculum across courses. • Can include additional student services (e.g., tutoring), which may be integrated into the curriculum.
Student orientation and success courses[b]	• Courses that help familiarize students with the expectations of college and introduce them to resources available on campus. • Often taught by advisors with a focus on building students' study skills and social-emotional awareness. • Can be a one-time orientation before the start of a student's first semester, or a semester or yearlong course (often for no credit or one credit).
Summer bridge programs[c]	• Accelerated instruction in math, reading, or writing provided before the start of the semester. • Includes academic support, an introduction to the college and available services, and a $400 stipend.
Staff mentor paired with college math course[d]	• One-semester, light-touch mentoring program. • Mentors share information with students about available college services. • Mentors work with faculty to identify struggling students and provide help.
Developmental education reforms	
Accelerated math pathways[e]	• Liberal arts and social science majors take a quantitative reasoning or statistics course (rather than algebra) to meet the college math requirement. • Two developmental math courses compressed into a one-semester course. • Instruction based on student-centered and active-learning pedagogy.
Course placement using multiple measures[f]	• Alternative to using standardized test scores for placing students in college courses, providing a more holistic assessment of students' readiness. • Measures may include high school grade-point average, high school coursetaking patterns, noncognitive assessment scores, or other factors. • Colleges may use algorithms for weighting measures or decision rules.
Co-requisite developmental math courses[g]	• Developmental math paired with a college-level math course, which students complete concurrently in one semester.
Modularized developmental math courses[h]	• Semester-long developmental math course divided into self-paced modular lessons that can be completed sequentially.

Intervention	Intervention features
Financial aid tied to performance	
Performance-based scholarships[i]	• Scholarships ranging from $600 to $1,500 per semester, awarded based on students meeting certain milestones. • Students receive payments in one to four semesters. • Some programs require students to meet with an academic advisor.
Aid Like a Paycheck[j]	• Financial aid is disbursed to students incrementally in biweekly payments as they meet certain benchmarks.
Intensive advising support	
Intensive technology-mediated advising[k]	• Early-alert systems and technology tools are used to identify and reach out to struggling students throughout the semester. • Technology-mediated education planning tools help students select courses and track their progress toward a degree. • Electronic messaging and referrals to support services. • Process for sharing information about students with multiple staff.
Intensive advising with modest stipend[l]	• Students are assigned to a team of advisors with reduced caseloads (< 110 students) for two semesters. • Students meet frequently with advisors to discuss progress and challenges. • Students receive a $150 stipend for two semesters, paid after they have completed the required advising.
Comprehensive support	
Scaling Up College Completion Efforts for Student Success (SUCCESS)[m]	• Once-a-month coaching sessions to help with personal and academic issues. • Monthly $50 incentives when students attend advising sessions and maintain full-time enrollment. • Staff track student participation using a data management system.
Accelerated Study in Associate Programs (ASAP)[n]	• Intensive academic advising (1–2 times per month) that focuses on academic and personal challenges. • Free tuition and books; transportation or food stipend ($50–$100). • Requires full-time enrollment. • Staff track student participation using a data management system.
One Million Degrees (OMD)[o]	• Academic coaching and guidance provided by a program coordinator. • Tutoring to help students overcome academic barriers to success. • Full tuition and a stipend of $750–$1000 tied to program participation. • Monthly workshops on financial literacy. • Workshops on workplace norms and career readiness skills. • Local professionals serve as mentors and reinforce career readiness skills.

[a] Visher et al. (2012). [b] Rutschow et al. (2012). [c] Barnett et al. (2012). [d] Visher et al. (2010). [e] Sepanik & Barman (2023). [f] Kopko et al. (2023). [g] Douglas et al. (2023). [h] Weiss & Headlam (2018). [i] Mayer et al. (2015). [j] Weissman et al. (2019). [k] Miller et al. (2020a). [l] Scrivener & Au (2007). [m] Sommo et al. (2023). [n] Miller et al. (2020b). [o] Hallberg et al. (2023).

Exhibit 2. Impacts of Community College Advising and Support Interventions Studied in RCTs

Intervention	Follow-up period (years)	Percentage-point differences between intervention and comparison group			Difference in annual earnings
		College credits earned	Certificate or degree completion	Employment	
Course-based advising and support					
Learning communities[a]	1.5	0.10	—	—	—
Student orientation and success courses[b]	2	-0.3	—	—	—
Summer bridge programs[c]	2	0.0	—	—	—
Staff mentor paired with college math course[d]	1	0.0	—	—	—
Developmental education reforms					
Accelerated math pathways[e]	5	0.39	2.5	—	—
Course placement using multiple measures[f]	4.5	0.4	-0.3	—	—
Corequisite developmental math courses[g]	7	–	7.7**	—	$4,606*
Modularized developmental math courses[h]	1.5	0.0	—	—	—
Financial aid tied to performance					
Performance-based scholarships[i]	4–5	2.1***	3.3**	—	—
Aid Like a Paycheck[j]	2	0.0	—	—	—
Intensive advising support					
Intensive technology-mediated advising[k]	1	0.89, 0.01, -0.83 (3 sites)	—	—	—
Intensive advising with modest stipend[l]	1	0.0	—	—	—
Comprehensive support					
Scaling Up College Completion Efforts for Student Success (SUCCESS)[m]	1.5	0.7	—	—	—

Intervention	Follow-up period (years)	Percentage-point differences between intervention and comparison group			Difference in annual earnings
		College credits earned	Certificate or degree completion	Employment	
Accelerated Study in Associate Programs (ASAP)[n]	6	8.2*** (3 years)	15.1***	-0.3	$1,948**
One Million Degrees (OMD)[o]	3	—	2**	—	—

Note. Statistical significance levels: *10% level, **5% level, ***1% level.
[a] Visher et al. (2012). [b] Rutschow et al. (2012). [c] Barnett et al. (2012). [d] Visher et al. (2010). [e] Sepanik & Barman (2023). [f] Kopko et al. (2023). [g] Douglas et al. (2023). [h] Weiss & Headlam (2018). [i] Mayer et al. (2015). [j] Weissman et al. (2019). [k] Miller et al. (2020a). [l] Scrivener & Au (2007). [m] Sommo et al. (2023). [n] Miller et al. (2020b). [o] Hallberg et al. (2023).

Research on Sectoral and Career Pathway Programs

Alongside research on interventions for improving the academic progress and outcomes of community college students, the last 2 decades have yielded extensive research on the effectiveness of workforce training models. Early research focused on efforts to help recipients of Temporary Assistance for Needy Families acquire and maintain stable work (Hamilton & Scrivener, 2012). Yet as these interventions fell short of their targets, greater attention was paid to sector-focused workforce training programs that train individuals for high-wage, high-demand jobs in certain industries (Hendra et al., 2016; Maguire et al., 2010). These programs typically combine shorter-term occupational training in sectors such as information technology (IT), health care, and advanced manufacturing with career readiness training and other support services. Further, they are designed with direct input from employers (Maguire et al., 2010).

What Are Sector-Focused Workforce Training Programs?

Sector-focused workforce training programs, or sectoral programs, provide occupational skills, career readiness training, and supports in high-wage, high-demand industries, typically in partnership with employers and industry leaders (J-PAL Evidence Review, 2022; Peck et al., 2021).

Frequently, studies of these sectoral programs have found more positive impacts on participants' education and labor market outcomes than community college interventions (Maguire et al., 2010). But like studies of community college interventions, few sectoral programs have had lasting effects on participants' outcomes, especially on employment and earnings. A second generation of sectoral programs tested as part of the WorkAdvance Demonstration, which included four sectoral programs that also integrated career advancement support, found similar effects on education, employment, and earnings in early follow-up

studies (Hendra et al., 2016). Yet only one program continued to see effects on earnings in later years (Kanengiser & Schaberg, 2022).

This program—Per Scholas—plus two other programs, Year Up and Project QUEST, demonstrated dramatic effects on long-term employment and earnings in studies that followed participants for 6 to 11 years after they entered the program (see Exhibit 3; Fein & Dastrup, 2022; Kanengiser & Schaberg; 2022; Roder & Elliott, 2021; Schaberg, 2017). These programs have many similar features, including training in high-wage fields; strong employer supports and investments; intensive wraparound supports to help participants overcome potential barriers to success; and training in workplace norms and behaviors. These programs—along with other sectoral programs that demonstrate effects on early employment and earnings—have garnered a great deal of attention in recent years as researchers have sought to understand what might explain their success (e.g., Hendra et al., 2023; J-PAL Evidence Review, 2022; Katz et al., 2020; Peck et al., 2021).[6] To date, however, few have considered how the features of these programs might be adapted in alternative settings such as community colleges, which have the potential to reach many more individuals than sectoral programs can accommodate currently. This study aims to address this gap.

Exhibit 3. RCT Studies of Sectoral Programs With Long-Term Impacts on Education and Earnings

Program	Length of follow-up period	Percentage-point difference in		Earnings difference	Average salary at latest follow-up	
		Completed training or earned credential	Employment[e]		Treatment group	Control group
Per Scholas[a]	7 years	35.9***[d]	3.1	$4,844**	$40,494	$35,651
Year Up[b]	6 years	27.9***[f]	0.5	$8,251***	$35,589	$27,338
Project QUEST[c]	11 years	13.0**	10.1**	$4,616*	$35,500	$29,870

Note. Statistical significance levels: *10% level, **5% level, ***1% level.
[a] Kanengiser & Schaberg (2022) and Schaberg (2017). [b] Fein & Dastrup. (2022). [c] Roder & Elliott (2021). The follow-up period for completing training or earning a credential was 2 years. [d] Hendra et al. (2016). Completion of training or a credential is not fully reported in later follow-up reports. [e] Each of these programs had employment impacts at various times during follow-up studies. [f] Fein et al. (2021).

