



**Career Pathways
Research and
Evaluation
Synthesis**

**Career Pathways
Design Study**

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Executive Summary

Career pathways approaches to workforce development offer articulated education and training steps between occupations in an industry sector, combined with support services, to enable individuals to enter and exit at various levels and to advance over time to higher skills, recognized credentials, and better jobs with higher pay. **The U.S. Department of Labor (DOL), Chief Evaluation Office contracted with Abt Associates to conduct the Career Pathways Design Study, to develop evaluation design options that could address critical gaps in knowledge related to the approach, implementation, and success of career pathways strategies generally, and in early care and education (ECE) specifically.** To inform thinking about evaluation design options, Abt produced reports on (1) research and evaluation relevant to career pathways approaches, (2) the implementation of existing and past career pathways initiatives, and (3) the potential for career pathways approaches in early care and education.

This report is the first of these publications and provides a high-level synthesis of career pathways research and evaluation. The primary purpose of this report is to support development of evaluation design options. With that in mind, our review focuses primarily on the type, scope, and setting of research that either has been completed or is ongoing; on which questions have been asked; and on areas for further research. We also highlight some major research findings, though that is not the main focus of this report. For this synthesis, we identified 52 studies, both complete and ongoing (as of February 2017, when we conducted the analysis), that focus on career pathways approaches for adults (including young adults, but excluding high school students) and include occupational training.¹

We found:

- 52 studies, of which 23 were complete at the time of our analysis.
- 26 studies will produce additional results by 2021; at least 10 new impact reports will be completed over the next year alone.
- In 39 studies, at least one site offered multiple steps of career pathways training; in only 12 studies was this true of every site.

Of the career pathways efforts reported in the 52 studies:

- 32 focused on the program level (62 percent); one on system-level change; and 19 on both (37 percent).²

¹ We did not include initiatives focused solely on 4-year degrees or solely on transfer to 4-year degree programs.

² The synthesis also categorized studies as examining either system-level or program-level initiatives, or both, to the extent that it was possible to determine this from available information. For purposes of this report's categorization of efforts, we defined "system level" as addressing at least in part the six career pathways systems elements to reduce barriers and create opportunities for individuals to advance within specific fields described by DOL in its Career Pathways Toolkit. "Program-level" efforts we defined as specified in WIOA, as initiatives seeking to provide individualized training and supports that (1) align with the skill demands of the state and local economy; (2) prepare individuals to be successful in a range of secondary and postsecondary education options; (3) include academic and career counseling, as well as non-academic supports; (4) provide, as appropriate, concurrent and accelerated program designs, and (5) help individuals to enter or advance within a specific occupation or occupational cluster. However, it

- 23 targeted low-income individuals or those living in poverty (44 percent), followed by 14 targeting low-skilled individuals (27 percent).
- Typical participants were high school graduates in their late 20s or 30s and more likely to be female than male.³ Few studies (five) included substantial percentages (more than 25 percent) of Hispanics. In 12 studies, more than 25 percent of participants were Black or African American.
- Healthcare was by far the most common sector (39 studies), followed by manufacturing (22 studies), information technology (18 studies), and business (14 studies).⁴
- Most studies (22) included efforts that offered training in multiple sectors; of the 17 single-sector ones, 14 focused on healthcare.
- Community colleges most commonly led career pathways efforts (34 studies), followed by non-profit organizations (20 studies), workforce development boards (16 studies), and other educational institutions (16 studies).

Evaluation Methods and Research Design

- Most studies (40) used several different methodologies.
- More studies (20) used random assignment methodologies than used quasi-experimental or non-experimental methodologies. Almost two thirds (13) of the random assignment studies are ongoing.
- More than one quarter (14) of the studies included some examination of costs.
- Only two studies included systems change analysis, but many others included implementation studies of system-level initiatives.
- More than two thirds (37) of the studies were funded at least in part by the federal government, either directly by federal agencies or as part of required third-party evaluations of federal grants. Foundations funded 13 of the studies.

Research Questions and Findings

- About one third of studies (18) included research questions that either specifically mentioned career pathways in a question or included questions about an initiative that was explicitly described as a career pathways approach.
- Of the 42 studies for which we identified outcomes, 38 included at least one employment outcome and 29 included at least one education outcome.
- As of February 2017, impact findings have been published for four quasi-experimental and eight random assignment studies.⁵ All but one of those studies is complete.

should be noted that we have also included some seminal studies of programs focused on *key components* of career pathways, though the programs themselves did not define themselves as career pathways programs.

³ Participants may be more likely to be female in part because so many studies were of the healthcare sector, which tends to employ more women than men.

⁴ We listed sectors as they were described by research studies or the sites included in studies. For example, “business” frequently included “business administration and management”, “finance and business”, and “business.” Training programs categorized as being in the business sector often include offerings in areas such as accounting or office administration.

⁵ Impact studies use methods that allow researchers to determine whether outcomes are attributable to the program. This is in contrast to non-experimental studies, which measure and describe the outcomes achieved by participants, but do

- Most of these published impact findings have short- (~1-2 years) and medium- (3-4 years) term follow-up periods. Just two studies to date have reported impact findings for long-term outcomes (5 years or longer). The follow-up periods ranged from two semesters to five years for the random assignment studies, and one academic quarter to nine years for the quasi-experimental studies.
- Nine of these impact studies examined earnings. Three found statistically significant positive results, five found mixed results, and one found mostly negative results.⁶
- Ten of these impact studies examined educational outcomes. Seven found statistically significant positive results, one found mixed results, and two found mostly negative results.
- Of the eight random assignment studies reporting impacts, only one included at least one site that offered multiple steps of training. We chose to highlight multiple steps of training as a proxy for understanding the extent to which sites in a study focused on career advancement, arguably the most distinctive feature of career pathways.⁷
- Looking across all of the studies we examined, researchers found that implementing a model as intended often proved challenging. Sites varied considerably in the populations targeted and served, targeted sectors and occupations, and the extent to which a given model was implemented as planned.

Implications for Future Research

- As noted above, few of the reported impact findings to date are from studies of career pathways initiatives offering multiple steps of training. In addition, most findings are from studies with short- or medium-term follow-up periods, making it difficult to measure pathway progression.
- Research that is currently underway (referred to in this report as “ongoing”) will add substantially to the evidence base, contributing additional evidence in the following ways—
 - Employment and earnings impacts particularly through random assignment designs. Longer-term outcomes and impacts.
 - Descriptive information about career pathways approaches and their implementation.
 - More evaluations of initiatives that have a strong career pathways focus (as indicated by their including sites that offer multiple steps of training).
 - Analyses of program costs.
 - The effectiveness of specific components within a career pathways approach.
 - Systems change initiatives.
- Current ongoing studies largely do not address a number of topics, such as:
 - Information (e.g., effectiveness, implementation, systems change, etc.) about career pathways programs and approaches in sectors other than healthcare, manufacturing, and information technology.

not use a comparison group which would allow one to understand what would have happened in the absence of the program and therefore determine if the program caused the outcomes found.

⁶ Mixed results include two or more of the following: statistically significant positive results, statistically significant negative results, or non-statistically significant positive or negative results.

⁷ By step, we mean successively higher skilled steps of training along a career pathway, such as entry-level, mid-level and advanced training, which correspond to specific, increasingly better paid jobs.

- Implementation and effectiveness of career pathways approaches for groups typically not well represented in career pathways studies, including youth, Hispanics, and individuals with specific employment barriers such as no high school diploma, very low skills (less than eighth grade), limited English proficiency, criminal records, or disabilities.
- The relative effectiveness of particular components within a career pathways bundle of benefits and services.
- The role the public workforce system can and should play in supporting career pathways as compared with community colleges, nonprofit organizations, and other entities.
- The implementation of career pathways at scale (in terms, for example, of numbers of people served, regional or national scope, or penetration of a particular sector’s labor market).
- The return on investment to career pathways for individuals, the public, and employers.

This synthesis of career pathways research and evaluation is one step in this project. The other two deliverables synthesize how different career pathways programs and systems change initiatives are defining and implementing career pathways, and examine the potential for career pathways approaches in the early care and education sector. Together, these three documents will inform the study’s final deliverable—the career pathways evaluation design options report.

1. Introduction

Career pathways approaches to workforce development offer articulated education and training steps between occupations in an industry sector, combined with support services, to enable individuals to enter and exit at various levels and to advance over time to higher skills, recognized credentials, and better jobs with higher pay. Each step on a career pathway is designed explicitly to prepare individuals to progress to the next level of employment and/or education. Career pathways strategies target jobs in industries of importance to local and regional economies and build strong relationships with employers.⁸

The career pathways framework evolved over the last decade as a response to emerging evidence on labor market changes and on the limits of previous employment and training strategies. In the labor market, individuals with a high school education or less experienced stagnating wages and high unemployment over the last 30 years, whereas those with postsecondary credentials experienced economic gains (Autor 2015; Carnevale, Jayasundera, and Gulish 2016). In the workforce development field, researchers studying long-term outcomes found that the two most common employment strategies for low-income adults—quick job placement or stand-alone basic skills instruction—neither increased employment and earnings over the long run nor helped participants escape poverty (Hendra and Hamilton 2015). By emphasizing postsecondary job skills, career pathways approaches seek to respond to these labor market changes and to deliver larger and longer-lasting results than previous employment and training strategies. The career pathways framework also seeks to incorporate promising features of recent workforce development innovations, such as targeting industry sectors and integrating basic education with job training (Werner et al. 2013). In addition, the career pathways approach involves providing a range of supports to students including advising, financial assistance, and connections to the labor market and jobs.

