Institute of Education Sciences

Designing and Delivering Career Pathways at Community Colleges
Practice Guide Summary

What Works Clearinghouse™

A publication of the National Center for Education Evaluation at IES

Career pathways have gained momentum as a key strategy for comprehensively and systematically enhancing career and technical education (CTE). Career pathways are structured around a sequence of connected educational and training programs that provide students with basic skills and occupational knowledge that align with industry needs. When designed and delivered well, career pathways combine occupational training with comprehensive support services that enable students to advance toward higher levels of education and family-sustaining careers.

The *Designing and Delivering Career Pathways at Community Colleges* practice guide (WWC 2021007), developed by the **What Works Clearinghouse™** (WWC) in conjunction with an expert panel, focuses on promising career pathways interventions where there is evidence of improved educational or labor market outcomes.

This summary introduces the recommendations and supporting evidence described in the full practice guide. These recommendations are designed to be used by administrators, staff, and faculty at community colleges to support occupational skills training through career pathways. For a full description of the recommendations and more implementation tips, **download your free copy of the guide**.

Recommendations in this practice guide:

1. Intentionally design and structure career pathways to enable students to further their education, secure a job, and advance in employment.

2. Deliver contextualized or integrated basic skills instruction to accelerate students' entry into and successful completion of career pathways.

3. Offer flexible instructional delivery schedules and models to improve credit accumulation and completion of non-degree credentials along career pathways.

4. Provide coordinated comprehensive student supports to improve credit accumulation and completion of non-degree credentials along career pathways.

5. Develop and continuously leverage partnerships to prepare students and advance their labor market success.

Recommendation 1. Intentionally design and structure career pathways to enable students to further their education, secure a job, and advance in employment.

Career pathways comprise a series of connected education and training opportunities that enable students to secure a job or further their education or employment. A basic career pathway model includes multiple entry points to facilitate access to training in occupational skills and knowledge valued by employers and stackable credentials that match labor market demand (**Figure 1**). Multiple exit points aligned with employment opportunities offer participants flexibility to access employment at different stages of the career ladder. Individuals may enter and exit career pathways at multiple points as they advance in their careers.
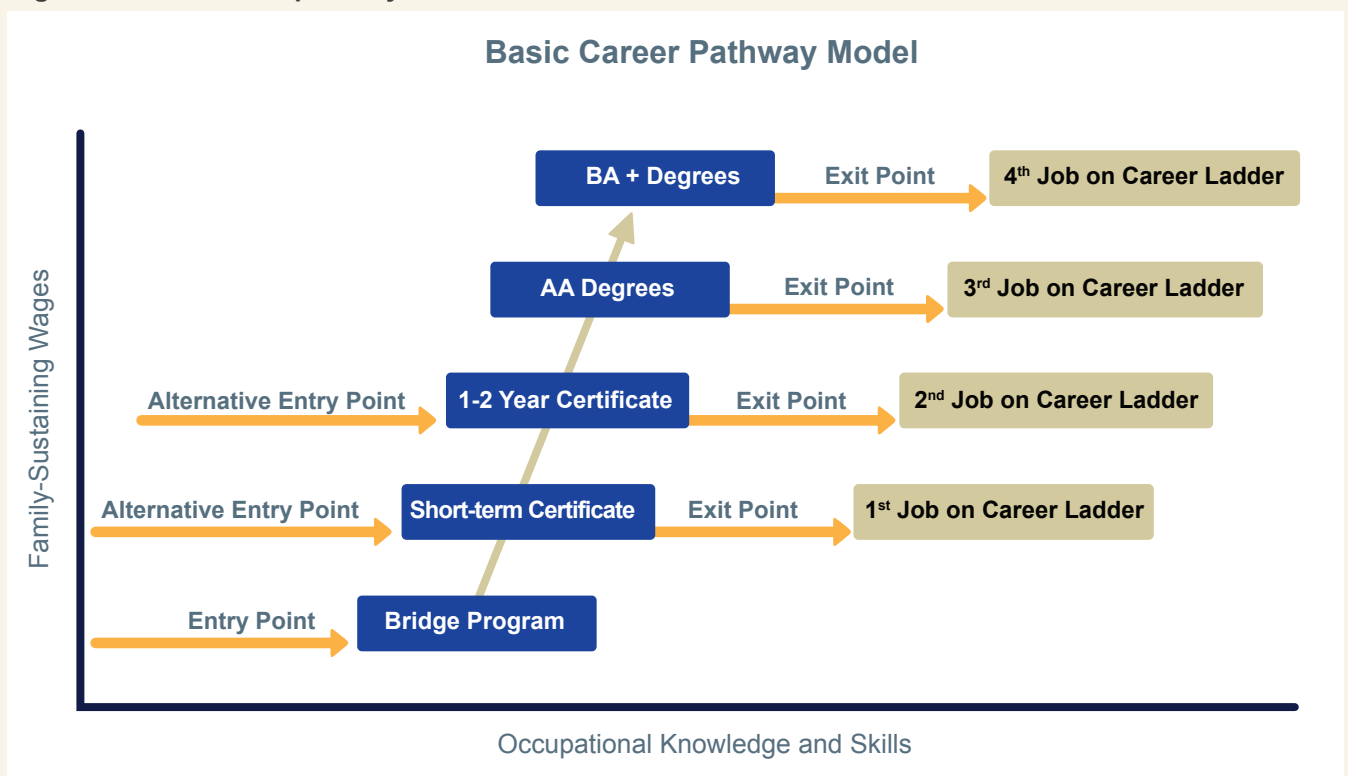
Clearly defined career pathways allow students to see how their progression through individual educational and occupational training programs can lead to specific employment opportunities–providing students with an encouraging roadmap. Each step of the career pathway is designed for students to successfully progress to the next level of education and employment.