[6] Some research studies and syntheses have focused on career pathway programs, most of which are also considered sectoral programs. For instance, Peck et al. (2021) define career pathway programs as programs that offer services similar to the ones that sectoral programs offer (training in a specific sector with a focus on completion of industry-recognized credentials, support services, and employer connections). In addition, career pathway programs offer multiple entry and exit points for individuals as they move up the career ladder. For ease of reference, we refer to these career pathway programs as "sectoral programs" throughout this report.

Approach

This study involved a phased approach, beginning with a systematic review of the literature that narrowed the focus of the study to three sectoral programs: Per Scholas, Year Up, and Project QUEST. After the literature review, the study team conducted in-depth interviews with leaders of each program.

Systematic Review

During summer 2023, the study team conducted a systematic search of academic databases for research on the impact and implementation of sectoral programs conducted since 2010. The team developed the search strategy based on an initial review of empirical literature and meta-analyses focused on sectoral programs (e.g., Peck et al., 2021). The search yielded 784 articles. Using Abstrackr—a free online tool that allows users to upload the results of a systematic literature search and to screen article abstracts—the study team screened these articles using two criteria: (a) the article described primary research on a sector-based program and (b) the article described research conducted in the United States or Canada. If the screener answered "yes" or "maybe" to both criteria, the article moved to the next screening phase, full-text screening. Thirty-two articles moved to full-text screening.

During full-text screening, screeners confirmed the accuracy of the answers to the two screening criteria used in the abstract screening phase, updating "maybe" answers to either "yes" or "no." Screeners considered an additional criterion: The article described the findings from an RCT. If the screeners answered "yes" to all criteria, the article moved to the next phase. In total, four articles representing three sectoral programs met the criteria for inclusion. These programs—Per Scholas, Year Up, and Project QUEST—are the focus of this report.

Recognizing that the systematic search may not have yielded all studies of sector-based programs conducted since 2010, the study team used additional search strategies to ensure comprehensiveness. These strategies included forward and backward searching of references to studies from the systematic review and reviewing references from meta-analyses of sectoral programs. These search strategies did not result in the identification of additional programs for inclusion in the review.

Case Studies

After identifying Per Scholas, Year Up, and Project QUEST as the focal programs for the study, the team searched for implementation studies that describe the services these programs provided at the time of random assignment, with the goal of identifying commonalities and differences across the three programs. Although syntheses (J-PAL Evidence Review, 2022; Kazis

& Molina, 2016; Streke & Rotz, 2022) identified a common set of features among some sectoral programs with evidence of effectiveness, our goal was to elaborate on the implementation of certain program features and then consider the factors that facilitated or impeded implementation of these practices in community colleges settings.

In addition to reviewing the implementation studies, the study team conducted interviews with program leaders at all three programs to further understand the services they offered participants during the time of the RCT and how their programs had changed over time. AIR recruited leaders based on their role and tenure at the program. In turn, these leaders recruited others in their organization to join the interviews. We conducted 60-minute interviews using a semistructured interview protocol tailored for each program based on the program features discussed in implementation reports. We sought to confirm the details of certain program components and their implementation, where information in the report was incomplete. We also asked leaders to reflect on what they felt was essential to their program's success and on the challenges or facilitators of implementing these features in community colleges. We used these data to elaborate on program features and to highlight implementation barriers and facilitators in program leaders' own words.

PER SCHOLAS

For nearly 30 years, Per Scholas has been committed to driving equity and opportunity in the ever-advancing technology landscape by unlocking the untapped potential of individuals, uplifting communities, and meeting the needs of employers through rigorous training in information technology (IT). Per Scholas teams up with dynamic employer partners, ranging from Fortune 500 companies to innovative startups, in an effort to create inclusive talent pipelines in technology.

With national remote training and campuses in more than 20 cities and counting, Per Scholas has served more than 25,000 individuals, helping them gain the skills and credentials they need to be successful in a variety of IT roles, including IT support specialists, Java developers, software engineers, and cybersecurity analysts. The organization also offers extensive workplace readiness training and job placement services to program participants and works with more than 850 employer partners that support the program's development and hands-on technical training. Employers also commit to hiring Per Scholas graduates, further supporting individuals' advancement into careers. The program now has 20 locations and seeks to expand its footprint by growing a satellite model that will provide virtual training at community-based organizations with whom the program partners throughout the country (Barclays & Per Scholas, 2022).

Per Scholas was evaluated as part of the WorkAdvance Demonstration, which used a randomized controlled trial design to evaluate the effectiveness of four programs.[7] Of those programs, Per Scholas was the only one that saw positive and long-term impacts on participants' earnings. After 7 years, Per Scholas participants earned $4,844 more in average annual earnings than comparison group members (Kanengiser & Schaberg, 2022).

[7] The other three programs were Towards Employment, Madison Strategies Group, and St. Nicks Alliance.

YEAR UP

Founded in 2000, Year Up is committed to closing the Opportunity Divide by providing young adults seeking economic mobility with the occupational training, intensive supports, and workplace readiness skills they need to access high-wage, high-demand career pathways such as business operations, financial operations, banking and customer success, software development and support, and information technology (Year Up, n.d.). Through Year Up's job training programs, students build foundational job and industry capabilities, develop essential career readiness skills, and receive connections to internships or other job placements with a leading employer partner. Throughout the program experience, students receive an educational stipend and extensive support through advisory services, coaching, access to mental health resources, and relationships with peers.

Year Up offers a core program in which training, instruction, coaching, and other services are provided by Year Up staff during a 6-month learning and development phase, followed by a 6-month internship at a major firm. In an effort to expand its reach, Year Up began partnering with community colleges in 2010 to offer a second version of the program, the Professional Training Corp (PTC) model, through which colleges provide technical skills instruction and Year Up staff provide training in professional skills (Fein et al., 2020). Through both models, Year Up has served more than 45,000 students to date across more than 20 markets nationwide. Year Up is seeking to expand its impact through partnerships with community colleges, training providers, and other nonprofit organizations, with the goal of reaching 40,000 students annually (Hendra et al., 2023).

The effectiveness of Year Up's program[8] has been evaluated in four randomized controlled trials (RCTs), including two studies of Year Up's core model and two studies of its PTC model. This report focuses on the findings from the evaluation of Year Up's core model. These studies include one RCT, which was conducted by Economic Mobility Corporation beginning in 2007 and a second RCT conducted by Abt Associates beginning in 2013 as part of Pathways for Advancing Careers and Education (PACE), which examined the impact of nine career pathway programs (Fein & Hamadyk, 2018; Roder & Elliott, 2014). Year Up had impacts on employment and earnings in both studies. Abt's study has continued to assess impacts in follow-up studies, and of the nine PACE programs, Year Up was the only program to meet our criteria for positive and long-term impacts. After 7 years, Year Up participants earned $1,895 more in average quarterly earnings and $8,251 more in average annual earnings than comparison group members (Fein & Dastrup, 2022).

[8] In Year Up's initial core model, participants received 6 months of training and instruction from Year Up staff.

PROJECT QUEST

Project QUEST (Quality Employment Through Skills Training) was founded in 1992 by two community-based organizations in San Antonio, Texas—Communities Organized for Public Service and Metro Alliance—to address the skills mismatch that followed the city's shift from a manufacturing to a service-based economy. In San Antonio's new economy, well-paying jobs required advanced skills that few residents possessed. Project QUEST was established to address this skills gap, acting as an intermediary connecting adults to training and education to help San Antonio's unemployed, underemployed, and underskilled residents obtain jobs that offered a living wage (Rademacher et al., 2001). The organization historically has focused on three sectors—health care, manufacturing and trades, and information technology—through its partnership with the Alamo Colleges District and several other training providers. Key to Project QUEST is its unique wraparound model that combines the training with comprehensive support, coaching, and resources to ensure participants' success. In its 30-plus years serving San Antonio, Project QUEST has provided services to more than 10,000 participants (Roder & Elliott, 2021). Unlike Alamo Colleges District, which receives funding from tuition and from local, state, and federal sources, Project QUEST is funded primarily through fundraising.

Project QUEST acts as an intermediary between employers and Alamo Colleges District by seeking input from employers on the types of skills and competencies they are looking for in employees, and then relaying that information back to Alamo Colleges District to ensure that course offerings are aligned with employer needs. In at least one case, Project QUEST worked with Alamo Colleges District to completely revamp a training program to meet local employer demand and attract new students. In another case, Project QUEST worked with Alamo Colleges District to modify course offerings in response to the changing needs of employers, which Project QUEST identified through interviews with local employers.

Economic Mobility Corporation examined the impact of Project QUEST on credential attainment and earnings among participants pursuing careers in health care. After 11 years, Project QUEST participants earned $4,616 more in average annual earnings than nonparticipants (Roder & Elliott, 2021).

Features of Effective Sectoral Programs

Per Scholas, Year Up, Project QUEST, and other sectoral programs have long been the subject of research, along with other sectoral programs that have shown early promise in increasing individuals' employment and earnings. Over the past several years, scholars have been examining the features of programs with positive impacts on education and labor market outcomes in syntheses and meta-analyses of previous studies. Exhibit 4 summarizes recent authors' conclusions. The first set of columns is based on our analysis of implementation studies of Per Scholas, Year Up, and Project QUEST. The second set of columns shows which of these features have been discussed in recent syntheses that assessed the impact of a wider range of sectoral programs. The final set of columns shows the recommendations and features present in two qualitative studies of community college workforce training programs.[9]

These studies provide similar recommendations for building strong sectoral programs. For instance, all 10 studies shown in Exhibit 4 highlighted program features such as focusing on high-wage, high-demand industries and involving employers. Nine out of 10 programs suggested focusing on developing an employer-ready candidate, using labor market information (LMI) to inform program planning, and embedding workplace readiness skills training into the program, among other features. Several studies recommended providing individualized coaching or case management, on-the-job training, or work-based learning experiences. Overall, 15 of 21 program features were present or recommended in eight of 10 of the reports.