The rapid rise of career pathways nationally, including an emphasis on them in the Workforce Innovation and Opportunity Act (WIOA), creates a **critical need for sound evidence that shows what works well, why, under what circumstances and for whom**. The WIOA legislation requires the U.S. Department of Labor (DOL) to “conduct a multistate study to develop, implement, and build upon career advancement models and practices for low-wage health care providers or providers of early education and child care” (29 U.S. Code § 3224(b)(4)(I)).

In response, the Chief Evaluation Office (CEO) at DOL funded the Career Pathways Design Study and contracted with Abt Associates to develop evaluation design options that could address critical gaps in knowledge related to the approach, implementation, and success of career pathways strategies generally, and in early care and education specifically (given the scarcity of information on it relative to healthcare). To meet these goals, Abt has developed three reports on the following topics: (1) research and evaluation relevant to career pathways approaches, (2) the implementation of existing and past career pathways initiatives, and (3) the potential for career pathways approaches in early care and education.

⁸ For a review of how career pathways are defined in practice at the program and system levels, see the *Career Pathways Implementation Synthesis* report from this project (Sarna and Strawn, 2017).

This report provides one of the deliverables for the project—a **synthesis of career pathways research and evaluation**. This synthesis describes the range of completed and ongoing research in career pathways, and summarizes what questions have or will be answered by that research, what unanswered questions remain, and directions for future research. The Career Pathways Research and Evaluation Matrix (Appendix A) summarizes the studies identified. The information in this report and the accompanying matrix is current as of February 2017.

The two other deliverables for the Career Pathways Design Study synthesize how different programs and systems change initiatives are **defining and implementing career pathways approaches**, and examine the potential for career pathways approaches in the **early care and education sector**. Together, the three documents will inform the study’s final deliverable—the career pathways evaluation design options report. That final report will examine four groups of research questions and will describe possible research approaches and data sources for addressing them.

1.1 Research and Evaluation Studies Included in This Synthesis

The primary purpose of this report is to inform the evaluation design options. With that in mind, our review focuses primarily on the type, scope, and setting of research that either has been completed or is ongoing; on which questions have been asked; and on areas for further research. We also highlight some major research findings, though that is not the main focus of this report.

1.1.1 Studies Included (and Excluded)

We included studies of approaches that:

- (1) focus on adults (including young adults, but excluding high school students);
- (2) include occupational training; and
- (3) describe themselves as involving career pathways, or which include at least some key element(s) of the pathways approach.

Because DOL was interested in understanding how the workforce field itself defines and implements career pathways approaches, we cast a broad net in deciding which studies to include, incorporating into the matrix and our analysis any studies that included initiatives that described themselves as involving career pathways as well as others that had at least some elements of career pathways approaches, whether or not they met any particular definition of a career pathways model.⁹ We also included several training efforts that were *not* explicitly career pathways approaches—in some cases predating the concept—where there were major studies of initiatives representing core elements of a career pathways approach, such as sector partnerships or integrated basic education and training.

1.1.2 Categories Highlighted

We highlight throughout the Matrix and in selected tables of this report those initiatives that include more than one step of education or training in a formal career pathway or feed from one step of training into a closely linked, specific next step(s) and take active steps to help participants enroll in that training (e.g., from Medical Assisting to Licensed Practical Nursing to Registered Nursing, or

⁹ That is to say, a report did not need to label itself as being about the career pathways approach, but if it involved content that was indeed related, then we included it. We also included an analysis of various definitions of the career pathways approach in the *Implementation Synthesis* report, as described below.

forklift driver to shipping/receiving clerk to logistics technician). These we distinguish on the Matrix by the column labeled “Multiple steps of training.” We chose this proxy because it appears to be an objective characteristic that helps separate out training approaches that actively promote educational advancement tied to higher levels of jobs, versus more traditional programs that provide only a single dose of job training, even if they describe themselves as implementing a career pathways model. Because these efforts with multiple steps of training may be of particular interest to DOL, some tables below show both the characteristics of the studies overall and the characteristics of only those studies that include multiple steps of training.

The synthesis also categorizes studies as examining either *system-level* or *program-level* initiatives, or both, to the extent that it was possible to determine this from available information. Policymakers and the workforce development field define “career pathways” in a variety of ways, and the implementation synthesis report discusses the range of definitions in use. A designation as system-level or program-level is distinguished in the Matrix in the column labeled “Description of Initiative.”

For purposes of this report’s categorization of efforts, we define “system-level” as addressing the six career pathways systems elements to reduce barriers and create opportunities for individuals to advance within specific fields described by DOL in its *Career Pathways Toolkit*.¹⁰ “Program-level” efforts we define as specified in WIOA, as initiatives seeking to provide individualized training and supports that (1) align with the skill demands of the state and local economy; (2) prepare individuals to be successful in a range of secondary and postsecondary education options; (3) include academic and career counseling, as well as non-academic supports; (4) provide, as appropriate, concurrent and accelerated program designs; and (5) help individuals to enter or advance within a specific occupation or occupational cluster.¹¹ Many of the initiatives studied only included some of the elements in these system-level and program-level definitions.

1.2 Approach to Identifying Studies

To identify the studies included in the synthesis, we began with those identified for earlier research reviews as part of a previous DOL project. We then conducted a broader scan, reviewing relevant organization and project websites and publications, to identify additional career pathways initiatives, to include both in this review of research and in the related scans of career pathways implementation and early care and education career pathways approaches (the two other project deliverables).

¹⁰ The elements are to (1) build cross-agency partnerships and clarify roles, (2) identify industry sectors and engage employers, (3) design education and training programs, (4) identify funding needs and sources, (5) align policies and programs, and (6) measure systems change and performance. (https://www.doleta.gov/usworkforce/pdf/career_pathways_toolkit.pdf)

¹¹ The full definition of “career pathway” included in WIOA is “a combination of rigorous and high-quality education, training, and other services that— (A) aligns with the skill needs of industries in the economy of the State or regional economy involved; (B) prepares an individual to be successful in any of a full range of secondary or postsecondary education options; (C) includes counseling to support an individual in achieving the individual’s education and career goals; (D) includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster; (E) organizes education, training, and other services to meet the particular needs of an individual in a manner that accelerates the educational and career advancement of the individual to the extent practicable; (F) enables an individual to attain a secondary school diploma or its recognized equivalent, and at least 1 recognized postsecondary credential; and (G) helps an individual enter or advance within a specific occupation or occupational cluster.”

The scan was supplemented with input from researchers on the study team, DOL staff, and other federal agency staff involved in research on career pathways approaches. Included in this scan of the field were a number of large current and recent career pathways and related evaluation projects sponsored by federal evaluation offices, including:

- Pathways for Advancing Careers and Education (PACE),
- Evaluations of Health Profession Opportunity Grants (HPOG),
- The Green Jobs and Health Care Impact Evaluation,
- Evaluation of H-1B Ready to Work Partnership Grants,
- Workforce Innovation Fund (WIF) Evaluations,
- Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant evaluations, and
- TAACCCT Community College Consortium for Biosciences Credentials grant evaluations.

After identifying studies in the initial scan and outreach, whenever possible we reviewed published final reports to complete the Matrix. When the information was not available from these reports, we drew from evaluation design reports, interim reports, and project and evaluator websites. In some cases, we inquired directly of researchers or others familiar with the study. Because many of the studies in the Matrix are ongoing, data sometimes were unavailable or not applicable (this is noted in the Matrix). The sources used for each study are included in Appendix B.

The unit of analysis for this report is *research or evaluation study*, as the purpose is to synthesize what kinds of research have been or will be conducted on career pathways. Large, multi-site studies (such as PACE) are counted as a single study if they are or will be conducted under an umbrella evaluation with uniform research questions and evaluation designs, even if the site impacts are or will be analyzed separately. Information specific to each site was included in the Matrix as a reference if the evaluation includes or will include site-specific impact or outcome findings. Evaluations sharing a funding stream (such as the evaluations of HPOG and the WIF third-party evaluations) were analyzed separately if they have or will have distinct research questions and evaluation approaches.

Some programs have been or are involved in multiple evaluations (such as Year Up, I-BEST, and Per Scholas). Because each such evaluation was analyzed separately, a program may have been counted multiple times.

2. Synthesis of Career Pathways Research and Evaluations

In this section we summarize the studies identified in the scan of career pathways research and evaluations that met the eligibility criteria described in Section 1.2.1. We address the kinds of initiatives studied, the evaluation methods and research designs used, and the questions that have been or will be addressed by the studies, completed and ongoing.