How to Carry Out the Recommendation

1. **Align career pathways to industry needs.** When developing career pathways, community colleges should assess and identify regional industry needs to ensure the pathways will provide students with the occupational skills and knowledge that employers demand.[1] Community colleges developing career pathways should

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Figure 1. Basic career pathway model

Source: Adapted from Alliance for Quality Career Pathways (2014), Fein (2012), and Wachen et al., (2010).

collaborate with employers and industry partners to review labor market information and consult them to identify occupations for which training is needed.[2]

With a firm understanding of industry needs, community colleges are better positioned to align career pathways content and curriculum, structure, and credentials. This ensures students develop in-demand skills and knowledge, they have multiple successive entry and exit points, and they can pursue in-demand job opportunities at multiple levels. Establishing and maintaining strong, regular, and meaningful connections with employers is one of the most effective ways for community colleges to ensure their pathway programs remain relevant and responsive to industry needs.

2. **Define and create accessible pathways with clearly defined entry and exit points.** Career pathways options that are clearly defined enable students to see how the education and occupational training along a pathway can lead to specific occupations or clusters of occupations.[3] When pathways align with in-demand occupations within an industry sector, colleges can optimize the chance that students acquire the skills and knowledge needed to earn a credential and gain employment.

Well-designed career pathways provide students with opportunities to continuously build or "stack" content knowledge and in-demand credentials as they progress along the pathway. Stackable credentials promote vertical movement to the next-higher-skill job in a sector, with each new credential providing a new set of skills to master.

When defining and creating a given career pathway, the expert panel recommends community college administrators, faculty, and staff do a thorough assessment of course requirements, offerings, and scheduling to ensure students can access the courses they need in the timeframe they need them.[4]

3. **Allow sufficient time for curriculum development and approval, but seek accelerated approval when feasible.** If new courses will be required for a pathway, community colleges will need to allow sufficient time for curriculum development and approval. The panel encourages college administrators to carefully review their program development steps and processes to identify institutional roadblocks that could potentially be removed. They can also consider whether there are any fast-track program approval options in their state, which may facilitate their efforts to respond more quickly to industry changes.

Regardless of how long curriculum approval can take, it is important to allocate faculty and staff sufficient time to engage in quality curriculum development. It is also important to ensure faculty and deans have time to coordinate with each other to ensure that all the pieces of a career pathway fit together and that one step along the pathway adequately prepares students for subsequent steps.

4. **Connect students to pathways that align with their knowledge, skills, educational interests, and career goals.** Students interested in pursuing a career pathway can benefit from recruitment and intake procedures that are designed to assess their knowledge, skills, and educational and employment background as well as their career aptitude and goals.[5] Intake processes may be used to assess student interest and readiness to commit to attending courses, both of which enhance a student's engagement and increase the likelihood that they will be successful in progressing along a pathway. Intake processes may include applications, skills assessments, career interest assessments, one-on-one counseling, and career coaching.[6]

Recommendation 2. Deliver contextualized or integrated basic skills instruction to accelerate students' entry into and successful completion of career pathways.

Integrated basic skills instruction allows students to start from their current skills levels and develop the foundation in math, reading, and writing ("basic skills") they need to enter and pursue occupational coursework. Students may benefit from contextualized instruction, which includes "instructional strategies designed to more seamlessly link the learning of foundational skills and academic or occupational content by focusing teaching and learning squarely on concrete applications in a specific context that is of interest to the student."[7] When most effective, contextualized or integrated basic skills instruction provides accelerated on-ramps to career pathways by closing skill gaps and allowing students to see how basic skills will apply in future occupational training and employment.