Noting these commonalities, this report analyzes three overarching features of effective sectoral programs: (a) employer involvement, (b) occupational skill training, and (c) student supports and advising. We then consider how these features differ from those of more traditional community college practices and interventions and subsequently discuss the implications for potential improvements to the approaches to workforce training used by community colleges.

[9] Other meta-analyses have also looked at interventions for improving education and training, employment, and earnings outcomes. For instance, a 2022 Pathways Clearinghouse analysis reviewed various interventions for improving these outcomes (e.g., Streke & Rotz, 2022), while others synthesized impact findings from initiatives such as the Trade Adjustment Community College and Career Training grant program (e.g., Kuehn & Eyster, 2020). However, these reviews included programs that did not meet the definition of a sectoral or career pathways program for this study; therefore, they are not included.

Exhibit 4. Characteristics Associated With or Present in Programs With Educational and Labor Market Outcomes

Program feature	Impact and implementation reports			Summary and synthesis reports					Case study and survey reports	
	Per Scholas	Year Up	Project QUEST	Peck et al. (2021)[a]	Maguire et al. (2010)	Schaberg (2020)	Kazis & Molina (2016)	Katz et al. (2020)	Fuller & Raman (2022)	Davidson et al. (2019)
Employer involvement										
Dual-client (employer/student) focus	o	o	o		o	o	o		o	o
Employer-ready candidate development	o	o	o		o	o	o	o	o	o
Strong relationships with employers	o	o	o	o	o	o	o		o	o
Use of LMI data to inform program	o	o	o		o	o	o	o	o	o
Department dedicated to building/managing employer relationships	o	o	o	~	o	o	o		o	
Employer input in program development	o	o	o	o	o	o	o	o	o	o
Occupational skills training										
Training informed by employer needs	o	o	o		o	o	o	o	o	o
High-wage, high-demand industry	o	o	o	o	o	o	o	o	o	o
Support services and advising										
Unemployed/underserved populations	o	o	o		o	o	o	o	o	o
Diagnostic assessment paired with individual support plan	o	o	o		o	o	o			

Program feature	Impact and implementation reports			Summary and synthesis reports					Case study and survey reports	
	Per Scholas	Year Up	Project QUEST	Peck et al. (2021)[a]	Maguire et al. (2010)	Schaberg (2020)	Kazis & Molina (2016)	Katz et al. (2020)	Fuller & Raman (2022)	Davidson et al. (2019)
Embedded workplace readiness training	o	o	o		o	o	o	o	o	o
Incentivized participation	o	o	o		o	o	o			
Employer input in program supports	o	o	o		o	o	o	o	o	o
On-the-job training	o	o	o	~	o	o			o	o
Job development/placement support	o	o	o	~	o	o	o	o		o
Post-program assistance	o	o	o		o	o	o	o		
Individualized case management	o	o	o		o	o	o	o		o
Wraparound supports	o	o	o	~	o	o		o		
Participant cohort model	o	o	o		o	o	o			
Tuition and financial assistance	o	o	o	o	o	o		o		o

Note. LMI = labor market information. ~ Feature was associated with impacts in initial rounds of analyses but not included in the final meta-regression analysis.
[a] Peck et al. (2021) provide an analysis of the impact of the full career pathway model and suggestive evidence on program features related to educational and labor market impacts. This column summarizes the key features of the overall career pathways approach and specific features associated with impacts.

Employer Involvement

Engagement with employers is one of the hallmarks of effective sectoral programs, with employer input imbuing nearly every aspect of program development, services, and supports. Recent syntheses of sectoral training programs have highlighted employer involvement as a critical feature among programs with early impacts on education and labor market outcomes (J-PAL Evidence Review, 2022; Schaberg, 2020). Employer involvement also is one of the few program features found to be associated with completing a credential in a meta-analysis of rigorous research on career pathway programs (J-PAL Evidence Review, 2022; Peck et al., 2021). Recent research has highlighted the importance of this "dual client" focus, in which leaders design programs to serve the needs of employers as well as program participants (Hendra et al., 2016; Tessler et al., 2014). In doing so, they consider the type of candidate whom employers want to hire, as well as local labor market needs, to design training programs that help individuals gain the skills that employers seek.

Employer input was evident across multiple features of Per Scholas, Year Up, and Project QUEST during each RCT (see Exhibit 5). At the start of the RCTs, each program had existed for more than 13 years and had departments and staff dedicated to cultivating and managing relationships with employers. At Year Up, the corporate engagement team managed relationships with more than 250 employer partners, providing input on the types of skills most in demand and feedback on the strengths and challenges of the program participants who were hired (Grobe et al., 2010). Similarly, Per Scholas had a business solutions team, which included job developers who managed relationships with employers in the New York City area (Tyton Partners, 2017). At Project QUEST, a dedicated occupational development unit and employment team analyzed labor market data, developed employer relationships, and provided job placement assistance (Rademacher et al., 2001). In each case, these individuals served as the organization's bridge to the specific industries relevant to their program's focus, and they provided support to students learning about and navigating the workplace.

Employers also supported key features of the programs. For instance, they led mock interviews and seminars on certain industries or careers within their company. Year Up had perhaps the most intensive employer involvement of the three programs: Employers hosted participants in 6-month internships and provided nearly $25,000 per student in financial support directly to the program. This investment fostered trust, resulting in employers' willingness to hire students after program completion. One study found that employers offered approximately 50% of Year Up interns full-time jobs upon program completion (Fein et al., 2021).

Exhibit 5. Examples of Employer Involvement at Per Scholas, Year Up, and Project QUEST During the RCT Study Period

Program	Examples of employer involvement
Per Scholas	• Business solutions team maintains regular communication with employers. • Employer advisory group provides guidance on occupational skills training and career readiness skills. • Staff regularly adapt occupational and career readiness skills training based on employer input. • Employer partners visit programs (or host visits from program participants) to give presentations on their companies and conduct mock interviews. • After job placement, staff follow up with employers on participants' progress and performance.
Year Up	• Corporate engagement team collaborates with employer partners to understand their technical skill and workplace readiness needs, aligning occupational and career readiness training with these needs. • Employers participate in program activities with students, such as teaching workshops or providing additional training to further develop their interns' skills. • Each employer has an assigned manager who solicits regular feedback from employers on participants' preparation and performance on the job and, in response to feedback, tailors the support that Year Up provides to participants (for individual participants and more broadly within the curriculum). • Employers pay Year Up to defray their costs for training participants.
Project QUEST	• Occupational development unit staff collaborate with employers to define the skills and competencies they are seeking in employees. In turn, the staff work directly with Alamo Colleges District to ensure their offerings will support Project QUEST participants in developing the skills that employers need.

All three programs are dedicated to helping individuals from low-income backgrounds—many of whom are disconnected from education and the workforce—build the skills needed to gain access to high-wage, high-demand jobs. In interviews, program leaders emphasized the need to cultivate employers' understanding of their student populations, which in turn supported employers' trust in hiring program graduates. As one leader at Per Scholas put it, "Our singular focus is to get learners into jobs. Nothing else matters—[and we seek] to give them what they need to be successful." Likewise, leaders at Year Up provided intensive support for employer managers, training them "about what it means to employ opportunity talent—[to understand the needs of] someone who has not come from a traditional background."

Variation in Employer Involvement Among Effective Sectoral Programs

While Year Up[10] and Per Scholas worked within their own programs to build employer-friendly curricula, Project QUEST is unique in its partnership with Alamo Colleges District, which fostered connections between the college and industry leaders to build stronger pathways to higher-wage jobs. A 2001 case study of Project QUEST (4 years before the RCT) discussed Project QUEST's strength in brokering relationships with employers, employees, and colleges to develop training and services that would serve all three parties well (Rademacher et al., 2001). For instance, when trying to support the growth of high-wage careers in the health industries, Project QUEST interviewed employers to identify key skills and worked with the Alamo Colleges District to revamp its curricula and add new courses that met industry demands. Project QUEST also relied on the trust that employers had in their program to negotiate employee-friendly changes, such as increasing wages for certain positions or revising academic skills requirements that were a barrier to workplace entry (Rademacher et al., 2001).[11]

The employer-focused mindset of all three programs contributed to multiple aspects of their development and management, from the content of the training offered to the types of supports provided to students. This mindset also built trust between the programs and employers, increasing employer willingness to hire program graduates, which may have contributed to program impacts on students' employment and wages in the long term.

Implications for Community Colleges

Research over the past decade has shown deep gaps between offerings in postsecondary institutions and employer needs. For instance, in a 2013 survey of 318 employers, the majority of employers thought that 2-year and 4-year colleges should place more emphasis on workplace readiness skills such as critical thinking, complex problem solving, communication, and application of knowledge to real-world settings (Hart Research Associates, 2013). Recent studies have also noted this gap, reporting that the majority of employers believe that community colleges are resistant to curriculum change and that talent is easier to find on the open market than at colleges (Fuller & Raman, 2022).

Researchers, nonprofit organizations, and government agencies have begun to recommend practices to overcome the gap between postsecondary offerings and employer needs, and have provided case studies of how colleges are successfully bringing employer voice into their programming and practices (Davidson et al., 2019; Fuller & Raman, 2022; Schwartz & Lipson,

[10] As Year Up grew, they partnered with community colleges to provide training to students and have continued to partner with community college over the last 15 years.

[11] For instance, Project QUEST helped one company adjust its screening criteria, allowing individuals with 9th-grade reading skills to be eligible for employment rather than requiring 12th-grade reading proficiency, which disqualified many from employment consideration.

2023). These recommendations echo the practices of effective sectoral programs, such as using labor market and industry needs to inform curriculum content, actively engaging employers in program design and training, and embedding workplace readiness supports into training and education. In the next section, we detail these features—and considerations for community colleges—in our analyses of the occupational skills training and student supports that effective sectoral programs provide.