2.1 What Kinds of Career Pathways Initiatives Have Been Studied?

2.1.1 Initiatives and Key Services

Exhibit 2.1 (below) shows that 52 studies were included in our synthesis.¹² Of these, 23 studies are complete, and 29 are ongoing (as of February 2017). We categorized studies as complete if they had published results and had not indicated that a longer follow-up was under way or that additional results were forthcoming. The next several years will add substantially to the existing base of evidence—26 studies expect to have additional or final results by the end of 2021. Ten new career pathways random assignment impact reports will be completed over the next year alone. Many of the ongoing studies are required third-party evaluations of federal grants, such as WIF and TAACCCT; the Matrix includes seven WIF grant evaluations and six TAACCCT evaluations.

As also shown in Exhibit 2.1, the studies looked at 32 program-level initiatives, one system-level change, and 19 that were both. Ongoing evaluations include a greater proportion of evaluations focused on systems change or both programs and systems change compared with completed evaluations. Thirty-nine of the studies include at least one site offering multiple steps of training, with a majority of these (27) being multi-site studies.

Only 12 of the 52 studies focused entirely on career pathways approaches that included multiple steps of training; these either were studies of a single site that offered multiple steps of training or were

This Review Found

- 52 studies, of which 23 were complete.
- 26 studies will produce additional results by 2021; at least 10 new impact reports will be completed over the next year alone.
- In 39 studies, at least one site offered multiple steps of career pathways training; in 12 studies was this true of every site.

Of the career pathways efforts reported in the 52 studies:

- 32 focused on the program level; one on system-level change; and 19 on both.
- 23 targeted low-income individuals or those living in poverty, followed by 14 targeting low-skilled individuals.
- Healthcare was the most common sector (39 studies), followed by manufacturing, information technology, and business.
- Most studies included efforts that offered training in multiple sectors; of the 17 single-sector ones, 14 focused on healthcare.
- Community colleges most commonly led career pathways efforts (34 studies), followed by non-profit organizations (20 studies), workforce development boards (16 studies), and other educational institutions (16 studies).

¹² There is not a one-to-one correspondence between the total number of studies (52) and the number of headings in the Sources List (48). The heading for TAACCCT, Round 4 contains the source for five of the 52 total studies because all information for these studies was obtained through communication with the research teams.

multi-site studies in which every site offered more than one step of training. A few more of the ongoing studies include sites with multiple steps of training (22) than do the completed studies (17).

Exhibit 2.1. Summary of Career Pathways Studies

	Total Studies N (%)	Completed Studies N (%)	Ongoing Studies N (%)
Number of studies	52 (100)	23 (44)	29 (56)
Level of initiative			
Number program-level	32 (62)	16 (31)	16 (31)
Number system-level	1 (2)	0 (0)	1 (2)
Number both	19 (37)	7 (13)	12 (23)
More than one step of career pathways education or training			
Number yes	12 (23)	5 (10)	7 (13)
Number no	13 (25)	6 (12)	7 (13)
Number mixed (all multi-site studies)	27 (52)	12 (23)	15 (29)

2.1.2 Target Population and Demographics Served

For each study, we identified the target population and the demographics of the population served. The target populations are reported as described by either evaluation reports or materials about the initiative, regardless of the population actually served by it. In a multi-site evaluation, a target population is listed if it is described or represented at any site. Many studies identified more than one target population.

We identified a target population for all 52 studies analyzed, and these are summarized in Exhibit 2.2 (below). As shown, the most common target population, included in almost half of studies, was low-income individuals or individuals living in poverty (23 of 52 studies). The specific criteria or definition for this population was often not provided (nine studies reported the target population was “low-income” but did not specify further). When it was specified, the most commonly used criteria were Temporary Assistance for Needy Families (TANF) eligibility (11 studies) and percentage of the federal poverty line (five studies, ranging from 100 to 250 percent). The next most common target population was defined as low-skilled individuals (14 studies). This included five studies in which the target population was those without a high school diploma or equivalency degree, and four studies that targeted a population with skills below an eighth grade level.

The third most common target population was dislocated workers (seven of these 11 studies are TAACCCT third-party evaluations). Eight studies included initiatives focused on youth, and the same number included initiatives focused on veterans or incumbent workers. Very few studies examined initiatives targeting individuals with limited English proficiency (four studies), those with disabilities (two studies), or tribal populations (three studies).

Exhibit 2.2. Target Populations in Career Pathways Studies

Characteristic	Total Studies (N=52) (%)	Completed Studies (N=23) (%)	Ongoing Studies (N=29) (%)
Low-income / individuals in poverty	23 (44)	9 (39)	14 (48)
TANF eligible	11(21)	4 (17)	7 (24)
Supplemental Nutrition Assistance Program (SNAP) eligible	2 (4)	0 (0)	2 (7)
Percentage of poverty line ^a	5 (10)	2 (9)	3 (10)
Low-skilled individuals	14 (27)	6 (26)	8 (28)
Without HS diploma / equivalency degree	5 (10)	2 (9)	3 (10)
Very low skills (8 th grade or below)	4 (8)	2 (9)	2 (7)
Dislocated workers ^b	11(21)	4 (17)	7 (24)
Unemployed individuals	10 (19)	4 (17)	6 (21)
Youth	8 (15)	4 (17)	4 (14)
Out-of-school youth	2 (4)	1 (4)	1 (3)
Incumbent workers	8 (15)	5 (22)	3 (10)
Veterans	8 (15)	1 (4)	7 (24)
TAA eligible ^c	7 (13)	0 (0)	7 (24)
English language learners / people with limited English skills	4 (8)	0 (0)	4 (14)
Parents ^d	3 (6)	2 (9)	1 (3)
People of color	3 (6)	1 (4)	2 (7)
Tribal populations / Native Americans	3 (6)	1 (4)	2 (7)
Workforce Investment Act eligible	3 (6)	1 (4)	2 (7)
Individuals with disabilities	2 (4)	0 (0)	2 (7)
Women	2 (4)	1 (4)	1 (3)

^a For two studies, the cutoff was at or below the poverty line, for two it was below 200 percent of the poverty line, and for one it was below 250 percent of the poverty line.

^b Seven of the studies that targeted dislocated workers were TAACCCT evaluations, many of which targeted Trade Adjustment Assistance (TAA)–eligible workers, as well as other populations.

^c These were all TAACCCT evaluations.

^d These were defined as single parents, custodial parents, and noncustodial parents.

We also examined the demographic characteristics of those actually served—regardless of target population—where those data were available. At least some demographic information on populations served was available for 25 of the 52 studies, but it varied in what was reported, how it was reported (e.g., age distribution vs. average age), and the categories used (e.g., for racial/ethnic groups). This made it difficult to compare the results across the studies for some items. There was also sometimes substantial variation in populations served among sites in a single study (e.g., at Breaking Through sites, the percentage of participants who had no high school diploma or equivalency degree ranged from zero to 84 percent).

Exhibit 2.3 (below) shows these participant demographics in terms of educational attainment, age, gender, and race/ethnicity. In general, the initiatives studied served mostly individuals with a high school diploma or the equivalent. In nearly three quarters of the studies that had data on educational attainment (14 of 20), more than 50 percent of participants had a high school diploma or equivalent. In the majority of these studies (11), more than 85 percent of participants had a high school education. Only three studies served a population that generally did not have a high school diploma or the

equivalent. These were the JOBSTART demonstration, the GED Bridge to Business and Health Careers Program, and YouthBuild.

The age (average or median) of the populations served was generally in the late 20s or 30s. A subset served young adults (age 25 or younger), but none reported a median or average age older than 35. Slightly more than one third of programs studied served about an equal proportion of women and men; almost half served mostly women, and only two served mostly men. Few studies included substantial Hispanic populations (more than 25 percent) among their participants—just five studies did, compared with 12 that served populations where more than 25 percent of participants were Black or African American.

Exhibit 2.3. Demographics of Population Served in Career Pathways Studies

Characteristic	Studies N (%)
Percentage without high school diploma or equivalency degree (N=20)	
Less than 50%	14 (70)
15% or less no HS diploma or equivalency degree	11 (55)
More than 50%	5 (25)
More than 85% no HS diploma or equivalency degree	3 (15)
Characteristic varied by site beyond two categories	1(5)
Age	
Average age (N=9)	
Under 25	2 (22)
25-30	2 (22)
31-35	5 (56)
Median age (N=12)	
Under 25	3 (25)
Over 25	7 (58)
25-30	1 (8)
31-35	2 (17)
Over 25 but cannot break down further ^a	4 (33)
Cannot categorize based on categories reported ^b	2 (17)
Gender (N=21)	
More than 80% female	7 (33)
60-79% female	4 (19)
40-59% female	8 (38)
Less than 40% female	2 (10)
Race/Ethnicity	
% Black or African American (N=18)^c	
0-25	6 (33)
26-50	7 (39)
51-75	5 (28)
76-100	0 (0)
% Hispanic (N=17)^d	
0-25	12 (71)
26-50	5 (29)
51-100	0 (0)

^a Of these four studies, the medians were reported as over 25, 25-44, 25-39, and 25-35.

^b For one site, the median was reported as 20-29, another reported the percentage over age 23, and the third reported medians as 20-22 and 23-26 (varied by site).

^c Two additional studies reported the percentage of non-White participants (3-91 by site, and 16.4).

^d Two additional studies reported the percentage of non-White participants (3-91 by site, and 16.4).