How to Carry Out the Recommendation

1. **Assess CTE instructional materials to identify the math, literacy, and writing skills students need to successfully progress along career pathways, assess students to determine their skill levels, and identify opportunities to contextualize instruction.** Reviewing course textbooks, assignments, and other materials from courses offered at various points along a career pathway is one way to determine the skills students need in order to be successful and master the occupational content in a course. Community college faculty and staff can better design instructional supports for students if

Highlights from the Field

Integrated Basic Education and Skills Training

Developed by the Washington State Board for Community and Technical Colleges (SBCTC), Washington State's Integrated Basic Education and Skills Training (I-BEST) program is a nationally known program that aims to increase access to and completion of college-level occupational training in a variety of in-demand occupational areas.

Delivered within a structured career pathway, the SBCTC designed I-BEST to provide the first step on an articulated career pathway in a range of occupations, particularly to students who need additional basic skills instruction to access and succeed in occupational training.

The signature feature of I-BEST is team teaching by a basic skills instructor and an occupational instructor during at least 50 percent of occupational training class time. SBCTC required team teaching, but allowed flexibility in how instructors approached their teaching, including how they defined their roles within the classroom, planned their time together, and established the rapport to work collaboratively.

In addition to team teaching of basic skills and occupational training, I-BEST programs can also provide separate non-credit basic skills courses designed to complement the occupational courses. In these support courses, the basic skills instructors review occupational material with the students, help them with their homework, and help them prepare for tests and quizzes.

(Glosser et al., 2018)

they know the levels of skills required to understand the course content as well as the skill levels of their incoming students. Data from intake assessments of basic skills proficiency can inform what types of skills instruction students need, as well as how much instruction they need to help them better understand course content.[8]

2. **Determine strategies for teaching basic skills that are appropriate for the student population served and the resources available.** Two common strategies for teaching basic skills needed to succeed along a career pathway are (1) pre-pathway bridge programs that offer contextualized basic skills curricula and (2) integrated instruction, where students begin an occupational training course on a pathway, but are team taught by an occupational instructor and a basic skills instructor.[9] Bridge programs are offered just before or as the first step of a career pathway and can be designed to help students master basic skills needed to support their transition into pathway courses, especially when contextualization helps them see direct connections and applications of those skills in the occupations they are pursuing. Integrated instruction, on the other hand, embeds basic skills instruction into the technical content and is applied at each pathway step.

When selecting the best strategy for providing basic skills instruction, community college administrators will need to consider the time and resources that would be required of staff and instructors implementing the selected strategy. Curriculum specialists can help identify topics that can be contextualized in a basic skills class and support instructors to help them learn the content. They can also emphasize the importance of contextualized instruction and provide supports to instructors to ensure uniformity and consistency across courses within a pathway.[10]

3. **If implementing a team teaching model for courses with integrated instruction, select a model that best fits your institution and faculty.** Options for team teaching may range from monitoring, where one teacher is responsible for instruction while the other circulates around the classroom monitoring students' needs, to shared teaching duties, where the occupational instructor and basic skills instructor each focus on their own area of expertise.[11] Considerations for selecting a specific model include instructional needs of students, abilities of instructors, and how adaptable the subject area is for team teaching.

4. **Provide professional development and collaborative planning time to support team teaching.** The expert panel believes occupational instructors can learn pedagogical approaches from basic skills instructors; conversely, basic skills instructors can ensure basic skills are applied in more meaningful ways when they understand the contexts in which those skills need to be applied. Adequate, ongoing planning time for faculty to coordinate their teaching styles and the instructional content can promote more successful team teaching. Additionally, devoting time and resources to professional development for both occupational instructors and basic skills instructors may help ensure they are adequately prepared for their team teaching assignments.[12]

5. **Assess whether basic skills instruction (contextualized or integrated) is delivered in a manner that is resulting in students achieving their learning goals.** Program directors can use a number of approaches to assess the delivery of contextualized basic skills instruction in bridge programs or integrated courses offered on campus. For example, they can observe classroom instruction, conduct interviews with faculty or program staff, or collect feedback from students through surveys or focus groups.[13]

Administrators can also use administrative data to assess whether the delivery of contextualized basic skills instruction is increasing the progression rate of students in a pathway. At transition points along a career pathway, summative assessments can be used to make sure students have mastered the basic skills necessary to be successful in the next occupation or training program along the pathway. Where applicable, these assessments should align with college admission tests to ensure students can earn scores that help them avoid being placed into developmental coursework.