Occupational Skills Training

Occupational skills training, or training in the technical skills that are needed to accomplish specific job tasks, is a key component of most sectoral programs. Sectoral programs focus on providing occupational skills training within high-wage, high-demand industries aligned with the labor market needs of their region. They provide this training in a variety of settings, including nonprofit organizations, workforce development agencies, and community colleges or schools. Sectoral training programs that are offered in a community college setting often focus on helping students earn college credits that can lead to a certificate or degree. However, sectoral programs also provide this training through noncredit courses at colleges or workforce-oriented agencies (Palmer, 2021; Van Noy & Hughes, 2022). Often—though not always—noncredit training programs result in an industry-recognized credential or prepare individuals to pass licensing exams required for entry into specific professions (such as commercial driving or certain health care specialties). Noncredit programs can be more flexible with timing, content, and program development; they are not required to adhere to college accreditation processes or semester scheduling. However, these programs may be more costly for students because they generally are not eligible for tuition supports like federal financial aid (Van Noy & Hughes, 2022).

Like other sectoral programs, Per Scholas, Year Up, and Project QUEST focus on high-wage, high-demand industries. RCT program participants at Per Scholas received training in IT while those at Year Up received training in IT and finance and those at Project QUEST received training in health care (see Exhibit 6) (Fein et al., 2021; Hendra et al., 2016; Roder & Elliot, 2018). This training content was informed by reviews of LMI, which documented key high-wage industries within the regions where the programs operate, along with the types of roles and positions available, and the types of skills that are needed to obtain these jobs. Furthermore, all three programs worked with employers and within their communities to validate their LMI findings and to modify their offerings based on current labor market conditions.

Exhibit 6. Occupational Skills Training Offered by Per Scholas, Year Up, and Project QUEST During the RCT Study Period: Career Field, Length of Training, and College Credit Earned

Program	Career field	Length of occupational skills training	College credits earned
Per Scholas	Information technology	15 weeks	No
Year Up	Information technology and financial services	6 months	Yes, but varied by site (ranging from 18 to 30+ credits through individual articulation agreements with local partner colleges)
Project QUEST	Health care (licensed vocational nurse, registered nurse, medical records coder, technician)	7-month and 2-year programs (with one or two semesters of prerequisite courses)	Yes

Variation in Occupational Skills Training Among Effective Sectoral Programs

The length of time that sectoral programs provided occupational skills training to participants differed widely across the three programs. Per Scholas was able to increase participants' long-term earnings with only 15 weeks of training, or less than 4 months. Year Up provided training for just 6 months (followed by a 6-month internship). Project QUEST's training could be as short as 7 months or as long as 2 years, along with one or two semesters of prerequisite courses. Though their industries of focus varied, the programs were able to realize substantial impacts on participants' earnings even within these short time frames.

Both Per Scholas and Year Up developed their own training, which they generally provided to RCT participants in-house or using carefully selected instructors to teach program content.[12] This type of in-house program development gave them the flexibility to devise and adapt training content. During interviews with program leaders, both organizations underscored this practice as critical to their success. For instance, when asked whether they collaborated with other partners to offer occupational skills training, Per Scholas leaders emphasized that "we provide technical training, that is what Per Scholas does, and so when we think about what makes us different … we pride ourselves on being able to do this, being able to do it well, and being able to do it at a cost that does not overinflate our cost per learner."

On the other hand, Project QUEST partnered (and continues to partner) with their local community college system, Alamo Colleges District, to provide occupational skills training.

[12] Year Up also had begun to develop training with community colleges, but those collaborations varied across sites, and Year Up had significant input into the instructors hired and the content taught.

Project QUEST applicants completed a series of steps to enroll in the program (see the Intensive Screening and Wraparound Supports section below), with Project QUEST Career Coaches assisting in developing an academic plan that outlined the courses, timeline, and budget necessary to attend. Project QUEST Career Coaches then assisted participants in registering for the appropriate courses at Alamo Colleges District, with Project QUEST providing the career and student supports discussed in the sections that follow.

Of the three programs, Project QUEST was the only program that partnered with community colleges from its inception and during the RCT studies highlighted in this report. Today, Per Scholas continues to operate training in-house. Beginning in 2010, however, Year Up began partnering with community colleges through its Professional Training Corp (PTC). In this model, Year Up participants receive similar services, supports, and training as those in Year Up's core model. However, partner community colleges provide occupational skills training while Year Up staff provide professional services and supports, with students dually enrolled in both programs (Fein et al., 2020). As one program leader explained, Year Up sought to "extend our reach to more Opportunity Talent, link college training to employment opportunities, leverage industry training provided by community colleges instructors, and create a more financially-sustainable program model." In return, Year Up offered community colleges the ability to attract new enrollees who could benefit from the financial supports, wraparound services, employer partnerships, and work-based learning experiences that Year Up provided. A study of the PTC model also revealed that this program had similarly large impacts on earnings with a substantial cost savings and a reduced need for philanthropic support (Fein & Maynard, 2022).[13]

Over time, Year Up leaders have observed advantages and challenges in working with community colleges. Year Up benefited (and continues to benefit) from partnerships with community colleges, and many of these partnerships continue to the present day. However, these partnerships surfaced challenges because of differing goals between community colleges and Year Up. For instance, whereas Year Up focused on providing training in a short (6-month) period, some community colleges wanted students to enroll for longer periods to complete a degree or credential. Other limitations included the need for individualized and time-intensive, school-by-school negotiations to provide Year Up's training, given colleges' differing course offerings, their lengthy processes for accreditation (if courses were offered for credit) that could delay implementation, and the need to design noncredit courses if colleges' current offerings did not meet Year Up's training standards. Furthermore, courses offered for credit (which need to meet accreditation standards) were less flexible in design, making it more difficult to update course content to align with industries' changing skill needs. Finally, traditional college courses

[13] An earlier RCT found no significant differences in participants' college enrollment and earnings, which study authors and Year Up leaders believe is due to lower retention in the program. In a second RCT, leaders provided enhanced academic coaching and attention to program persistence. The study found impacts on earnings similar to those of the core model (Fein & Maynard, 2022).

often provided fewer feedback points on students' progress (or lack thereof) than Year Up's core model, making it more challenging to monitor and take quick action if students were struggling (Hendra et al., 2023). As one Year Up program leader put it,

> "Many college classes aren't designed with many grade checkpoints or things that can tell you how someone's doing before the final grade … the vulnerability to that model for us that we've had to work around is that you don't know how someone's doing until the final grade … and then all of a sudden [students receive] an F or a C-minus, which falls just a hair below the C grade that's required for the [course] to be recognized."

In these cases, students would have to retake the course, which would delay the completion of their training.

Meta-analyses of rigorous research on sectoral programs have found that programs led by a community college (or other government entity, like a workforce development program) are associated with smaller impacts on student outcomes than those led by private organizations (Peck et al., 2021). This finding may be due to a smaller service contrast in community colleges (where students in the comparison group could receive similar services at the community college) or to variation in community college students' characteristics (Peck et al., 2021). In addition, practices specific to community colleges, such as accreditation or lack of check-in points before students receive a failing grade, could be contributing factors. Researchers who have studied successful sectoral programs suggest that constraints in the ability of colleges to adapt quickly to labor market conditions may be one reason that programs like Per Scholas, which kept its training in-house, have had a stronger impact (Hendra et al., 2023).

Implications for Community Colleges

Effective occupational training approaches of sectoral programs—especially among those that partnered with community colleges—offer insights regarding potential improvements to how community colleges prepare students for careers. First, the success that these programs achieved within short-term training reveal that skills development can occur outside of multiyear degree or certificate programs. Research on the value of short-term credentials bears out these findings, revealing that alternative pathways outside of a college degree can provide similar benefits to those who may not be able to commit the time to complete a full degree program (Belfield & Bailey, 2017). Colleges (and the policymakers and governing boards that oversee their programs and standards) might consider whether some pathways could provide students with the skills to enter the labor market more quickly—a practice that many colleges are already pursuing through noncredit programs (Van Noy & Hughes, 2022). Another promising strategy is providing students with credit for prior learning or using competency-based education models that allow students to demonstrate mastery of certain skills (Kilgore, 2024; Parsons et al., 2016).

Both models offer more flexibility in curriculum and training while ensuring that students have gained the skills that are being taught.

Furthermore, the experiences of Project QUEST and Year Up reveal that community colleges can serve as strong partners in developing and providing sectoral training. However, they might consider how institutional policies and practices may unintentionally create barriers to students' transition to the workforce. Creating more flexible entry and exit points for technical skill building, aligning this training with employer and local labor market needs, and being creative with noncredit programming are just a few of the ways that colleges might further support students' direct entry into employment. Policymakers interested in supporting community colleges might consider how to incentivize these practices even further and remove lengthy approval systems that make it difficult for colleges to adapt their credit courses quickly.

Support Services and Advising

Providing intensive support services and advising alongside occupational skills training is a key feature of the sectoral programs that have improved participants' earnings in the long term (J-PAL Evidence Review, 2022). These supports, which are similar to those provided by many community colleges, include coaching, case management, cohort-based learning communities, and efforts to meet students' basic needs and mental health needs. However, support services and advising in effective sectoral programs have features that distinguish them from programs typically offered in community colleges. The following sections describe the range of support services that effective sectoral programs provide, how they relate to community colleges' practices, and how they might be strengthened in community college settings. We begin by describing intensive screening and wraparound supports, followed by preemployment and workforce readiness supports.

Intensive Screening and Wraparound Supports

Like other sectoral programs, Per Scholas, Year Up, and Project QUEST used intensive screening and admissions processes that measured multiple aspects of students' readiness for success in the program during the RCT (see Exhibit 7). Each program required prospective candidates to have a high school diploma or GED and assessed students' academic readiness. In addition, Per Scholas and Project QUEST (per Alamo Colleges District policy) required participants to meet certain academic skill minimums, such as the requirement by Per Scholas that participants test at the 10th-grade level in literacy (Hendra et al., 2016). In addition to academic factors, the programs considered student age and demographic characteristics. Per Scholas required participants to be older than 18 (but in practice, tended to serve an older population, with the average age being 31) and currently earning less than $15 per hour (Hendra et al., 2016). Year

Up focused on "opportunity youth"—that is, participants between the ages of 18 and 24[14] who were in the middle range of the low- to high-risk profile (Fein & Hamadyk, 2018). Project QUEST served a population similar to that of Per Scholas in terms of age, with an average age of 30, but focused on a more disadvantaged population (Roder & Elliott, 2018).