2.1.3 Sector and Occupations

For each study, we identified the business/industry sector or sectors targeted by the studied initiatives' training. In a few cases, studies included initiatives that targeted occupations that cut across sectors, such as Office/Clerical, Security, Maintenance, and Accounting; we have included those cross-sector occupational clusters here, too. Again, for multi-site studies, a sector or occupational cluster is counted if it is included at any site in the study. Exhibit 2.4 shows the frequency of each. Healthcare was by far the most common sector targeted, with 39 of 48 studies¹³ including at least some healthcare. Other common sectors were manufacturing (22 studies), information technology (18 studies), and business¹⁴ (14 studies).

Though most of the studied initiatives targeted multiple sectors or occupational clusters (often determined at the site level), 17 studies were focused specifically on a single sector; for 14 of them, the sector was healthcare.

Exhibit 2.4. Sectors/Occupational Clusters Targeted in Career Pathways Studies

Type (N=48)	Studies N (%)
Healthcare	39 (81)
Manufacturing	22 (46)
Information Technology	18 (38)
Business (includes such occupations as accounting and office/clerical)	14 (29)
Construction	9 (19)
Tourism/hospitality	9 (19)
Education	8 (17)
Finance	6 (13)
Shipping/logistics/transportation	6 (13)
Energy	4 (8)
Office/Clerical*	4 (8)
Security*	4 (8)
Automotive	3 (6)
Maintenance*	3 (6)
Accounting*	2 (4)
Green jobs*	1 (2)

*Occupational clusters, whose jobs may be in multiple sectors.

Within healthcare, we identified specific occupational paths for 21 studies.

Exhibit 2.5 (below) shows the most commonly listed healthcare occupations, as well as whether we classified them as entry-, mid-, or high-level occupations, based on median hourly wage.

¹³ There were four studies for which we did not identify a targeted sector or sector(s), either because they were recently launched and have not yet identified sectors, or they were large national initiatives in which individual sites targeted various sectors.

¹⁴ We listed sectors as they were described by research studies or the sites included in studies and grouped similar ones. For example, "Business" encompasses target sectors identified by programs as "business administration and management", "finance and business", and "business."

Exhibit 2.5. Healthcare Occupations Targeted in Career Pathways Studies

Type (N=21)	Studies N (%)	Median Hourly Wage (\$)	Job Level (based on wage) ^a
Nursing, Psychiatric, and Home Health Aides	18 (86)	10.54-12.36	Entry
Healthcare Support Occupations ^b	13 (62)	14.71-16.77	Entry/Mid
Licensed and Vocational Nurses	10 (48)	20.76	Mid
Medical Records and Billing, Health Information Technicians	7 (33)	17.84	Mid
Health Practitioner Support Technologists and Technicians	6 (29)	14.62	Entry
Emergency Medical Technicians and Paramedics	5 (24)	15.38	Mid
Registered Nurses	5 (24)	32.45	High
Health Administration	4 (19)	N/A	N/A
Health, Community and Social Service Specialists	3 (14)	17.45	Mid
Health Management Occupations	2 (10)	N/A	N/A
Physical Therapist Aides	2 (10)	12.08	Entry
Physical Therapist Assistants	1 (5)	26.52	High
Dental Hygienists	1(5)	34.77	High
Diagnostic Related Technologists and Technicians (EKG Technicians)	1(5)	26.38	High
Health Related Counselors (Addiction Counselors)	1(5)	19.22	Mid
Health Practitioner Support Technologists and Technicians (Surgical Technologists)	1(5)	21.31	Mid
Personal Care Aides	1(5)	10.09	Entry

Source: O*NET Online Summary reports: <https://www.onetonline.org/find/>

N/A denotes occupations reported that could not be matched to O*NET categories.

^a Job level: Entry <\$15, Mid \$15-25, High >\$25.

^b This category includes Medical Assistants, Phlebotomists, and Medical Transcriptionists.

2.1.4 Lead Organizations

For each study, we identified the type of organization responsible for administering the career pathways initiative. We frequently identified more than one type of lead organization per study. Some studies included partnerships, or the type of lead organization varied by site. In other studies, only one type of organization was involved, either because the research only involved a single site operated by one type of organization or because the initiative specifically focused on only one type of organization (e.g., studies testing strategies within the community college system).

Exhibit 2.6 (below) shows the frequency of each type of lead organization, both for the synthesis overall and for the subset of studies led by only one type of organization. Community colleges most commonly led career pathways efforts, among studies overall and the single organization type studies (34 of 52 studies, and 11 of 24 studies, respectively); they were followed by non-profit organizations, workforce development boards, and other educational institutions.

Exhibit 2.6. Lead Organizations in Career Pathways Studies

Type	Total Studies (N=52) N (%)	Single Organization Type Studies (N=24) N (%)
Community college	34 (65)	11 (46)
Non-profit organization	20 (38)	4 (17)
Workforce development board	16 (31)	4 (17)
Other educational institution	16 (31)	1 (4)
Other state/local agency	11 (21)	1 (4)
Tribal entity ^a	3 (6)	1 (4)
Job Corps	2 (4)	1 (4)
Union	2 (4)	0 (0)
Employer	1 (2)	1 (4)

^a There is also one study in which one site is the American Indian Opportunities Industrialization Center, included under “Non-profit organization”.

2.2 What Evaluation Methods and Research Designs Have Been Used?**2.2.1 Type of Study**

For each study, we documented the types of study methodologies used. Most studies used several different methodologies. Frequently they included an implementation study along with an impact study (using random assignment or quasi-experimental design) or a non-experimental study¹⁵, but there were also a number of studies that, for example, examined outcomes for all participants served but also included a subset of participants in a quasi-experimental study.

Exhibit 2.7 (below) shows the frequency of each type of evaluation—overall, by completed and ongoing studies, and for the studies that included efforts with more than one step of career pathways education or training. Most studies (46) included an implementation evaluation, along with another methodology that looked at participant impacts or outcomes; only six used only implementation evaluations. The largest

Highlights of Evaluation Methods and Research Design Findings

- Most studies (40) used several different methodologies.
- More studies used random assignment methodologies (20) than used quasi-experimental (15) or non-experimental (18). Almost two thirds (13) of the random assignment studies are ongoing.
- More than one quarter (14) of the studies included some examination of costs.
- Only two studies included systems change analysis, but many others included implementation studies of system-level initiatives.
- More than two thirds (37) of the studies were funded at least in part by the federal government, either directly by federal agencies or as part of required third-party evaluations of federal grants. Foundations funded about one quarter (13) of the studies.

¹⁵ A random assignment study utilizes a research design in which the main independent variable is manipulated by randomly assigning participants to one condition (intervention) or the other (comparison), allowing researchers to attribute differences between outcomes for the two groups to the intervention under study. A quasi-experimental design uses methods other than random assignment to compare the intervention group to the comparison group. As used in this report, a non-experimental study describes participant outcomes but does not aim to attribute causality to the intervention.

percentage of studies were impact evaluations using random assignment methodologies (20 studies), followed by outcome studies using non-experimental designs (18 studies), and then quasi-experimental impact studies (15 studies). Almost two thirds (13) of the random assignment studies are ongoing.

More than one quarter (14) of the studies included some examination of costs; these included six studies that described their methodologies as “cost-benefit,” four as “cost-effectiveness,” and three as “cost-analysis.” Only two studies included systems change analysis, but many of the evaluations of system-level initiatives (17; not shown in exhibit) included implementation studies, which may also hold lessons regarding systems change.

Among the 12 studies with the most explicit career pathways focus—those where all of the sites offered more than one step of training—just one was a random assignment study, with most being implementation, non-experimental, and/or quasi-experimental studies. However, to the extent that other random assignment studies include site-level impact findings for individual sites with multiple steps of career pathways training, there may be additional lessons in the future about this approach.

Exhibit 2.7. Study Type Used in Career Pathways Studies

Type	Total Studies (N=52) N (%)	Completed Studies (N=23) N (%)	Ongoing Studies (N=29) N (%)	More Than One Step of Training in All Sites (N=12) N (%)	More Than One Step of Training in Some Sites (N=27) N (%)
Implementation	46 (88)	18 (78)	28 (97)	10 (83)	25 (93)
Implementation only	6 (12)	5 (22)	1 (3)	2 (17)	4 (15)
Random assignment	20 (38)	7 (30)	13 (45)	1 (8)	7 (26)
Non-experimental	18 (35)	8 (35)	10 (34)	6 (50)	11 (41)
Quasi-experimental	15 (29)	4 (17)	11 (38)	6 (50)	6 (22)
Cost study ^a	14 (27)	4 (17)	10 (34)	2 (17)	5 (19)
Systems change analysis	2 (4)	0 (0)	2 (7)	0 (0)	2 (7)
Other ^b	5 (10)	1 (4)	4 (14)	1 (8)	2 (7)

^a We did not identify any studies that included a return-on-investment (ROI) analysis, but two studies (Arkansas CollegeCount\$ and the evaluation of the American Apprenticeship Initiative) have indicated they may conduct an ROI analysis at some point. One study, Courses to Employment, included a study on understanding funding streams but not a formal cost analysis and is not included in this count.

^b The other types of research include broad research questions (HPOG University Partnership study); the Alliance for Quality Career Pathways Defining Metrics study; the research and development approach for Development of College- and Employer-Based Career Pathways Models That Build on the Year Up Program Logic; participation analysis (SNAP E&T); and special topics reports based on in-depth qualitative interviews (PACE).

