RESEARCH REPORT

Early Care and Education Apprenticeships Learning Agenda

Tricia DelGrosso
URBAN INSTITUTE

Erin Doyle
URBAN INSTITUTE

Catherine Kuhns
URBAN INSTITUTE

Diane Schilder
URBAN INSTITUTE

Helena Wippick
MEF ASSOCIATES

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SUBMITTED TO

Jenessa Malin, senior social science research analyst
Krystal Bichay-Awadalla, social science research analyst
Tutrang Nguyen, contract social science research analyst
Office of Planning, Research and Evaluation
Administration for Children and Families
US Department of Health and Human Services
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SUBMITTED BY

Diane Schilder, principal investigator and project director
Urban Institute
500 L'Enfant Plaza SW
Washington, DC 20024

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Glossary

Term(s) used	Definition
Apprentice	"A paid employee, who participates in structured on-the-job learning to prepare for a successful career; apprentices earn a progressive wage as their skills and productivity increase."[a]
Apprenticeship Apprenticeship program	Structured on-the-job learning, combined with job-related education or coursework, to prepare a person for a career or to advance the career pathway of an existing employee.
Bridging coursework	Coursework that prepares people for further education or instruction (typically college or higher education); sometimes referred to as foundational or remedial education.
Early care and education, early childhood education, child care, child care and early education	Nonparental, supervised care and education for children from infancy through kindergarten entry and may include children through age 12. Settings can include centers, schools, and family child care settings.
Employer Early care and education employer	"The organization that apprentices actually work for."[c]
Grow your own	An umbrella term that describes community-driven and holistic approaches designed to help communities support, strengthen, and sustain a strong, well-qualified, and experienced early educator workforce by nurturing the talents that already exist from within it. These initiatives aim to remove obstacles for those entering and staying in the ECE field, thereby strengthening communities, and supporting the ECE workforce.[b]
Head Start	Programs that support children's growth from birth to age 5 through services centered around early learning and development, health, and family well-being.[c] Head Start includes Head Start preschool, which are services for children ages 3 to 5 and their families, and Early Head Start, which are services for families that have children ages birth to 3 (and may also include services for expectant families).
Intermediary Apprenticeship industry intermediary	"An organization with the capacity, expertise, and network to help businesses successfully create, launch, and expand apprenticeship programs."[d] Some intermediaries are federally paid; these entities provide services free of charge. Other intermediaries may be fee-based services.
Mentor Journey worker Coach	"An experienced worker who has attained a mastery level of skill, abilities and competencies required for the occupation and oversees and guides the work of the apprentice in the on-the-job placement."[a]
Pre-apprenticeship programs	Work-based training programs that are designed to prepare people for Registered Apprenticeship Programs. Some pre-apprenticeships have agreements that guarantee direct admission into a Registered Apprenticeship Program at the completion of a pre-apprenticeship program.[e]
Registered Apprenticeship Program Registered Apprenticeship	"An industry-driven, high-quality career pathway where employers can develop and prepare their future workforce, and individuals can obtain paid work experience, receive progressive wage increases, classroom instruction, and a portable, nationally recognized

Term(s) used	Definition
	credential. Registered Apprenticeships are industry-vetted and approved and validated by the US Department of Labor or a State Apprenticeship Agency depending on the State."[a]
Registration agency	Two types of agencies register and oversee Registered Apprenticeship Programs: the Office of Apprenticeship within DOL and State Apprenticeship Agencies. The Office of Apprenticeship registers and oversees programs in states without a recognized State Apprenticeship Agency. State Apprenticeship Agencies act on behalf of the federal DOL to register and regulate apprenticeship programs in their state.[f] States and territories registered with the Office of Apprenticeship: Alaska, American Samoa, Arkansas, California, Georgia, Idaho, Illinois, Indiana, Marshall Islands, Michigan, Micronesia, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, North Dakota, Northern Mariana Islands, Palau, Puerto Rico, South Carolina, South Dakota, Texas, Utah, West Virgina, and Wyoming.[f] States and territories registered with State Apprenticeship Agencies: Alabama, Arizona, California, Colorado, Connecticut, District of Columbia, Delaware, Florida, Guam, Hawaii, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Maryland, Maine, Minnesota, Montana, North Carolina, New Mexico, Nevada, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Virginia, Virgin Islands, Vermont, Washington, and Wisconsin.[f]
Sponsor Apprenticeship sponsor	"Any person, association, committee, or organization that operates a Registered Apprenticeship Program. This entity assumes full responsibility for administration and operation of the apprenticeship program. Sponsors can be a single business or a consortium of businesses. Alternatively, the sponsor can be a workforce intermediary, such as an industry association or a labor-management organization. Community colleges and community-based organizations can also serve as sponsors of apprenticeship programs."[d]
Supplemental education Coursework Supplemental instruction College coursework Related course instruction	"Education or instruction aside from on-the-job learning based on the employers unique training needs to ensure quality and success."[a]
Approaches to Registered Apprenticeship Programs	
Competency-based approach to Registered Apprenticeship Programs	"Measures skill acquisition through the individual apprentice's successful demonstration of acquired skills and knowledge, as verified by the program sponsor. Programs utilizing this approach must still require apprentices to complete an on-the-job learning component of Registered Apprenticeship. The program standards must address how on-the-job learning will be integrated into the program, describe competencies, and identify an appropriate means of testing and evaluation for such competencies."[a]
Time-based approach to Registered Apprenticeship Programs	"Measures skill acquisition through the individual apprentice's completion of at least 2,000 hours of on-the-job learning as described in a work process schedule."[a]
Hybrid approach to Registered Apprenticeship Programs	"Measures the individual apprentice's skill acquisition through a combination of specified minimum number of hours of on-the-job