Exhibit 7. Screening Process at Per Scholas, Year Up, and Project QUEST During the RCT Study Period

Program: Per Scholas	
Entry Requirements: • High school diploma or GED • Reading, writing, and math skills at the 10th grade level+ • Earning less than $15 per hour	**Assessments Used:** • Test of Adult Basic Education (TABE) **Duration:** • 1–7 days or longer

Admissions Process:

- Applicants attend orientation and staff determine eligibility.
- Applicants take the TABE.
- Staff interview applicants who meet skills requirements.
- Applicants complete a second interview.
- Staff select applicants.

Program: Year Up	
Entry Requirements: • Age 18–24 • No bachelor's degree	**Assessments Used:** • Learning assessment (reading, writing, math, and critical thinking) • Public speaking and interactive group activities **Duration:** • Six months

Admissions Process:

- Interested individuals attend orientation to learn about the program.
- Interested individuals submit a résumé, a 2-page essay, and references.
- Applicants complete a drug screen and background check.
- Applicants complete a learning assessment.
- Staff interview applicants who passed the learning assessment.
- Staff meet to discuss applicants and make decisions about admission.

[14] Year Up has now expanded its age range to 29.

Program: Project QUEST	
Entry Requirements: • High school diploma or GED • Reading skills at the 8th-grade level+ and math skills at the 6th grade level+	**Assessments Used:** • TABE • System for Assessment and Group Evaluation (SAGE) • College placement test **Duration:** • 15–30 days
Admissions Process: • Interested individuals attend an orientation session to learn about the program. • Interested individuals submit an application. • Applicants take the TABE and write a career exploration essay. • Applicants take the SAGE to assess the match between their aptitudes and career goals, as well as the college placement test. • Applicants meet with a counselor to review their application, discuss a plan for addressing challenges, and develop an academic plan and budget. • Applicants return with documentation to verify the sources of funding that can cover their training and determine needed support. • Applicants attend a final interview with a program leader who decides whether to recommend them for admission.	

All three programs assessed other aspects of readiness. For instance, they required interviews with program staff to assess applicants' social, emotional, and life needs. They considered factors that might complicate an individual's ability to gain employment, such as a criminal conviction, addiction, and housing instability. Furthermore, they structured the application, testing, and interview processes as multistep activities, with applicants typically returning multiple times to the program site. This process provided additional information to program leaders about students' interest and willingness to commit to program participation.

Programs used information gathered during the screening process not only to assess potential participants' readiness for program entry but also to consider what services and wraparound supports might be required to promote their success while in the program. Providing wraparound supports has become an increasingly important strategy that both sectoral programs and community colleges use to increase student success (Feygin et al., 2022). These supports—which can include a range of services such as housing, food assistance, financial support, mental health counseling, or childcare—aim to ameliorate or eliminate nonacademic barriers that could jeopardize student success (American Association of Community Colleges, 2024; Coca et al., 2022). Rigorous studies suggest that wraparound supports may be critical for students' educational progress and employment (Miller & Weiss, 2021; Walton et al., 2019).

Per Scholas, Year Up, and Project QUEST offered a tailored set of services for students based on their needs along with mentors, coaches, or advisors who provided individualized guidance (see

Exhibit 8). For instance, Per Scholas mentors were able to address a wide range of challenges that students may have been experiencing, from managing finances to finding social services supports. Services from Year Up and Project QUEST were more intensive; these programs sought to find solutions to barriers such as homelessness, mental health challenges, or food insecurity within their own programs or through partnerships with local agencies. All three programs had one-on-one case management or coaching from staff who provided individualized supports for each participant throughout their tenure in the program. Finally, each program had financial supports available, such as providing training at no cost, emergency financial aid, or stipends.

In interviews, program leaders further emphasized the importance of this tailored approach to helping ensure student success. For instance, Per Scholas leaders noted that they had expanded their staff to include social workers who "work with learners that experience systemic barriers to [participation such as] homelessness or other personal issues." Project QUEST leaders explained how they sought to "look at an individual from a holistic standpoint … [to] customize an approach for them." They also noted that this process did not focus so much on "screening out" individuals as figuring out "how [we are] going to make this work." They emphasized that the "trust built is really critical" to helping participants succeed in the program.

Exhibit 8. Wraparound Supports Offered to Participants at Per Scholas, Year Up, and Project QUEST During the RCT Study Period

Program	Component
Per Scholas	• Counseling for emotional needs • Mentoring • Assistance with work attire • Need-based transportation assistance
Year Up	• Social workers meet with students to identify potential challenges and develop an "onboarding plan" to ensure that students have the supports they need to overcome these challenges. • Social workers provide case management services, referring students to community resources to provide housing, childcare, legal advice, and help accessing public benefits, as needed. • Advisors meet with students on a weekly basis to provide problem-solving support and encouragement. • Participants receive weekly stipends.
Project QUEST	• Financial assistance to cover expenses related to occupational training, including tuition and fees, textbooks, transportation, uniforms, licensing exam fees, and tutoring • Mental health counseling to address personal challenges • Referrals for assistance with utility bills, childcare, food, and housing

Variation in Screening and Wraparound Supports in Effective Sectoral Programs

Successful sectoral programs, such as Per Scholas, Year Up, and Project QUEST, have been criticized for their intensive screening processes, with some noting that they "weed out" a substantial number of potential participants (Kazis & Molina, 2016). It is true that only a small subset of their applicant pools ultimately enroll in their programs (Hendra et al., 2023; Tessler et al., 2014).[15] However, students entering community colleges also face barriers to entry. For instance, until recently, the vast majority of community colleges used academic skills assessments (such as COMPASS® and ACCUPLACER®) to determine whether students met a benchmark required for entry into credit-bearing courses (Barnett & Reddy, 2017). Students who did not score high enough were placed in a series of developmental or remedial courses, which could take multiple semesters to complete, if not years. The detrimental effects of these practices have been borne out in rigorous RCT studies, which show that many community college students never enter the course or training program they went to college for in the first place (Barnett & Reddy, 2017; Cullinan & Lewy, 2021).

Perhaps not surprisingly then, the program that worked with a community college during the period of the RCT studies being analyzed in this report—Project QUEST—faced these challenges as it sought to enroll students in Alamo College District's education and training programs.[16] A large proportion of the students in the RCT (63%) were required to take developmental courses (Roder & Eliott, 2018). Some Project QUEST students did not pass these courses and had to restart the program with a different cohort of students, making it difficult for them to get the peer supports that were a program hallmark. Given these challenges, Project QUEST developed an alternative to remedial courses. Instead, they provided 25-hours-a-week "QUEST Prep" classes tailored to students' academic needs, enabling them to develop the skills they needed to pass placement exams and avoid developmental courses.

Finally, the financial supports of the three programs differed substantially. The most generous program, Year Up, provided not only tuition-free training but also weekly stipends of $150 (during the training phase) and $220 (during the internship phase)[17] for students while they were participating in the program (Fein et al., 2021). Project QUEST and Per Scholas both offered training at no cost and other more modest financial supports, such as emergency grants (Stover & Molina, 2020). Project QUEST also assisted students with other fees and materials, such as uniforms, transportation, licensing exams, and books (J-PAL Evidence Review, 2022).

[15] For example, Year Up screens about four applicants for every one applicant admitted.
[16] Year Up leaders noted that they encountered similar challenges in their PTC model, with developmental education prerequisites often impeding progress in the program.
[17] More recently, Year Up increased this stipend to $525 a week in response to feedback from employers, staff, students, and alumni.

Implications for Community Colleges

Compared to the types of wraparound supports provided by effective sectoral programs, those offered by community colleges tend to be lower intensity and less coordinated. Although community colleges have student support service staff, they often advise hundreds of students, making it difficult to provide the individualized attention that Per Scholas, Year Up, and Project QUEST have been able to deliver (Miller et al., 2020). Interviews with leaders of effective sectoral programs highlight other challenges that community colleges could face in providing intensive support. For instance, as Year Up tried to scale its model in partnership with community colleges, leaders hoped they would be able to "rely heavily on campus resources … [However,] our students weren't accessing what was available, and sometimes what was promised to be available on campus wasn't actually available—or was so severely under resourced … [that] one person … [was] responsible for the entire campus." Program leaders noted other challenges related to partnering with community colleges, including providing students with support in accessing student financial aid (Hendra et al., 2023).

Project QUEST's experience is especially informative because the program has partnered with community colleges since its inception. Project QUEST leaders emphasized the different role that they were able to play in seeing the "whole student" and providing the holistic supports that students need to be successful. One Project QUEST leader shared,

> "Community colleges tend to, well, they have different limits, right? There's things they can't talk to a student [about], and they have to refer them out to somebody else. Or if I'm an advisor, I can only go so far, and then the next level is someone else, right? And not that we're licensed counselors in any way; we will refer somebody when we see that there's a mental health [challenge]. However, we can go a little deeper into that conversation and learn a bit more because we are not a community college."

Community colleges may gain insights from screening processes and support services used by effective sectoral programs, including coaches and mentors who provide individualized supports to students. Community colleges could consider adopting the following practices:

- *Holistic admissions practices:* One effective strategy is the use of multiple measures for admission and course placement, rather than rely exclusively on standardized assessments (Kopko et al., 2023). Measures could include high school grade-point average, high school coursetaking patterns, noncognitive assessments, or other factors. This strategy can help students avoid developmental courses. Furthermore, admissions processes that incorporate meetings with students or assessments of their nonacademic needs could support colleges in identifying other potential barriers to students' success.