Note: Percentages may not add to 100 because studies typically used more than one methodology.

2.2.2 Data Sources

We were able to document the data sources for 47 of the 52 studies (the remaining were ongoing studies for which there is not yet published information on data sources).

Exhibit 2.8 shows the most common data sources and the frequency with which they are used. Most studies (39) include data gathered through site visits, including interviews and focus groups, and the use of program data systems (30). Participant surveys were used in more than half of the studies.

Exhibit 2.8. Data Sources Used in Career Pathways Studies

Type (N=47)	Studies N (%)
Site visits / interviews / focus groups	39 (83)
Program data systems	30 (64)
Participant surveys	26 (55)
Grantee documents	17 (36)
Wage/UI records ^a	13 (28)
State employment or workforce data systems	13 (28)
Program, site, or grantee surveys	11 (23)
Staff or instructor surveys	9 (19)
Employer surveys	8 (17)
College or college system data systems	8 (17)
National Student Clearinghouse administrative data	4 (9)
Other government programs data systems (TANF, SNAP, WIASRD, state one-stop)	3 (6)
Administrative or program data not specified	3 (6)
Other ^b	7 (15)

WIASRD is Workforce Investment Act Standardized Record Data.

^a Six of these studies specify that they are using wage records from the National Directory of New Hires.

^b This includes course syllabi; case studies; Bureau of Labor Statistics data; class observations, instructor logs, and evaluations; state consumer report cards; review of program evaluations; and criminal justice records.

Note: Percentages may not add to 100 because studies typically used more than one data source.

2.2.3 Funders of Career Pathways Studies

Exhibit 2.9 shows the most common funding sources for the career pathways studies. The majority of studies were funded by a single funder, but some were funded by multiple funders, thus the exhibit shows duplicated counts. More than two thirds (37) of the studies were funded at least in part by the federal government, either directly by federal agencies or as part of required third-party evaluations of federal grants. Foundations funded one quarter (13) of the evaluations; a relatively small number (four) were funded by other types of entities such as community college systems or local government.

Exhibit 2.9. Funders of Career Pathways Studies

Type	Total Studies (N=52) (%)	Completed Studies (N=23) (%)	Ongoing Studies (N=29) (%)
Federal government	37 (71)	11 (48)	26 (90)
Department of Labor	10 (19)	6 (26)	4 (14)
Department of Health and Human Services	8 (15)	2 (9)	6 (21)
Department of Education	5 (10)	1 (4)	4 (14)
Department of Agriculture, Food and Nutrition Service	1 (2)	0 (0)	1 (3)
Site or grant-funded required third-party evaluation	13 (25)	2 (9)	11 (38)
Foundation	13 (25)	11 (48)	2 (7) ^a
Other ^b	4 (8)	3 (13)	1 (3)

^a Our scan may have been less likely to uncover ongoing research efforts funded by foundations (particularly smaller foundations) because these are not always publicized.

^b These included community college systems, state and local government, and non-profit organizations.

Note: Percentages may not add to 100 because studies may have had more than one funder.

2.3 What Questions Have Been or Will Be Answered by Completed and Ongoing Research?

In this section, we describe the types of research questions that have been or will be answered by the studies in this synthesis. We also summarize the findings from impact studies with reported findings and from completed implementation studies, and we present the expected timing of findings from ongoing studies. See Section 3 for a discussion of high level findings and the implications of these findings for future research on career pathways approaches.

2.3.1 Research Questions

We identified research questions for 49 of the 52 studies,¹⁶ and each of these studies included multiple research questions. We organized the research questions according to whether they explicitly address career pathways, as well as by the types of outcomes measured.

Common Types of Research Questions

The studies reviewed here asked a diverse set of research questions but there was some commonality, particularly among the impact studies. Many of the questions can be categorized as getting at the overall question of whether programs were effective and for whom. Typical research questions included—

- What is the impact of the program(s) on training participation, completion, and credential attainment?
- What are the impacts of the program(s) on employment and earnings?
- To what extent do impacts vary by site and/or by subpopulations?
- What can be learned from program implementation?

Highlights of Research Question Findings

Outcomes Studied

- About one third of studies (18) included research questions that explicitly focus on career pathways.
- 38 studies included at least one employment outcome; 29 included at least one education outcome.
- Findings have been published for four quasi-experimental and eight random assignment studies.
- For completed studies, follow-up periods were short to medium term. Just two studies looked at long-term outcomes.

Findings

- Of nine completed studies examining earnings, three found positive results, five found mixed results, and one found mostly negative results.
- Of eight completed random assignment studies, only one included at least one site that offered multiple steps of training.
- Of 10 completed studies that examined educational outcomes, seven found positive results, one found mixed results, and two found mostly negative results.
- Studies found that implementing a model as intended often proved challenging. Sites varied considerably in the populations targeted and served, targeted sectors and occupations, and the extent to which a given model was implemented.

¹⁶ For three studies, either the reports did not specify research questions, or the study is ongoing and we could not find articulated research questions.

Other, less common questions asked by the studies include what are the impacts of the program(s) on individual and family well-being and on receipt of public benefits; how were career pathways systems built or changed; and did programs achieve planned performance. Some studies also asked how participation in particular program components influenced impacts, though their research designs generally did not allow for examining this question experimentally. We will discuss possible future research to explore questions concerning component effectiveness in the forthcoming evaluation design options report.

Explicit Focus on Career Pathways

Eighteen studies included research questions aimed at understanding career pathways. This meant these studies either specifically mentioned career pathways in a question or included questions about an initiative that was explicitly described as a career pathways approach. Exhibit 2.10 (below) shows the breakdown of completed and ongoing studies, as well as the types of questions asked and/or answered.

Examples of research questions explicitly addressing career pathways (and study type):

- What barriers emerged in the development of pathways within the colleges, and how were they overcome? (Implementation)
- How were pathways undertaken by the states and colleges scaled, and possibly sustained? (Implementation)
- What is the impact of each program on key indicators of progress in career pathways–relevant training, such as persistence in education and the achievement of certificates and degrees? (Random Assignment)
- To what degree does participation in the program result in positive progression of low-income individuals through various tiers of an educational career pathway and into employment? (Quasi-Experimental)
- What are the commonly used student outcome measures [in career pathways initiatives]? (Metrics¹⁷)

Overall, 11 of 18 studies that included research questions explicitly focused on career pathways are ongoing (61 percent), which is similar to the overall percentage of studies in the Matrix that are ongoing (56 percent; see Exhibit 2.1). However, a disproportionately high percentage of the random assignment studies (five of six studies; 83 percent) and 100 percent of the metrics studies are ongoing. This means there are few findings yet from the career pathways research aimed at understanding whether the program caused particular outcomes (impacts), and the research on notable training efforts focused on developing ways to measure the effects of career pathways approaches. In the next section, we discuss when results are expected for these studies.

¹⁷ A metrics study evaluates the use of outcome measures.

Exhibit 2.10. Explicit Focus on Career Pathways of Research Questions in Studies

	Total Studies (N=49) N	Completed Studies (N=21) N (%)	Ongoing Studies (N=28) N (%)
Any explicit CP question	18	7 (39)	11 (61)
Study Type			
Implementation	9	4 (44)	5 (56)
Non-experimental	5	3 (60)	2 (40)
Quasi-experimental	1	1 (100)	0 (0)
Random assignment	6	1 (17)	5 (83)
Metrics	2	0 (0)	2 (100)

Note: In this table, percentages are calculated based on the total in the first column to allow comparisons between the proportion of completed and ongoing studies for each type of study.

Three studies include research questions exploring the importance of various components of career pathways approaches. These are the HPOG Impact Study; Development of College- and Employer-Based Career Pathways Models That Build on the Year Up Program Logic; and Arkansas CollegeCount\$. The evaluation design options report for this project will discuss possible future research to explore such questions further.

Outcomes Measured

We documented the outcomes measured or to be measured for 42 studies; the remaining 10 were either implementation studies or were ongoing and had not published information on outcomes. Exhibit 2.11 shows the types of outcomes the studies examined, overall and by research design.

Exhibit 2.11. Outcomes Measured in Career Pathways Studies, by Study Type

Outcome Type	Study Type			
	Total Studies (N=42) ^a N (%)	Random Assignment (N=20) N (%)	Quasi- Experimental (N=15) N (%)	Outcome (N=18) N (%)
Training completion	34 (81)	18 (90)	11 (73)	11 (61)
Any employment outcome	38 (90)	17 (85)	13 (87)	15 (83)
Earnings	21 (50)	14 (70)	5 (33)	4 (22)
Employment	27 (64)	13 (65)	9 (60)	11 (61)
Employment related to training / industry or occupation worked	17 (40)	10 (50)	3 (20)	6 (33)
Job retention	11 (26)	4 (20)	3 (20)	4 (22)
Hourly Wage	19 (45)	9 (45)	5 (33)	8 (44)
Wage increase	3 (7)	0 (0)	1 (7)	2 (11)
Job offering benefits	6 (14)	5 (25)	0 (0)	1 (6)
Any education outcomes	29 (69)	12 (60)	11 (73)	17 (94)
Credential/degree	25 (60)	11 (55)	9 (60)	17 (94)
HS diploma or equivalency degree	3 (7)	3 (15)	0 (0)	0 (0)
Associate's degree	4 (10)	1 (5)	3 (20)	3 (17)
Occupational, vocational, or training- related credential	5 (12)	3 (15)	1 (7)	1 (6)
Credits earned	9 (21)	3 (15)	4 (27)	3 (17)
College persistence	8 (19)	0 (0)	5 (33)	4 (22)
Basic skills increase	3 (7)	0 (0)	2 (13)	2 (11)
Other outcomes				
Public assistance receipt or eligibility	9 (21)	7 (35)	0 (0)	2 (11)
Total family or household income	7 (17)	7 (35)	0 (0)	0 (0)
Arrest rate or criminal justice involvement	2 (5)	2 (10)	0 (0)	0 (0)

^a The sums in the Study Type columns may exceed those in the Total Studies column because some studies measure outcomes in addition to random assignment and quasi-experimental findings for a subset.