Recommendation 3. Offer flexible instructional delivery schedules and models to improve credit accumulation and completion of non-degree credentials along career pathways.

Students must balance their education and training with jobs, families, and other obligations. Often, that can make traditional course formats and schedules problematic. Flexible delivery of instruction, through non-traditional course times and/or online or self-paced courses, can help students combine college with other commitments to facilitate access, and progress along, career pathways. Acceleration strategies, including awarding credit for prior learning and offering competency-based courses, can also help ensure that students acquire—and demonstrate mastery of—both technical and basic skills as they progress along a career pathway.

How to Carry Out the Recommendation

1. **Assess the institutional readiness and resources needed to offer flexible scheduling and/or instructional delivery models.** Setting up flexible scheduling and course offerings in multiple formats requires coordination and logistics. For example, academic calendars and schedules may need to be modified to accommodate flexible course scheduling. Designing innovative instructional delivery models requires similar levels of coordination as well as resources for instructional technology and professional development for the instructors who will use the technology. Institutional capacity assessments can help community colleges think about which things they need to work on first when designing more flexible course schedules and models.

2. **Tailor flexible course schedules and instructional models to diverse student needs and instructional preferences.** Students have different capabilities, needs, barriers, and learning preferences that influence their ability to engage, to be retained, and to be successful along a career pathway. Community colleges can use various strategies to maximize flexible scheduling, such as block scheduling, evening and weekend course offerings, and self-paced online modules.[14] These should be carefully aligned with, and respond to, the diverse needs of students.

3. **Provide training and support to instructors developing flexible instructional delivery models.** Developing hybrid, online, and flipped classroom formats requires skill sets that extend beyond those used in developing more traditional courses. Faculty designing and delivering flexible instructional models for career pathways must learn to leverage instructional technology while remaining attentive to student engagement strategies.[15] They must also ensure course learning objectives, instruction, and assessment align to industry needs, as identified during the creation and implementation of the career pathways. Successful design and delivery of alternate course formats may require additional funding for instructional technology, as well as time and resources for instructors to collaborate with instructional designers to ensure their new hybrid or online courses are effective.

4. **Use acceleration strategies, such as prior learning assessments and competency-based education, to reduce the time between students' pathway entry and their attainment of non-degree credentials.** Awarding credit for prior learning, offering co-requisite courses, and/or offering competency-based courses, programs, and assessments can accelerate or compress students' time to earning credentials. Prior learning assessments (PLAs), one mechanism for awarding credit for prior learning, help students move from the non-credit- to the credit-bearing parts of a career pathway.[16] Another acceleration strategy is Competency-Based Education (CBE). CBE is a curriculum design in which students acquire and demonstrate their knowledge and skills by engaging in learning exercises and activities that target clearly defined competencies. Credentialing is based on mastery of targeted competencies, rather than on seat-time, clock-hours, and face-to-face instruction.

5. **Continuously monitor and respond to students' needs regarding flexible course offerings and delivery modes.** Administrators, instructors, and staff in career pathways should continually assess whether students are able to access the courses they need to make progress toward credit accumulation and credential attainment. This includes ensuring required courses are offered frequently, and at varied times. Community colleges must also consider whether students have the necessary hardware and internet connectivity to connect to and participate in courses that require remote lectures, labs, or other activities. Many Learning Management Systems now incorporate surveys that continuously monitor students' progress and challenges, including scheduling and student attendance problems. These types of student data may indicate unmet needs that could be addressed. As needed, community colleges may use data on student progress and outcomes to inform adjustments to when, how frequently, and in what format courses are offered.[17]