- *Alternatives to developmental education:* If students do not meet specified skill minimums for college-level course entry, community colleges could seek alternatives to lengthy developmental courses to improve student capabilities. Project QUEST's experience underscores the challenges that can occur when students' entry into meaningful, career-relevant courses is delayed. Boosting students' skills more quickly through short-term, preparatory boot camps or corequisite support courses offered in tandem with college-level courses can help students enter and successfully complete college-level courses more quickly (Barnett et al., 2012; Douglas et al., 2023).
- *Individualized mentors or coaches to guide and support students' access to services they need:* Providing mentors, coaches, or advisors who can build trusting relationships with students and guide them to certain services and supports could facilitate more effective access to these services. Incorporating higher-level, more intensive services than community colleges have traditionally offered may be challenging on limited budgets. However, some effective models, such as ASAP, have shown large impacts on student outcomes, which may help justify these investments (Azurdia & Galkin, 2020).

  Alternatively, community colleges might consider partnering with external organizations that are experts in providing these services. The partnership between Project QUEST and Alamo Colleges District is one model that community colleges might consider as they seek to strengthen their wraparound supports.[18] Research has found that similar models, such as OMD, have impacts on graduation rates while reducing the cost per student by 50 percent over time (A Better Chicago, 2018).

Preemployment and Workplace Readiness Supports

Per Scholas, Year Up, and Project QUEST placed a heavy emphasis on helping students learn about workplace norms and behaviors and demonstrate their mastery of these skills during their training (see Exhibit 9). To build these workplace readiness skills, programs leveraged a variety of supports for students, including direct instruction in workplace norms (such as punctuality and dress); accountability structures that mimicked workplace expectations (such as consequences for tardiness); on-the-job training, internships, or other work-based learning experiences; support with résumé writing, interview preparation, and finance management; and supports for job development and placement. Syntheses of sectoral programs that had early impacts on educational and labor market outcomes have identified employer-informed, workplace

[18] Other studies have supported the value of this strategy. For instance, a recent study of Single Stop—which provides support for applying to benefit programs that include tax services, financial counseling, and legal services, and for seeking referrals to additional programs as necessary—found the program to be associated with an increase in college persistence and credits earned, especially for adult learners and nonwhite students (Daugherty et al., 2020). Another study found that OMD—which partnered with the City Colleges of Chicago and Harper College in Illinois to provide academic, financial, professional, and personal supports to students—increased student persistence and graduation rates (Hallberg et al., 2023).

readiness skills development as a critical feature in successful sectoral programs (Katz et al., 2020; Kazis & Molina, 2016; Maguire et al., 2010).

As with other program features, these supports were informed by employers' expectations of job candidates. At the time of their RCT studies, all three programs had dedicated staff and curricula for building workplace readiness. The programs had weekly meetings or courses that provided instruction in workplace norms and had one-on-one meetings with individual advisors, coaches, or case managers. Per Scholas, Year Up, and QUEST placed a strong emphasis on developing soft skills that are important on the job, especially when working in teams. These skills include problem solving, conflict resolution, workplace ethics, and communication in business environments. Program leaders modeled these skills and expected students to demonstrate them with their peers during training.

Exhibit 9. Work Readiness and Preemployment Supports Offered by Per Scholas, Year Up, and Project QUEST During the RCT Study Period

Program	Workplace readiness	Employment supports	Duration
Per Scholas	• Introduction to a sector and how to get a job in the sector • Direct instruction in workplace norms and communication • Staff modeling of workplace behaviors and norms • Practice and demonstration of workplace norms throughout training • One-on-one coaching sessions with career mentors • Development of individualized career plans • Mentoring on career advancement • Accountability structures for tardiness, missing meetings	• Résumé and cover letter development • Interview preparation, including development of a 1-minute pitch and coaching to help students sell their skills • Job developers who maintain regular communication with employers about available job opportunities • Job search support • Post-employment retention services (phone calls, email, etc.)	12 sessions at 7 hours each, concurrent with occupational skills training
Year Up	• Direct instruction in professional communication (e.g., composing email) and public speaking skills • Direct instruction in workplace norms and communication • A formal contract, signed by students, that reinforces expectations for timeliness and professional behavior	• Mentoring from the local business community • Workshops on career planning, résumé development, and job search skills • Post-program services, including job search and placement, one-on-one career counseling	Provided throughout occupational skills training and during full-time internships

Program	Workplace readiness	Employment supports	Duration
	• "Friday Feedback" sessions in which students provide and receive feedback in a learning community	• Alumni events that offer networking opportunities and career support	
Project QUEST	• Instruction in time management, study skills, critical thinking skills, and conflict resolution • Required attendance at program meetings and courses	• Support for résumé writing • Interview preparation • Referrals to employers	Weekly meetings

All three programs provided support for participants in obtaining and persisting in jobs through tasks such as résumé development and interview preparation, along with maintaining ongoing relationships with employers interested in hiring their graduates (Fein et al., 2021; Hendra et al., 2016; Roder & Elliott, 2021). Each program used its employer-dedicated management team to identify job opportunities and support participants in their outreach to employers. The programs made direct connections between employers and their students, filtering jobs to find the best match for candidates and providing employers with participants' résumés.

To ensure participants' success in their jobs, all three programs provided post-program supports, which researchers have suggested is important for graduates' continued career advancement (Kazis & Molina, 2016; Ratledge et al., 2023; Tessler et al., 2014). These supports included at least 4 months of continued contact with participants after program completion, information about job fairs or opportunities, and re-employment assistance for individuals who lost their jobs. Post-program support provided by Per Scholas included advancement coaching to help participants plan for the next stage in their career.

In interviews with AIR staff, program leaders pointed to workplace readiness training as the most important feature in students' ability to obtain jobs; these are the skills that the employers wanted the most and that they had difficulty finding in other job applicants. For instance, Year Up leaders noted that although they offered technical and soft skills training,

> "Employers most often stress the importance of soft skills that are relevant across all role types they might be hiring for. This is not meant to suggest that role-specific technical skills aren't important, too—they are—but Year Up's high standards for training the attitudinal, behavioral, and communication soft skills expected in most corporate settings are a differentiator. For example, over the years, Year Up has converted up to and over 50% of graduates' internships into full-time roles with our corporate partners. Through extensive customer feedback interviews and surveys, employers most often cite Year Up interns' strong soft skills and overall workplace and career readiness as top considerations when making their hiring decisions."

Per Scholas leaders had similar observations, noting that they "take pride in having students who can self-advocate … and that they are learning a lot of that at Per Scholas … [because they have] really clear rubrics and metrics [for] what it means to be job ready." Project QUEST explained that the one-on-one career advising and attention that students receive in their program is part of "their secret sauce … Career coaching is the most important role in Project QUEST, working day in and day out to make sure they make it to completion … and are on the right career track."

Variations in Preemployment and Workplace Readiness Supports in Effective Sectoral Programs

Although all three programs have strong workplace readiness supports, variations exist in their level of intensity. Year Up provides the most intensive supports, which they noted is especially important given participants are younger and have relatively limited exposure to the workplace. Instructors taught workplace readiness through multiple courses, including a business communications course that focuses on effective workplace communication strategies, such as composing effective email, mastering public speaking techniques, and developing an elevator pitch about career pursuits. Another course (Pro Skills) emphasizes behavior and expectations in workplace environments as well as life management skills, such as how to manage finances and budgeting. Participants sign a formal contract to abide by the expectations of the program, such as being on time, dressing professionally, and attending regularly. Participants routinely receive feedback from Year Up staff and their peers through Feedback Fridays, which supports their ability to give and receive constructive feedback. Finally, students have to demonstrate these skills in the workplace through a 6-month internship with an employer (Fein et al., 2021).

Per Scholas and Project QUEST, though less intensive, have strong supports for learning workplace norms and behaviors, and they emphasized the importance of this training in interviews with AIR staff. Per Scholas dedicates 20% of its program time (one full day each week) to such instruction and one-one-one training with coaches. Likewise, Project QUEST provides workplace readiness training through weekly Vision, Initiative, and Perseverance (VIP) sessions with a cohort of students and a career coach who works one on one with students (Hendra et al., 2016; Rademacher et al., 2001; Roder & Elliot, 2018).

Implications for Community Colleges

The level and intensity of supports for developing workplace skills, as well as program connections to industry leaders, employers, and employment, are perhaps the greatest difference between effective sectoral programs services and those offered at community colleges. Community colleges often focus heavily on degree completion and transfer to 4-year universities as their primary measures of success (Karam et al., 2022). Furthermore, community colleges often have limited resources and capabilities to foster deep connections with

employers (Karam et al., 2022). With the exception of apprenticeship programs and fields that require on-the-job experience for certification (such as nursing), community college classes have tended to focus on the development of academic knowledge and skills, and less directly on the skills that employers are seeking (Fuller & Raman, 2022; Hart Research Associates, 2015). Although changes can be seen in individual institutions,[19] recent research shows the great divide between the education and training that community colleges and other postsecondary institutions provide and the needs of employers and local industries (Fuller & Raman, 2022).

Meanwhile, rigorous research on community college interventions for helping students develop soft skills or explore different careers has shown that these efforts have had few meaningful effects on students' progress through college and their completion of a credential (Rutschow et al., 2012; Scrivener et al., 2009). This finding suggests that a deeper focus by community colleges on workplace readiness skills may provide a promising avenue for increasing students' success. This training likely must be much more intensive than the training that community colleges typically have provided and, ideally, would focus on workplace norms and practices for specific industries. Community colleges might consider creating employer advisory boards to help them develop the content for this type of training and better understand the key workplace readiness skills that employers seek in employee candidates. Finally, if offering these services internally proves difficult, they might consider partnering with local or national organizations that can provide such supports, as Project QUEST did for students of Alamo Colleges.

[19] For example, colleges profiled in Schwartz and Lipson's (2023) case studies and *The Workforce Playbook* by Davidson et al. (2019).