Note: Percentages may not add to 100 because studies typically measured more than one outcome.

Thirty-eight studies included at least one employment outcome, most frequently employment (various aspects), earnings, and hourly wage. Twenty-nine studies included at least one education outcome, most frequently the receipt of a credential or degree, followed by the number of credits earned and college persistence. Again, the evaluation design options report will explore the possibility of future research that examines types of outcomes in studies of career pathways.

2.3.2 Current Status and Timing of Results

As discussed above, more than half of the studies included in the Matrix were ongoing as of the time of our analysis (February 2017). For 26 of the ongoing 29 studies, we were able to provide an estimated publication date for their results.

Exhibit 2.12 shows which studies were/are expected to publish results from 2017 through 2023. Some results were released between the time of analysis and this report's publication. For example, PACE began to release site-by-site implementation and short-term impact reports in 2017 (and is expected to

release additional reports in 2018), and the HPOG Impact evaluation will publish its short-term impact findings in 2018.¹⁸

¹⁸ In the PACE study, follow-up data used to determine short-term impacts were collected at 18-19 months, on average, after random assignment. In the HPOG Impact study, the follow-up period was 18 months on average.

Exhibit 2.12. Career Pathways Studies with Recent Results or Upcoming Results Expected

Year	Study ^a
2017	<ul style="list-style-type: none"> • Accelerating Opportunity • Career Pathways Programming for Lower-Skilled Adults and Immigrants • GED Bridge to Business and Health Careers Program – LaGuardia Community College of the City University of New York • Oregon Pathways for Adult Basic Skills Transition to Education and Work Initiative • Pathways for Advancing Careers and Education (four site-specific implementation and short-term impact reports and two briefs from qualitative interviews with study participants) • Workforce Innovation Fund: <ul style="list-style-type: none"> - The Accelerating Connections to Employment Initiative - Accelerated Training for Illinois Manufacturing - On-Ramps to Career Pathways - The Gila River Indian Community (GRIC) Career Pathways Model - The Pathways to Competitiveness Project
2018	<ul style="list-style-type: none"> • Health Profession Opportunity Grants National Implementation Evaluation (final report) • Health Profession Opportunity Grants Impact Study (short-term impact report) • Pathways for Advancing Careers and Education (five additional site-specific implementation and short-term impact reports) • Trade Adjustment Assistance Community College and Career Training Grants: <ul style="list-style-type: none"> - Advancing Careers and Training for Healthcare at Chippewa Valley Technical College - Connecting Competencies to Employers through Clover Park Technical College - Iowa's Information Technology Healthcare Utilities and Manufacturing Network at Hawkeye Community College - Montana HealthCARE through Missoula College University of Montana - New Jersey Health Professions Pathways to Regional Excellence Project • YouthBuild Evaluation
2019	<ul style="list-style-type: none"> • Health Profession Opportunity Grants Impact Study (medium-term impacts)^c • Pathways for Advancing Careers and Education (medium-term impacts)^c • TAACCCT National Evaluation • WIF – Summer Career Pathways • Year Up: Development of College- and Employer-Based Career Pathways Models That Build on the Year Up Program Logic
2020	<ul style="list-style-type: none"> • Health Profession Opportunity Grants 2.0 Implementation Evaluation
2021 ^b	<ul style="list-style-type: none"> • Evaluation of the American Apprenticeship Initiative • Cascades Job Corps College and Career Academy Pilot Evaluation • Ready to Work Partnership Grants • Health Profession Opportunity Grants Impact Study (long-term impacts)^c • Health Profession Opportunity Grants 2.0 Tribal Evaluation • Health Profession Opportunity Grants 2.0 (short-term impacts) • Pathways for Advancing Careers and Education (long-term impacts)^c • SNAP E&T Pilots
2023	<ul style="list-style-type: none"> • Health Profession Opportunity Grants 2.0 (medium-term impacts) (<i>pending funding</i>)
Unknown	<ul style="list-style-type: none"> • WorkAdvance (medium- and long-term impacts)

^a This list is not exhaustive, as not all researchers have publicized when study results are expected.

^b No studies are expected to have results in 2022.

^c The Career Pathways Intermediate Outcomes (CPIO) Study and the Career Pathways Long-term Outcomes Study (CPLO) will examine outcomes for both the Health Profession Opportunity Grants Impact Study and Pathways for Advancing Careers and Education

Exhibit 2.13 (below), along with a brief summary of their findings, whether they included multiple steps of training, and how long they followed participants after entering the program. Most of the findings are for short- (~1-2

years) and medium- (3-4 years) term follow-up periods. The follow-up periods ranged from two semesters to five years for the random assignment studies, and one academic quarter to nine years for the quasi-experimental studies (based on when participants enrolled, so the follow-up period for most participants is shorter).

As noted earlier, we have included notable training efforts that were not explicitly career pathways approaches—in some cases predating the concept—where they were major studies of initiatives representing core elements of a career pathways approach, such as sector partnerships or integrated basic education and training.

Nine of the studies examined the effect on earnings—three studies found positive results (TAACCCT-Health Professions Pathway (H2P), Sectoral Employment Impact Study (SEIS), and Year Up); five found mixed results depending on the site, subgroup, or comparison group (Arkansas Career Pathways Initiative (CPI), JOBSTART, Minority Female Single Parent (MFSP), Green Jobs-HealthCare (GJ-HC), and WorkAdvance); and one found mostly negative results (Center for Employment Training (CET) replication)¹⁹. Earnings impacts ranged from an increase of 17 percent to 32 percent in the random assignment studies.

Ten of the studies examined educational outcomes, such as credential receipt or credits earned. Of these, seven found positive results (Arkansas CPI, Career Advancement Academies (CAA), I-BEST, TAACCCT-H2P, CET replication, JOBSTART, and GJ-HC); one found mixed results (Year Up, which found lower rates of college attendance but a greater likelihood of attending college full-time and receiving financial aid); and two found mostly negative results (Kingsborough and MFSP).

Of the eight random assignment studies, only one study (GJ-HC) included at least one site that had multiple steps of training. However, there are also seven ongoing random assignment studies that include at least one site with multiple steps of training.²⁰ For additional information about each study to help place these findings in context, please see the Career Pathways Research and Evaluation Matrix (Appendix A).

¹⁹ For more information on the CET replication study and factors affecting impacts, see https://www.mdc.org/sites/default/files/full_530.pdf

²⁰ These are the Cascades Job Corps College and Career Academy Pilot, the Ready to Work Partnership Grants evaluation, the HPOG Impact Evaluation and HPOG 2.0 National Study, PACE, WIF—Accelerating Connections to Employment, and the YouthBuild evaluation.

Exhibit 2.13. Summary of Published Impact Findings in Career Pathways Studies (Quasi-Experimental and Random Assignment)

Study	Multi-Step Career Pathways Training?	Follow-up Period	Results Summary
Quasi-experimental studies			
Arkansas Career Pathways Initiative (CPI): CollegeCount\$ Evaluation	Yes	2-9 years (looked at enrollees from 2006-2013 in 2015)	<ul style="list-style-type: none"> • Fifty-two percent completed certificate or degree compared with only 24 percent of the general community college student body. • Compared with a matched population of their community college peers, six times as many CPI participants who enrolled in 2011 had earned associate's degrees and three times as many had earned a certificate of proficiency or technical certificate. • In 2011, in the 12 months after leaving college, participants earned \$3,100 more per year than a matched pool of TANF participants. • Temporary Employment Assistance clients who receive cash stipends and were enrolled in CPI earned \$731 more than their TANF counterparts in the first year after completing. • From the first cohort in 2006, the non-CPI community college population has earned more than their CPI peers in the first 12 months after leaving college, but the earnings gap is dramatically narrowing each year to an average deficit of \$1,584 per year from an original deficit of \$6,432.
Career Advancement Academies (CAA), California Career Ladders Project	Mixed	1-3 years (looked at enrollees from 2011-2013 in 2014)	<ul style="list-style-type: none"> • In the initiative's second phase (2011-2013), Career Advancement Academies students attained associate degrees and certificates at a higher rate (23 percent) than the comparison group (20 percent).
Integrated Basic Education and Skills Training (I-BEST)	Mixed	2 years	<ul style="list-style-type: none"> • I-BEST students earned substantially more college credits (both total and career/technical education) than their peers, were much more likely to earn an award, and were moderately more likely to achieve a basic skills gain. • There were no detectable differences on persistence or employment outcomes.