Recommendation 4. Provide coordinated comprehensive student supports to improve credit accumulation and completion of non-degree credentials along career pathways.
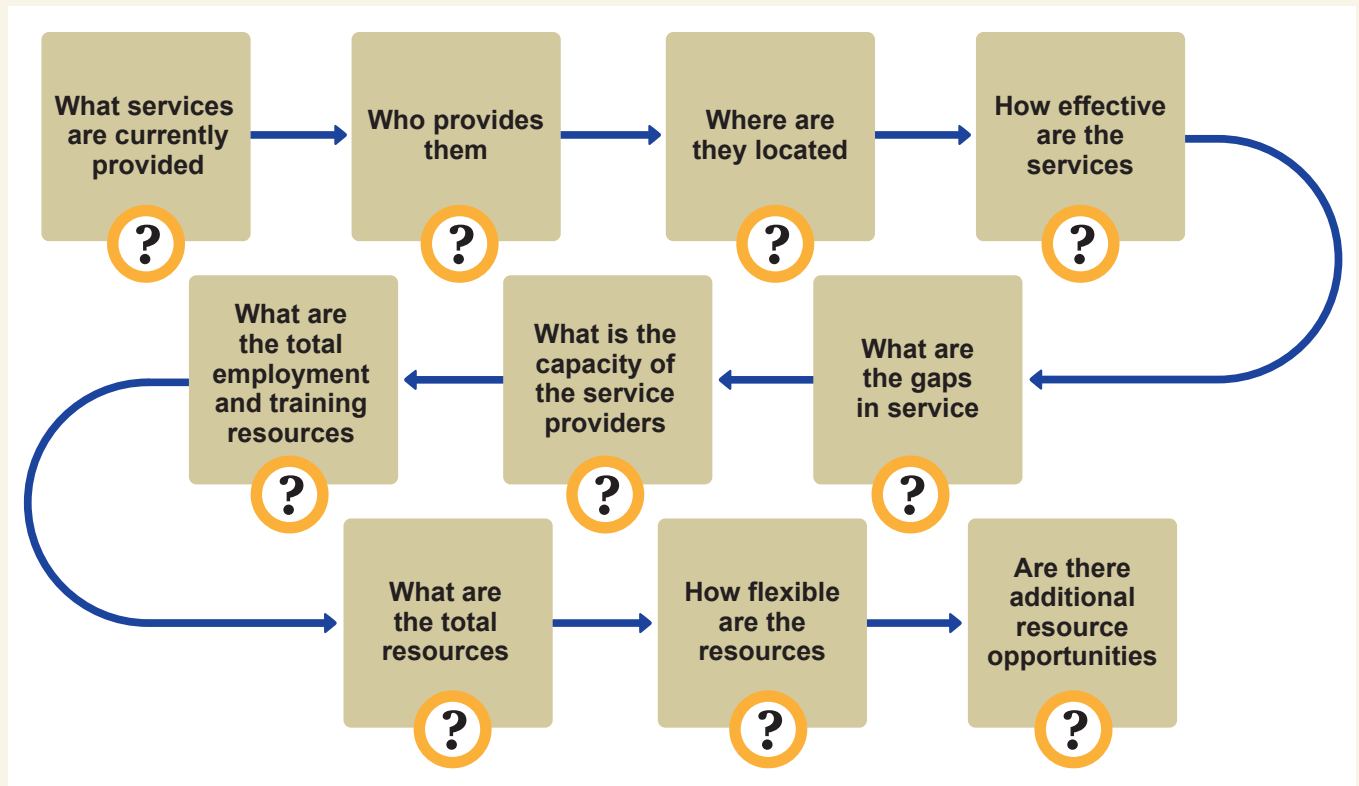
Students often need to navigate a variety of academic and non-academic challenges that can affect their ability to complete coursework and progress toward earning a credential. These challenges include choosing the right program of study and career, balancing education with family and work obligations, and covering tuition costs and related educational expenses. Providing comprehensive student supports in a coordinated fashion helps students to be resilient to these challenges. The expert panel believes colleges should provide a broad range of academic and non-academic, career, and financial support services. These may include proactive academic advising, mentoring, coaching, counseling, career navigation, and financial aid, as well as referral to other support services. The panel believes these student supports should be intentionally integrated into the student experience so they are unavoidable as students progress along their career pathway–from intake to completion.

How to Carry Out the Recommendation

1. **Conduct an inventory of available supports and clearly define which college departments are responsible for delivering specific supports.** Student support services may be provided by a large network of professionals, including those within a community college and those in the surrounding community. For this reason, the expert panel suggests it is important to conduct an organizational review of the services offered and clearly define who is responsible for them.

Resource mapping (see **Figure 2**) provides an organizational overview of who will offer academic supports, non-academic (personal) supports, career and employment supports, and financial supports to the students. Further, colleges should consider how to engage internal and external partners so that they can collectively identify gaps in support services and improve how students access available services.

2. **Assess students' needs and connect one-on-one to provide them with relevant supports, from intake to program completion and beyond.** The expert panel recommends that during the career pathways recruitment and intake process, student support staff conduct a comprehensive needs assessment with each student. This needs assessment should be holistic, focusing on both academic and non-academic (personal) issues. The primary aim of the assessment is to ensure students are matched with and connected to the right supports to help them be successful. Students should leave the intake process with a clear overview of the steps and available supports along their chosen career pathway.