Implications

The practices of effective sectoral programs—along with rigorous research on previous community college interventions—give us a window into the types of new, potentially promising interventions that community colleges might consider for improving students' education and labor market success. The short-term training that sectoral programs provide, and the intensive focus on offering training that supports participants' workplace readiness and inspires employers' trust, reveal that community colleges might consider focusing on workplace readiness skills that will make their students attractive to employers. This focus also will help build employers' trust in and reliance on community colleges as a reliable source of talent.

As the outcomes of Per Scholas, Year Up, and Project QUEST demonstrate, employers will commit to hiring candidates who are trained in the skills they most value—skills that have tangible effects on participants' long-term earnings. The following sections present key takeaways on how these learnings might be applied in the context of practice and policy and on implications for future research.

Practitioners

Effective sectoral programs have demonstrated that it is possible to make significant strides in supporting individuals' advancement in the labor market within a short period of time. However, these programs generally operate in much different contexts—and with different resources and funding streams—than community colleges. Development and adaptation of promising sectoral practices within community college settings requires creativity and time, given the different policy and funding environments in which they operate. The following are recommendations for initiating this work.

Build deep connections with employers and bring their perspectives into multiple aspects of program development and implementation.

Effective sectoral programs are grounded in employers' wants and needs. These programs gather feedback from employers on the success of their graduates and continually adapt their programming to better meet the needs of their students. For instance, when Per Scholas received feedback from employers that their graduates lacked certain technical skills, the program built new courses on software testing and handheld device repair (Hendra et al., 2016). Year Up markets their program as a "customer solutions" strategy that helps businesses find opportunity talent (Fein, 2016). Employers play an important role in participants' training by providing curricular guidance, supporting participants' job readiness through activities such as mock interviews, and offering opportunities for work-based learning. As a result, these programs have developed a mutually beneficial relationship with employers, who turn to them for

individuals with reliable skills and hire hundreds of their graduates each year (Barclays & Per Scholas, 2022; Hendra et al., 2023).

Recent research revealed that many postsecondary institutions have a long way to go to become this type of reliable partner. As a result, employers hesitate to contact colleges when hiring employees (Fuller & Raman, 2022). However, building these connections and bringing employers' perspectives into program development and implementation can create long-lasting benefits for students' long-term financial stability and colleges' reputation, enrollments, and success.

Case studies have highlighted a number of colleges that have begun to make strides in this direction. For instance, Mississippi Gulf Coast Community College and Northeast Wisconsin Technical College have invested heavily in employer relationships through strategies such as integrating college leaders into local employer and industry councils and having both workforce and academic faculty meet with employers to consider how their needs can best be met (Davidson et al., 2019; Schwartz & Lipson, 2023). Others, such as Lake Area Technical Institute and Grand Rapids College, have focused on hiring staff that can liaise effectively with industry leaders by using their language and ensuring that their marketing highlights the college's value proposition for employers (Rutschow, 2024b; Schwartz & Lipson, 2023).

AIR's recent work with the City Colleges of Chicago (CCC) to strengthen its workforce training programs may provide a useful guide. Through a collaborative, multiyear partnership, AIR and CCC worked together to diagnose challenges in their workforce approaches and develop a playbook that provides tailored information on how they can strengthen multiple aspects of their work. This includes guidance on strategies such as how to engage with industry leaders, ensure programming is aligned with labor market needs, and build regional partnerships that can support multiple aspects of the college's work (AIR, 2024a). In addition, AIR developed guidance on implementing more systematic approaches to work-based learning and high-level strategies for employer engagement (AIR, 2024b, 2024c).

Value workplace readiness as an equally important skill in students' education and integrate supports that promote this skill building throughout students' time in college.

Effective sectoral programs' highest priority is supporting their participants in gaining the skills they need to get a job that pays family-sustaining wages. Per Scholas, Year Up, and Project QUEST leaders—as well as recent research—note that workplace readiness skills training is even more critical to their participants' success than occupational skills training. The programs ensure that students have concurrent, ongoing, and intensive workplace readiness skills, which has facilitated employers' trust and hiring of their graduates and bolstered their ambitious growth and impact (Barclays & Per Scholas, 2022; Hendra et al., 2023).

The types of workplace readiness supports offered by these programs extend far beyond the traditional approaches of community colleges to advising and other student supports. Most community college interventions have focused on providing academic and social services to help students with their educational progress and attainment of a degree or credential. Far fewer resources have been allocated to supporting students' knowledge of the workplace environment and the behaviors and strategies that will help them secure a good job. For community colleges to achieve the kinds of success that effective sectoral program have had, a substantial shift is required to develop graduates who are employer-ready candidates rather than just students with degrees—and to provide the services that will help them gain the skills that employers most value.

Given colleges' long-held role as academic institutions, the shift to providing workplace readiness supports may be challenging. However, a number of colleges have begun to make this shift. For instance, Northeast Wisconsin Technical College has developed instructional models that teach soft skills and created a rubric to support faculty in modeling and teaching these skills in their classrooms (Davidson et al., 2019). These strategies have received positive reviews from employers who partner with these colleges and have garnered their trust in their programs (Rutschow, 2024b; Schwartz & Lipson, 2023).

Provide one-on-one guidance to help students access supports and navigate career exploration and employment.

Per Scholas, Year Up, and Project QUEST each provide coaches, mentors, or advisors who know students' strengths and challenges and who can connect them with a variety of supports. In interviews, leaders from each program highlighted the critical role that these individuals play not only in building students' knowledge of these supports but also in helping them learn how to access these services. Year Up and Project QUEST leaders noted the importance of this guidance for students receiving training at community colleges, after they discovered the limitations in the supports that partner community colleges provide and the limited guidance that students receive in accessing them. Furthermore, all three programs provide extensive job search and development supports as well as direct contact with employers.

Extensive research on comprehensive support models in community colleges, like the ASAP and OMD programs, shows the critical role that intensive advising and supports can play in promoting students' graduation rates (Hallberg et al., 2023). However, research on effective sectoral programs shows that one-on-one guidance is important in supporting students' future employment, both in developing their workplace readiness skills and in providing an entrée with employers who have open jobs. Fuller investments in this type of guidance may be critical in supporting students' success.

In the short term, colleges could partner with outside organizations that specialize in supporting students in building these skills. For example, Year Up has started a 6-week Career Connect program, which provides free workforce readiness training and coaching to community college students who are close to completing their degree requirements (Year Up, 2024). In addition, programs such as Braven and Climb Hire give students opportunities to learn and practice professional skills through virtual learning programs (Braven, 2024; Harvard Business School, 2023).

Foster direct contact between employers and students that provide real-time opportunities for learning about work.

Many in the postsecondary and workforce training worlds highlight the important role that hands-on training plays in building individuals' employment readiness. Federal, state, and local governments have invested in intensive work-based learning models such as apprenticeships, short-term externships, and other opportunities for participants to gain hands-on experience, such as job shadowing and project-based learning (Apprenticeship USA, 2023; Cahill, 2016; Hora et al., 2017). Internships and hands-on learning also are a critical component of effective services offered by sectoral programs, but they are difficult to find at most community colleges (Kazis & Synder, 2019).

Research has shown the value of work-based learning opportunities in promoting students' confidence and workplace readiness and in students' later employment and wages (Shenk et al., 2023; Torpey-Saboe et al., 2022; Zhou, 2023), and community colleges should work to build these opportunities into students' educational experience. A number of community colleges have begun to do this. For instance, Pima Community College has committed to having 100% of both credit and noncredit students complete a work-based learning experience (Schwartz & Lipson, 2023). Others, such as Middlesex Community College, San Antonio College, and Bunker Hill Community College, have begun paid work-based learning programs, although their enrollments are small in comparison to their student populations (Amechi, 2022).

Community colleges could partner with other organizations to build work-based learning opportunities into students' college experiences. For instance, organizations such as Riipen and Virtual Internships support students' engagement in real-life projects and work-based learning experiences with leading employers through virtual platforms (Riipen, 2024; Virtual Internships, 2024). Alternatively, colleges might work with technical assistance partners skilled in supporting the development of systematic approaches to work-based learning. AIR's recent partnership with CCC and the development of a work-based learning implementation guide is one example (AIR, 2024c).

Build stronger connections between noncredit and credit workforce and academic programs and systems that support the translation of practices across programs.

Leaders of effective sectoral programs highlighted the challenges of working with community colleges to provide training, including the lack of flexibility to make curriculum changes in for-credit courses and differing goals for training (e.g., academic degree versus quick entry into the labor market). Nearly all community colleges have workforce training divisions that can overcome these challenges by providing tailored, noncredit training that supports students' direct entry into the labor market, and leaders of these programs often have strong employer and industry connections. However, workforce training programs have traditionally been separated from the academic offerings of community colleges, and the students enrolled in these programs often have limited advising and support services compared to their degree-track peers (Community College Research Center [CCRC], 2021; Van Noy & Hughes, 2022).

Academic departments and leaders have much to learn from their workforce peers on how to build strong partnerships within their regional ecosystems and create flexible programs that build skills that are attractive to employers. Some community colleges realize this and have begun to make efforts to align the leadership and programming across these divisions (Cormier et al., 2022; Rutschow, 2024a; Schwartz & Lipson, 2023). For instance, colleges like Grand Rapids Community College and Mississippi Gulf Coast College have sought to integrate their academic, noncredit, and workforce programming around industry clusters that help students see clearer pathways toward industry-specific careers (Rutschow, 2024a; Schwartz & Lipson, 2023).

A number of colleges have highlighted how they use their noncredit work as an engine of innovation for new college programming that meets emerging skill demands, such ever-evolving innovations in technology or green energy needs (Cormier et al., 2022; Tessler & Lewy, 2022). Because these programs operate outside of the postsecondary accreditation systems, they give community colleges the ability to tailor training to employer needs in ways that are similar to what effective sectoral programs do. These programs sometimes offer for-credit courses that count toward a certificate or degree after colleges have completed the often lengthy process to achieve accreditation (Van Noy & Hughes, 2022).