Study	Multi-Step Career Pathways Training?	Follow-up Period	Results Summary
TAACCCT – Health Professions Pathway (H2P) Consortium	Yes	3 months to 3 years	<ul style="list-style-type: none"> • Participants in LVN/LPN programs were roughly 18 percent more likely to earn that credential compared with a retrospective cohort of students in the same programs. • Across the Consortium, students gained \$1,400-\$1,700 in average quarterly earnings. • Students who completed long-term certificates earned roughly \$2,500 more compared with their pre-program average and \$3,600 more compared with their earnings in the quarter immediately prior to enrollment in the program. • Students who completed associate degrees saw earnings gains of \$4,000 compared with their pre-program average and \$6,000 compared with their earnings in the quarter immediately prior to enrollment in the program. • Program students had an estimated eight percent greater likelihood of employment and 22 percent higher wages than the retrospective cohort students.
Random assignment studies			
Career Focused Learning Communities at Kingsborough Community College	No	2 semesters	<ul style="list-style-type: none"> • For the sample as a whole, the program did not have meaningful impacts on the educational outcomes that were measured during the semesters in which students enrolled in a learning community or on outcomes measured in the following semester. • For students who had recently transferred from another college, the program had a modest but positive impact on credits earned during the semester in which the program ran.
Center for Employment Training (CET) Replication	No	4½ years	<ul style="list-style-type: none"> • In the high-fidelity sites, access to CET significantly increased participation in skills training in the first 12 months of follow-up. At the end of the follow-up period, the effect was still statistically significant but smaller in size. • Access to CET significantly increased receipt of training credentials, with the biggest increase occurring in the high-fidelity sites. The effects on credential receipt were largest at the end of the first year. • Total time spent in education and skills training activities was similar for the program and control groups. • The problems in implementing the program made the detection of impacts all the more difficult. The best test of the CET approach was within the smaller sample of high-fidelity sites. • In the high-fidelity sites, access to CET did not increase youths’ employment or earnings during the 4½-year follow-up period. Although there were some effects in the early years for different subgroups of the full sample, these effects did not persist. Positive effects on earnings did emerge for the younger of the two age subgroups, although these findings are suspect because of small sample sizes. • In the medium- and low-fidelity sites, effects on employment and earnings were either negligible or negative.

Study	Multi-Step Career Pathways Training?	Follow-up Period	Results Summary
JOBSTART Demonstration	No	4 years	<ul style="list-style-type: none"> • JOBSTART led to an increase in the rate of high school diploma or equivalency degree attainment. • Educational attainment impacts were large for all subgroups studied. • By the third and fourth years, JOBSTART participants were employed at the same rate as non-participants but earned higher wages, although this gain in wages was not statistically significant. • Women who were not custodial parents upon entering the program saw a decline in AFDC receipt and payments. • Women who were custodial parents upon entering the program saw increased childbearing and no impacts on AFDC receipt. • Male program participants who were arrested between age 16 and program entry saw a reduction in arrests during the post-program period and a reduction in drug use in year four. • Participants at the CET program in San Jose, California, had the largest impact on earnings (\$6,700 over the 4-year period).
Minority Female Single Parent (MFSP) Demonstration at the Center for Employment Training (CET)	No	5 years	<p>After 5 years, compared with control group members, individuals who participated in CET:</p> <ul style="list-style-type: none"> • Earned an average of \$95 per month more. • Worked more hours (85 vs. 77 hours per month). • Had significantly better earnings gains if they had completed 12 or more years of schooling (\$824 vs. \$563). • Showed little reductions in welfare receipt. • More participated in some form of education or training (85 vs. 59 percent). • Gains in high school equivalency degree attainment dissipated. • The cost-benefit analysis showed the program produced positive returns for society and program participants.
Green Jobs and Health Care Impact Evaluation (GJ-HC)	Mixed	18 months	<ul style="list-style-type: none"> • Programs had a large impact (26-51 percentage points) on participation in education and training activities, particularly vocational training. • Grantee programs had positive impacts on the receipt of training-related support services, particularly financial assistance, career counseling, and job placement assistance. • All four programs had positive impacts on receipt of vocational credentials. • Kern Community College's program produced positive impacts on participants' earnings in the fifth and sixth calendar quarters after random assignment. The other three programs did not show any evidence of a significant impact on employment, earnings, or job characteristics. • There was no evidence of significant impacts on other measures of financial and economic stability, including household income, public benefit receipt, and overall financial circumstances, for any grantee.

Study	Multi-Step Career Pathways Training?	Follow-up Period	Results Summary
Sectoral Employment Impact Study (SEIS)	No	2 years	<ul style="list-style-type: none"> • Participants in sector-focused programs earned significantly more than control group members, with most of the earnings gains occurring in the second year. • Program participants were significantly more likely to work and, in the second year, worked more consistently than control group members. • Program participants were significantly more likely to work in jobs with higher wages. • Program participants were significantly more likely to work in jobs that offered benefits. • For each subgroup analyzed, program participants had significant earnings gains compared with their counterpart controls.
WorkAdvance	No	2 years (ongoing; 3-year and 5-year follow-ups are planned)	<ul style="list-style-type: none"> • WorkAdvance increased participation in industry-targeted vocational training by 40 percentage points, the likelihood of completing training by 31 percentage points, and attainment of a vocational training credential by 25 percentage points compared with control group members. • WorkAdvance participants began to report higher earnings compared with the control group 2 years after program completion at three of the four sites. Impacts on earnings were tied to the providers' experience running sector-based programs. Per Scholas, the most experienced sectoral provider, demonstrated the largest and most consistent impacts. • The program cost between \$5,200 and \$6,700 per participant at the four providers delivering the program.
Year Up Evaluation	No	3 years	<ul style="list-style-type: none"> • Over the 3 year study period, Year Up participants earned about \$13,000 (32 percent) more than members of the control group. Earnings gains were driven primarily by higher wages paid to Year Up participants. • Year Up participants who graduated and secured jobs in either of the program's two target occupations (information technology and financial operations) earned the highest hourly wages and annual incomes. • Year Up participants were somewhat less likely than those in the control group to be attending college toward the end of the study period, although among young people from both groups who were enrolled in college, a higher share of Year Up participants were attending full-time and were receiving financial aid.

Implementation Study Findings

As was shown in Exhibit 2.7, most evaluations (46 of 52, 18 of which are completed) included an implementation study. A complete summary of the wide range of implementation study findings is beyond the scope of this project. However, some themes emerge.

In analyses of program fidelity, implementing a model as intended often proved challenging. The CET replication study found that only four of 12 sites were able to implement the model as intended. Other studies (SEIS, WorkAdvance) suggest that it may take time for programs to mature to be effective. Among the most challenging components to implement were job development and establishing relationships with employers. Five studies (Accelerating Opportunities, CAA, CET, WorkAdvance, and WIF–Steps Up to STEM) reported some challenges in working with employers, and many other studies reported key lessons focused on building strong relationships with employers (the Community Based Job Training Grants evaluation, the Washington Hospital Employee Education and Training Grants evaluation, and JOBSTART). Several of the community college-based initiatives (Accelerating Opportunities, CAA, and TAACCCT-H2P) pointed to the importance of institutional buy-in and support.

Another key theme, particularly in many of the multi-site studies, was the amount of variation in implementation from site to site in populations targeted and served, targeted sectors and occupations, and the extent to which a given model was implemented. This came up frequently in our own review of the studies—that describing a characteristic for a given study may to some extent mask important site-by-site variation that provides context for study findings.

Cost Study Findings

Among the four completed cost studies, three employed cost-benefit analyses (JOBSTART, MFSP, and I-BEST) and one a cost-effectiveness analysis (WIF–Steps Up to STEM). One study found negative returns for society and positive returns for program participants; the second found positive returns for society and program participants; and the third found the initiative was more expensive than regular equivalent college credits, but the benefits of the initiative were approximately equal to the additional cost.

3. Implications for Future Research

In this section we step back from the detailed summary and analysis of research and evaluations in Section 2 and present high level findings from our synthesis as well as highlight some possible avenues for future inquiry.

3.1 Career Pathways Evidence to Date

Our high level review of career pathways research shows that evidence on the effectiveness of the career pathways approach is currently limited. The key findings from the 12 impact studies with published findings (four quasi-experimental and eight random assignment) and the 18 completed implementation studies are—

- **Little of the published impact research to date has studied fully developed career pathways initiatives.** Most focus on one or two key elements (such as sector training, contextualized basic skills, academic and career coaching, support services) but not the whole package. For example, just one of the eight random assignment studies with reported impact findings included at least one site offering multiple steps of training along a pathway. And among all 12 studies with reported impact findings (both random assignment and quasi-experimental), only two, Arkansas College Count\$ and Year Up, included research questions explicitly focused on career pathways.