3. **Integrate available supports into the student experience.** Students may be unaware of student support services, unsure of how to access or make use of student supports, or even reluctant to seek out relevant supports. Therefore, the expert panel believes faculty and staff should proactively provide student supports. There are several ways to integrate student support services

Figure 2. Resource mapping questions


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┌─────────────┐     ┌─────────────┐     ┌─────────────┐     ┌─────────────┐
│What services│ ──▶ │Who provides │ ──▶ │Where are    │ ──▶ │How effective│
│are currently│     │them         │     │they located │     │are the      │
│provided     │     │             │     │             │     │services     │
└─────────────┘     └─────────────┘     └─────────────┘     └─────────────┘
      ?                   ?                   ?                   ?
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What services are currently provided → Who provides them → Where are they located → How effective are the services → What are the gaps in service → What is the capacity of the service providers → What are the total employment and training resources → What are the total resources → How flexible are the resources → Are there additional resource opportunities

Source: Alliance for Quality Career Pathways (2014). *Shared vision, strong systems: The Alliance for Quality Career Pathways Framework Version 1.0.* Washington, DC: Center for Law and Social Policy.

into the student experience. For example, faculty could introduce career navigators as part of their instructional teams, have them participate actively in class activities, and integrate student support services into class exercises. In addition, making student support staff accessible in the evenings and on weekends will enhance accessibility for students balancing work and family obligations. For some student populations, using technology and online formats can increase accessibility and nudge students to make better use of existing student supports.

4. **Monitor student progress, academic and non-academic needs, and supports accessed.** Identifying needs and connecting students with relevant supports do not end at intake. The expert panel encourages all

staff and faculty who engage with students throughout their program of study to be attentive to changes in students' academic and non-academic barriers. Upon detecting barriers, faculty and staff should refer or connect students to services that can help meet students' emerging needs. This requires that faculty be keenly aware of and understand all the support services available, and that faculty and student support staff work in tandem.

There are several strategies for monitoring student progress. Some pathway programs have proactive advisors, who initiate contact with students several times during their progression along the career pathway; other programs also dedicate resources to provide follow-up supports to students after program completion.[18] The expert panel encourages

staff to pay particular attention to student progress at transitions between education and employment, where students may experience challenges re-entering the career pathway, as these phases may offer practical opportunities for building in new supports.

5. **Consider hiring sector-specific career navigators.** The transition from college to career can be difficult. Discipline- or sector-specific career navigators, advisors, mentors, or coaches can tailor their advising and career guidance to the occupational sector in which a student plans to seek employment.[19] When implemented well, navigators and career coaches can positively affect a student's retention in a program and completion of a credential. Navigators can provide students with individual coaching, career planning, and assistance navigating the transition to further education and employment.[20] Navigators can also serve as an important resource in connecting students to necessary services.[21]

Recommendation 5: Develop and continuously leverage partnerships to prepare students and advance their labor market success.

Career pathways that leverage employment-focused partnerships offer students both classroom- and work-based experiences to acquire the skills needed to be ready for work on day one. The benefits of investing in, building, and deepening employment-focused partnerships include:

- improving the relevance and alignment of the curriculum to employer or industry needs;

- expanding the opportunities for students to engage meaningfully with employer partners through employer presentations, onsite visits, work-based learning opportunities, and career fairs; and

- increasing the potential for job placement and advancement.

Ultimately, improving student labor market outcomes benefits students, employers, and colleges alike. There is an incentive for administrators, faculty, and staff to work together with employment-focused partners to design, implement, and continuously evaluate career pathways.

How to Carry Out the Recommendation

1. **Identify ways to get employers strategically engaged in each aspect of planning and implementing career pathways.** When employers and industry partners are continuously engaged in all aspects of career pathways design and implementation, students are better prepared when they take an exit along the career pathway for employment. Community colleges can engage employment-focused partners in a variety of ways and at various stages of career pathways planning and

delivery. Employer engagement can be in the form of curriculum planning and review, assessment of local labor market information, assistance with student recruitment, provision of mentorship or work-based learning opportunities, as well as active promotion of the career pathway program.

As depicted in **Figure 3**, employers can play roles that range from advising, capacity building, co-designing, and convening to leading. The expert panel recommends that the specific stages and activities be modified to local needs and circumstances, and that community colleges remember the best way to increase employer engagement is to take the time to build meaningful relationships with employers.