If internal change is hard, partner with organizations and employers that have these strengths.

If developing more work-focused capacities internally is challenging or will take time, colleges might develop partnerships with organizations that have these strengths. For instance, CCC undertook a partnership with OMD to provide more intensive supports to its students. CCC students who were enrolled in OMD received intensive advising, academic tutoring, financial

supports, and workplace readiness training from OMD and employer mentors. The partnership proved successful: OMD students had higher graduation rates than those not receiving OMD's services, and CCC has now committed to expanding this partnership with the goal of having more than 1,000 CCC students receive these services (City Colleges of Chicago, 2023; Hallberg et al., 2023). In addition, Year Up forged partnerships with community colleges in which students receive intensive job readiness training and supports that colleges such as Northern Virginia Community College have highlighted as mutually beneficial (Davidson et al., 2019). As research on Project QUEST illustrates, these relationships can be highly effective in improving students' education and labor market success.

Employers can serve as strong supports for bolstering college programming. Many employer–college partnerships have resulted in employers donating equipment and supplies to support students' training. Likewise, employers can provide valuable contacts with the work world in a variety of ways, such as presentations in college classes, job interview training, and hands-on learning experiences in the workplace. Employers that have strong relationships with colleges have expressed their interest in strategizing with colleges about ways to develop programming and managing costs that are mutually beneficial (Rutschow, 2024b).

In addition, community colleges can build stronger partnerships with local workforce agencies and other organizations that have strong skills in building these collaborations. Community colleges do not need to build a program on their own. Instead, by partnering with local or national partners, they can connect to effective student support services at a reasonable cost. For example, the OMD partnership with CCC and the Project QUEST partnership with Alamo Colleges District provided cost-effective services for community college students.

Policy

Federal and state policy has a strong voice in community college practices and resources. Although individual state policies vary, they can mandate the types of courses that colleges can offer, the types of admissions and placement policies put in place, and the level of resources colleges receive (Pechota et al., 2020). Much can be done in the policy world to further support the ability of community colleges to provide their students with strong workforce training. A few considerations are presented next.

Put resources into strengthening workforce training provided by colleges and develop incentive structures that support college and industry collaborations.

Traditionally, less attention has been paid to supporting community college workforce training programs. Short-term programs are ineligible for federal financial aid, which often translated into colleges providing fee-for-service training to students (Van Noy & Hughes, 2022). Few

resources have been available to guide quality programming for noncredit courses, and few data exist to track students' training progress or workforce advancement, particularly in noncredit programs (Van Noy & Hughes, 2022). While 32 U.S. states have enacted performance-based funding reforms that reward colleges based on students' academic progress, fewer have developed systems that call for the monitoring of students' employment and earnings and connect these data back to the education and training they received (Syverson et al., 2020).

Much more needs to be done to incentivize and support colleges' collaborations with employers and industry connections. Some federal policies, such as the Workforce Innovation and Opportunity Act (WIOA), have encouraged these collaborations, although critics have noted that the funding levels provided for these endeavors are too small (Treschitta et al., 2024). The recently developed Bipartisan Workforce Pell Act may provide new resources to fund shorter-term community college training programs (Campbell & Love, 2016; Deming et al., 2023). At least 30 states have begun to provide resources to support students in earning short-term credentials for high-demand fields (Erwin et al., 2021). All of these efforts are important for advancing such collaborations.

Additional efforts should focus on supporting colleges' development and implementation of these collaborations. The Aspen Institute's Workforce Playbook, and Schwartz and Lipson's case studies of community colleges that have excelled at providing workforce training, provide some examples (Davidson et al., 2019; Schwartz & Lipson, 2023). Furthermore, organizations such as Jobs for the Future and the Strada Education Foundation are building employers' and community colleges' capacity to partner with one another to build work-relevant education and training pathways for students (Bonilla & Freeman, 2022; Leavitt & Leigh, 2023). Likewise, the LAUNCH initiative is working with 15 states to support cross-sector partnerships between workforce and education entities to build stronger career pathway programs that lead to good jobs (LAUNCH, 2024). These represent promising strides toward strengthening these collaborations.

Build more streamlined processes for reviewing and approving course and program content changes.

Leaders of effective sectoral program highlighted the inflexibility of colleges' for-credit courses and lengthy approval processes for course content changes as one of the more challenging aspects of partnering with community colleges. Some programs, such as Per Scholas, have cited these challenges as one of the reasons that they have steered away from these partnerships. Other programs, like Year Up, have been working with colleges to develop creative ways to overcome these issues, often with deep investments of time and resources (Hendra et al., 2023). The difficulties that colleges have experienced in meeting the changing needs of industry have

helped spawn many company-based training programs, such as those at Amazon and Google. They also may be contributing to the rapid growth of effective sectoral programs, like Per Scholas and Year Up, that can deliver the job candidates whom employers seek (Barclays & Per Scholas, 2022; Hendra et al., 2023).

The combination of these challenges should serve as a wake-up call for postsecondary institutions as they seek to maintain their status as the leading provider of education and training for today's workers. While it is important for colleges to ensure the quality of their program content, the processes for accomplishing this should not hinder their ability to adapt to changing labor market needs. Policymakers should consider whether more expedient processes can be developed to ensure the quality of program content and courses and, where possible, seek out employer input on the types of programs or courses that are most relevant in their evolving workplaces. Some, such as the U.S. Chamber of Commerce Foundation, have suggested creating employer-driven alternatives to the traditional accreditation process that would define the leading skills and practices they are seeking (U.S. Chamber of Commerce Foundation, 2016). Others have suggested building employer-informed qualification frameworks within our current education systems that would allow employers to define key workplace skills needed in their industries as well as help them distinguish candidates' differing skill levels (Goger et al., 2024).

Other options include building the quality of noncredit programming or creating alternative systems for certifying students' skills. Researchers have suggested mechanisms for measuring the quality of noncredit courses, such as the strength of their alignment with labor market needs or the skills needed for industry certification (Van Noy, 2023; Van Noy & Hughes, 2022). As discussed earlier, colleges are also pursuing creative mechanisms that award students for prior learning or that use competency-based education models for incremental skill building and assessments (Kilgore, 2024; Parsons et al., 2016). These initiatives may prove to be effective and scalable models that community colleges can use to build programs and supports that are more aligned with labor market needs.

Researchers

There is a dearth of research analyzing the types of practices that community colleges can use to strengthen students' employment and career advancement. This report has highlighted a number of practices that prove promising, but little is known about whether these strategies could successfully translate into postsecondary settings given their different environments and regulations. Most research that is available describes case studies of specific community colleges' practices but little regarding more systematic approaches that could further leverage the success that community colleges experience.

Like the impacts seen in comprehensive community college support models, the practices of effective sectoral programs suggest that effective workforce training combines a range services to support students' knowledge and ability to be successful in the workplace. Highlighting colleges that are providing these types of comprehensive workforce readiness supports would help further the field's knowledge of how these practices can be implemented more systematically. Likewise, descriptive studies on the promise that these practices hold for improving students' outcomes can serve as an initial effort to help us understand which approaches are most likely to affect students' outcomes. Finally, once these foundations are established, researchers should prioritize rigorous evaluations of the impact of these strategies on students' educational and labor market progress.

Researchers should study the colleges that have been highly successful in graduating students with credentials of value and understanding which of their practices account for students' success. AIR is currently undertaking such a project in collaboration with Harvard's Project on Workforce and Reimagining Economies. AIR is conducting a quantitative analysis to rank community and technical colleges across the United States in their ability to produce workforce credentials for students with significant labor market value—credentials that are worth at least $45,000 to $50,000 in annual salary, controlling for regional cost of living, number of students enrolled, and other college and regional characteristics. Using this analysis, we will conduct qualitative research on the characteristics and contexts of these colleges to generate hypotheses about the determinants of strong workforce pathways that can be tested more rigorously.

Researchers have noted one of the most difficult aspects of this kind of measurement: data availability. Few colleges have access to labor market information that would help them assess their students' employment progress post-graduation. Furthermore, very few colleges track the performance of students in noncredit programs, making it difficult to ascertain the difference that this training may be making in individuals' work advancement. Some promising inroads are being made in states like Virginia, where policymakers have developed systems to track the performance of students in their state-funded training programs. Other states, such as Texas, have developed integrated education and workforce databases that can be used to track students' labor market outcomes, although many of them fail to track noncredit programs.

Efforts should be made to track employers' perspectives of and relationships with community colleges. In focusing only on the voices of community college leaders, we leave out a critical measure of how well community colleges are integrated with their local labor markets and how effectively they are meeting employers' needs. Effective sectoral programs routinely seek feedback on their programming and graduates' performance to gauge the quality of their training and to make improvements. Researchers should seek to understand whether and how community colleges are making similar efforts to collect and integrate this type of feedback and

whether that aligns with employers' perspectives of the services offered by community colleges. Gathering information about how more systematic systems for feedback can be built would also be a useful support. Given that employers are the ones who provide the opportunities for employment and advancement, inclusion of their voices and perspectives is key to assessing the performance and success of community colleges.

Conclusion

Community colleges are one of the most important providers of education and training throughout the United States. However, to date, we know very little about what practices they might employ to support students' direct entry into the labor market and whether this can be accomplished in new and unique ways that may go beyond colleges' traditional academic focus. Effective sectoral programs provide a strong model for what practices may be most important, but much more needs to be learned about how these strategies can be successfully adapted to community college settings, given the very different parameters under which they operate. Experimenting with these new innovations—and assessing their effectiveness in supporting students' success—could provide an important bulwark against recent critiques of postsecondary institutions' relevance, strengthen future enrollments, and build employers' trust in their graduates. Most importantly, investments in new strategies to support students' workplace readiness are likely to help them in reaching one of the biggest goals they have when entering college: to land a well-paying job that will help them build toward the strong economic foundation that they deserve. Finding new ways to help them accomplish this task seems a small price to pay for the chance at making this dream a reality.

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