- **Sites within studies varied considerably, not just in their aims for target populations, sectors, occupations, etc., but also in how well they were able to implement a given model.** In

particular, a common theme based on our review was that sites found it challenging to establish strong job development efforts and relationships with employers if they did not already have these elements in place at the start of the program. Such relationships appear to take considerable

Highlights of Implications for Future Research

- *Little of the completed impact research to date has studied fully developed career pathways initiatives. Most studies included only short- or medium-term follow-up.*
- *Ongoing research will add substantially to the evidence base, contributing—*
 - *more rigorous research;*
 - *research explicitly focused on the career pathways model;*
 - *research on career pathways approaches that include multiple steps of training;*
 - *long-term (five years or more of follow up) outcome and impact findings;*
 - *more analysis of program costs;*
 - *some exploration of the effectiveness of specific components within a career pathways approach; and,*
 - *more analysis of systems change initiatives.*
- *Key questions that ongoing impact studies largely do not address include—*
 - *How viable is the career pathways approach in sectors other than healthcare, manufacturing, and information technology?*
 - *How well do career pathways approaches work for groups typically not well represented in career pathways studies?*
 - *What is the relative effectiveness of particular components within a career pathways bundle of benefits and services?*
 - *What roles in career pathways can and should the public workforce system play as compared with community colleges, nonprofit organizations, and other entities?*

time to develop. Sites were generally successful in creating and delivering pathways education and training.

- **Studies with published impact findings generally found positive impacts on education outcomes, to the extent measured. Most found earnings increases for at least some sites or subgroups.** Earnings impacts can take a long time to emerge in initiatives aimed at increasing skills because many participants are still enrolled in school in the short run and do not enter the workforce until after they have completed training, in contrast to rapid employment (such as job search-focused) approaches.
- **Most of these impact studies only followed participants over the short- (~1-2 years) or medium-term (3-4 years).** Of the 12 impact studies, just two included long-term impacts (5 years or more of follow up). Long-term follow up is critical for capturing the full effects of programs focused on skill development. Analyses comparing short- vs. long-term impact findings for employment and training programs find that results can change substantially over time, with impacts for skill development approaches often growing over the long run while those of job search-focused strategies typically decline.²¹ In addition, short- and medium-term follow-up likely will fail to capture the extent to which participants advance through more than one step of career pathways training and/or employment over time.

3.2 Ongoing Career Pathways Research

More than half of the 52 studies examined in this report are ongoing. Ongoing studies will add substantially to the evidence base on career pathways over the next five years, with 10 new random assignment impact studies expected to be released in 2017 alone. Some specific contributions from this ongoing research will be—

- **More-rigorous research.** Over twice as many ongoing studies use random assignment and quasi-experimental methods (24) as did completed studies (11).
- **Research explicitly focused on career pathways approaches.** Of the studies that included research questions explicitly focused on career pathways, more than half (11 of 18) are ongoing. This includes five of the six random assignment studies and both of the studies aimed at understanding career pathways metrics.
- **Research on career pathways approaches offering more than one step of training.** More ongoing studies (22) include at least one site with multiple steps of career pathways training compared with completed studies (17). And though the most common occupational training provided in these studies is for entry-level positions, our analysis of healthcare trainings offered suggests many sites in the ongoing studies also offer preparation for mid-level jobs.
- **Long-term outcome and impact findings.** At least three ongoing studies are following participants for five years or more and will be able to report on long-term outcomes and impacts.
- **More analysis of program costs.** Ten of the ongoing studies are examining program costs compared to four of the completed ones. Some of these also are examining questions of program sustainability.

²¹ See: Card, D., et al. (2010); King, C. (2004).

- **Exploration of the effectiveness of specific components within a career pathways approach.** Three of the ongoing studies have research questions about the impact of specific program components within a career pathways approach. Of particular note is the HPOG Impact study's use of a three-arm random assignment methodology to determine the impact of certain enhanced program treatments, specifically facilitated peer support, emergency assistance, and non-cash incentives. Though some of the impact studies reviewed in Exhibit 2.13 measured the impact of specific strategies or services—such as sector strategies and integrated basic education and training—these did not measure the added impact of specific components when bundled together with other career pathways elements. In several instances these studies were not evaluations of career pathways approaches but rather of components that are key elements of career pathways approaches, in some cases predating the concept.
- **More analysis of systems change initiatives.** Among the 20 studies that analyze career pathways systems change initiatives, 13 are ongoing as compared with just seven completed ones.²²
- **Implementation research.** Eighteen completed studies and five ongoing studies have reported implementation findings, but more ongoing studies (24) will do so in the next few years. These studies will explore program design and start-up, implementation fidelity, successes and challenges with implementation, and the roles and contributions of partners.

3.3 Questions for Future Research

Given the limited research findings available to date, there are many open questions about career pathways. Some of these questions may be answered by the studies in progress. Based on this review, below are some key evidence gaps and related research questions, organized by topic.

Implementation of Full Career Pathways Approaches

We found that only about one quarter of all studies had a strong career pathways focus, as indicated by every site in the study including multiple steps of training.

- To what extent can a full career pathways model—one incorporating many elements of the WIOA definition, for example—be implemented with fidelity? Is this an appropriate goal? How should career pathways models be defined and implementation of them measured?

Career Pathways for Specific Target Populations or Subgroups

We found that some populations were less frequently included in the target populations or in those served by career pathways programs studied.

- What works best for which subgroups, especially those less studied, such as youth, Hispanics, and individuals with specific employment barriers such as no high school diploma, very low skills (less than eighth grade), limited English proficiency, criminal records, or disabilities?
- What role does selectivity of programs play in the magnitude of impacts? What kinds of earnings increases can large, relatively open access programs achieve as compared with small, selective

²² The seven completed studies are the Arkansas Career Pathways Initiative: CollegeCount\$ Evaluation; Career Advancement Academies, California Career Ladders Project; I-BEST; Oregon Career Pathways Initiative; Sectoral Employment Demonstration; Shifting Gears 3.0 (extended study); and TAACCCT-H2P.

ones? What are the implications of target population and participant demographics for the mix of career pathways services needed?

- What effect does the economic context in which programs operate have on entering or advancing in career pathways and employment?
- Do(es) economic development/developers play a role in program effectiveness?
- Can training stipends increase career pathways participation and completion, especially among underrepresented groups?

Understanding Career Pathways Approaches

We found that few ongoing studies explore the effectiveness of individual career pathways components.

- Which components of career pathways are the strongest drivers of positive impacts? That is, what matters most among such elements as instructional and curricular innovation, integrated basic skills and training, career coaching, academic supports, financial aid, support services (child care, transportation, etc.), job development, work-based learning, retention services, or others?
- Which components matter most for which subgroups?
- To what extent is the impact of the sum of career pathways components greater than that of any individual part?²³

Employer Engagement

We found that employer engagement was noted as a key factor in several of the studies that found positive effects.

- How replicable are the employer relationships seen in several of the programs with positive effects? What are other key replication challenges?

Systems Questions/System-level Implementation

We found that over one third of efforts studied included system-level initiatives (frequently along with program-level initiatives), but few studies included formal analyses of system change.

- Are states, localities, and/or institutions able to implement and sustain systems change to support career pathways approaches?
- At what scale can career pathways programs operate (in terms, for example, of number of people served, regional or national scope, penetration of a particular sector's labor market). Can they operate at a large scale, or are they most effective when operated on a small scale?
- What roles in career pathways can and should the workforce system play as compared with other entities, such as community colleges, which were twice as likely in the studies examined to lead an initiative? To the extent that these roles were shaped by the structure of past federal grant initiatives and Workforce Investment Act policies, how might they change with the implementation of WIOA and new grant opportunities?

²³ See for example: Scrivener, S., et al. (2012); Deming, D., and Dynarski, S. (2009); and Scrivener, S., et al. (2015).

Understanding Career Progression and Trajectories

We found that several questions came up related to understanding how workers progress in the context of career pathways programs and more generally how workers tend to progress in the absence of such efforts.

- Do participants advance through multiple, progressively higher steps of pathway education and training, and associated jobs with higher pay, over time? Or do most stop at entry-level training and employment, even over a long follow-up period? If so, why?

Cost/Return on Investment Questions

We found that only approximately one quarter of research evaluations include cost studies.

- What does it cost to implement career pathways programs, and are sites able to sustain a career pathways approach once special sources of funding such as grants end? At what scale is it viable to operate these initiatives?
- What is the return on investment to career pathways for individuals, the public, and employers?
- What is the relative labor market payoff to different types of occupational education and training programs and credentials in a career pathways approach? To what extent does it vary by characteristics such as program length, sector, regional labor market, specific credential, etc.?

Industry/Sector/Labor Market Issues

We found that career pathways efforts were concentrated in certain sectors, specifically healthcare, manufacturing, and information technology, raising questions about the viability and specific concerns for career pathways in other sectors.

- How viable is the career pathways approach in sectors other than healthcare, manufacturing, and information technology?

3.4 Next Steps

This synthesis of relevant research and evaluation is the first step in this project in summarizing existing knowledge and shaping future research on career pathways. Our next two reports will synthesize how different career pathways programs and systems change initiatives are defining and implementing career pathways approaches, and examine the potential for career pathways approaches in the early care and education sector. Together, these three documents will inform the study's final publication—a career pathways evaluation design options report. That final report will identify research questions based on gaps and priorities identified in the previous three reports and describe possible approaches for answering the research questions.

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