Employers and industry partners can serve on advisory committees as strategic partners for the program.[22] In order for an advisory committee to be effective, its members must be engaged strategically at various levels of program design and implementation.[23] Employment-focused partnerships can support the design and delivery of instructional content and activities that are relevant and engaging to students. Employers and industry partners can also play a critical role in delivering job search and placement supports to career pathways students. Career fairs and hiring events provide students with opportunities to meet and network with potential employers.[24]

2. **Conduct an inventory to identify current and potential employment-focused partnerships.** In order to best leverage employment-focused partnerships to support students' labor market success, community colleges should conduct an inventory to identify current and potential partners and

Figure 3. Sample Ladder of Employer Engagement

	New Relationship	Working Relationship		Strategic Partnership	
	Level I	**Level II**	**Level III**	**Level IV**	**Level V**
Key employer role	Advising	Capacity-building	Co-designing	Convening	Leading
Stage of relationship	Initial contact / new relationship	Establishing trust and credibility	Working relationship	Trusted provider and collaborator	Full strategic partner
Activity examples	Discuss hiring needs, skills, competencies; advise on curricula; contract training; hire graduates	Job site tours; speakers; mock interviews; internships; needs assessment; loan/donate equipment; recruiting	Curriculum and pathway development; adjunct faculty and preceptors	College-employer sectoral partnerships	Multi-employer / multi-college partnerships

Source: Wilson, R. (2015). A Resource Guide to Engaging Employers. Boston: Jobs for the Future. (https://jfforg-prod-new.s3.amazonaws.com/media/documents/A-Resource-Guide-to-Employer-Engagement-011315.pdf)

think critically about how to engage with them. To identify new employment-focused partners, colleges can first connect with local workforce boards. They can also reach out to local, state, or regional industry associations. Colleges may consider conducting a "self-check" to identify opportunities to strengthen or deepen partnerships with leaders in specific occupational sectors that are relevant to the career pathway(s) offered by the college. The National Council for Workforce Education suggests colleges should develop an employer engagement plan that includes an environmental scan of internal and external perceptions of employer engagement and its effectiveness; college goals; an employer checklist and database; and a communication plan that covers internal and external communications.[25]

3. **Designate staff time and resources to build and sustain employment-focused partnerships.** Engagement with employment-focused partners allows college administrators and staff opportunities to better understand employer and industry expectations and

labor market needs. Involving employers and industry partners in the planning and design of career pathways may improve job placement rates when students complete their pathway studies.[26] To ensure continuous engagement and communication, the expert panel believes it is important for colleges to establish a timeline for formal and informal check-ins with their employment-focused partners. Further, the expert panel suggests administrators, faculty, and staff within–and possibly even across–career pathways should develop communication plans so they are clear about who is reaching out to which employers with specific requests.

4. **Collaborate with employers and industry partners to provide students hands-on learning opportunities that are relevant to occupations along their chosen career pathway.** When career pathways provide students with hands-on exposure to occupations they are pursuing–or might pursue in the future–students can develop realistic expectations about those occupations. Project-based learning, high-

fidelity simulations, and experiential field trips are strategies that instructors can use to align course content and delivery with students' career interests.[27] Internships, work-based learning opportunities, clinical placements, and apprenticeships allow students to gain employment experience as they progress along a career pathway. As appropriate, faculty and staff can advise students to take advantage of employment opportunities at transition points along the career pathway. When doing so, they should consider how and when they will encourage students to return for additional education and training, and what kinds of supports students will need to successfully re-enter their career pathway program.[28]

5. **Regularly review the employment-focused partnership inventory to assess whether or not the right partners are involved to help advance students' labor market outcomes.** Community college administrators and staff can use partnership inventories to identify gaps that may need to be filled by strategically engaging employers and industry partners. Ongoing communications with current and former students and employers is important for program improvement. Colleges should consider developing and implementing mechanisms to allow employers the opportunity to provide feedback on their pathways programs and student hires, including the extent to which colleges are preparing workers with the right skills.[29]

Summary of Evidence by Recommendation

	Recommendation 1 *Intentionally design and structure career pathways...*	Recommendation 2 *Deliver contextualized or integrated basic skills instruction...*	Recommendation 3 *Offer flexible instructional delivery schedules and models...*	Recommendation 4 *Provide coordinated comprehensive student supports...*	Recommendation 5 *Develop and continuously leverage partnerships...*
Number of Studies					
	12	9	6	15	11
Level of Evidence					
	Moderate	Moderate	Minimal	Moderate	Moderate
Meta-Analysis Results by Outcome Domain					
Credit accumulation	+	+	0	+	
Postsecondary degree attainment	-	-	+	-	
Certification attainment	+	+	+	+	
Short-term employment	+				+
Medium-term employment					0
Short-term earnings	+				+
Medium-term earnings					+
Academic performance			0		
Technical skill proficiency			0		

+ = Statistically Significant and Positive   0 = Indeterminate   - = Statistically Significant and Negative

For more practical tips and useful examples from community colleges, download a copy of the *Designing and Delivering Career Pathways at Community Colleges* practice guide at **https://ies.ed.gov/ncee/wwc/PracticeGuide/27**.

The Institute of Education Sciences publishes practice guides in education to provide educators with the best available evidence and expertise on current challenges in education. Its What Works Clearinghouse™ (WWC) develops practice guides in conjunction with an expert panel, combining the panel's expertise with the findings of existing rigorous research to produce specific recommendations for addressing these challenges. The expert panel for this guide included Hope Cotner, Debra Bragg, Grant Goold, Eric Heiser, Darlene G. Miller, and Michelle Van Noy. See Appendix A in the practice guide for a full description of the series.

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[1] Bragg et al. (2018); Dunham et al. (2016); Martinson et al. (2018); Price et al. (2016); Price et al. (2018).

[2] Fein & Hamadyk (2018); Rolston et al. (2017).

[3] Gardiner et al. (2017); Martinson et al. (2018).

[4] Cook et al. (2018).

[5] Elliott & Roder (2017); Fein & Hamadyk (2018); Modicamore et al. (2017); Rolston et al. (2017).

[6] Gardiner et al. (2017); Modicamore et al. (2017); Roder & Elliott (2018); Rolston et al. (2017).

[7] From C. Mazzeo's *Supporting Student Success at California Community Colleges*, a 2008 white paper prepared for the Bay Area Workforce Funding Collaborative Career by the Career Ladders Project for California Community Colleges, p. 3 (quoted in Kalchik & Oertle, 2010).

[8] Bragg et al. (2018); Price et al. (2016).

[9] Anderson et al. (2015), Anderson et al. (2017), and Glosser et al. (2018) offer examples.

[10] Martinson et al. (2018).

[11] Anderson et al. (2015); Anderson et al. (2017).

[12] See the Washington State Board for Community and Technical Colleges's strategies, video, and curricula samples for six team teaching models at: **https://www.sbctc.edu/colleges-staff/programs-services/i-best/team-teaching-models.aspx**. The Breaking Through Contextualization Toolkit, which provides guidance, strategies, and tools for developing and implementing contextualized education, can be accessed here: **https://jfforg-prod-new.s3.amazonaws.com/media/documents/BT_toolkit_June7.pdf**.

[13] Glosser et al. (2018).

[14] Gardiner et al. (2017); Hamadyk & Zeidenberg (2018); Martinson et al. (2018); Visher & Teres (2011).

[15] See Recommendation 2 of the *Using Technology to Support Postsecondary Student Learning* practice guide (Dabbagh et al., 2019).

[16] Bragg et al. (2018); Price et al. (2016); Price et al. (2017).

[17] For an example see Cook et al. (2018).

[18] Cook et al. (2018).

[19] Several career navigator toolkits are available to assist community colleges in planning and implementing career navigation supports. For example, see: **http://www.collegetransition.org/wp-content/uploads/2017/10/NavigatorManual-July2015.pdf**; **https://internal.cccs.edu/wp-content/uploads/documents/CCNIReferenceGuide.pdf**; **https://assets.aspeninstitute.org/content/uploads/2017/05/Annotated-Bibliography-Of-Resources-For-Navigators.pdf**; and **https://denveroy.org/career-navigator-toolkit/**.

[20] Modicamore et al. (2017); Price et al. (2016).

[21] Anderson et al. (2017).

[22] Bragg et al. (2018); Dunham et al. (2016); Martinson et al. (2018); Price et al. (2016); Price et al. (2017).

[23] Fein & Hamadyk (2018); Martinson et al. (2016 - Kern Community College District, North Central Texas College).

[24] Gardiner et al. (2017); Martinson et al. (2016); Modicamore et al. (2017); Price et al. (2016); Price et al. (2017).

[25] National Council for Workforce Education. (n.d.). Activating Business and Industry Partners and Improving Advisory Committees.

[26] For an example see Modicamore et al. (2017).

[27] For more information on simulated work-based learning, see the National Center for Innovation in Career and Technical Education's strategies in the following resource: **https://www.gfcmsu.edu/revup/documents/SWBL_Report.pdf**.

[28] See Gardiner et al. (2017) for a discussion of challenges that may emerge when re-engaging students after they exit a career pathway.

[29] Fein & Hamadyk (2018); Martinson et al. (2018).