Term(s) used	Definition
	learning and the successful demonstration of competency as described in a work process schedule."[a]

Source: Urban Institute and MEF Associates project team's review of definitions published by other sources.

[a] "Teacher Registered Apprenticeship Common Terms," US Department of Labor, accessed January 23, 2025, https://www.apprenticeship.gov/sites/default/files/dol-teacher-registered-apprenticeship-terms-factsheet-v03.pdf.

[b] "Grow Your Own ECE: Partnerships and Pathways," National Early Care and Education Workforce Center, accessed April 15. 2024, https://www.nationaleceworkforcecenter.org/events/grow-your-own-ece-partnerships-and-pathways/.

[c] "Head Start," US Department of Health and Human Services, Administration for Children and Families, Office of Head Start, accessed April 3, 2025, https://acf.gov/ohs/about/head-start.

[d] "Seeking Partners to Help with Your Apprenticeship Program?," US Department of Labor, accessed April 15, 2024, https://www.apprenticeship.gov/partner-finder.

[e] "Explore Pre-Apprenticeships," US Department of Labor, accessed February 3, 2025, https://www.apprenticeship.gov/employers/explore-pre-apprenticeship.

[f] "Apprenticeship System," US Department of Labor, accessed February 3, 2025, https://www.apprenticeship.gov/about-us/apprenticeship-system.

Overview

Introduction

Early care and education (ECE) apprenticeship programs provide structured on-the-job learning combined with job-related education or coursework. ECE apprenticeships are viewed as a promising strategy to prepare people for careers in ECE or provide career pathways for the people currently working in ECE. This learning agenda describes gaps in the knowledge base and priorities for future research, and offers a strategic approach to develop a portfolio of evidence and learning about the implementation and outcomes of ECE apprenticeship programs.

Research Questions

1. What is known about the development of apprenticeship programs and associated facilitators and challenges?
2. What is known about the implementation of apprenticeship programs and associated facilitators and challenges?
3. What is known about participation (at the state system, provider, and/or individual level) in apprenticeship programs?
4. What is known about the financing of apprenticeship programs?
5. What is known about the effectiveness of apprenticeship programs, and what are the documented outcomes?
6. What are the outcomes of interest to the field?
7. What data sources are available to address questions about outcomes, implementation, participation, and financing of apprenticeship programs?

Purpose

This report serves as a framework to guide future research and learning about ECE apprenticeships. It presents findings from a scan of existing materials and resources on ECE apprenticeships, expert

interviews, and discussions at a virtual convening. It summarizes what is known about ECE apprenticeships, gaps in the knowledge base, and priorities for future research.

Key Findings and Highlights

The project team identified and reviewed 28 nonresearch publications, such as policy briefs, advocacy briefs and reports, program overviews, and technical assistance resources, and 16 research publications. These research studies describe the implementation of 10 different ECE apprenticeship models. Four studies reported a link between participation in apprenticeship programs and perceived outcomes. Yet, to date, no studies have been conducted that employ a methodology that would show a causal relationship between participation in ECE apprenticeships and desired outcomes.

Experts and people with a vested interest in apprenticeships who participated in interviews and a virtual convening identified a range of priority questions to guide future research to begin to fill the gaps in the existing knowledge base. These questions are presented in this learning agenda. Drawing on findings from project activities, the following recommendations emerged as needed next steps to build the evidence base about ECE apprenticeships:

- conduct a scan of existing data about ECE apprenticeships
- identify common definitions and frameworks of ECE apprenticeships to establish a consistent understanding about ECE apprenticeships
- carry out studies that can build the field's foundational knowledge of ECE apprenticeships and set the stage for future studies that examine the overall effectiveness of these programs in achieving their intended outcomes
- do research that assesses outcomes and impacts for participants, employers, and communities
- conduct research on the specific characteristics of ECE apprenticeship programs that lead to desired and actual outcomes and that compare the cost of ECE apprenticeships with the value of the benefits
- engage people enrolled in apprenticeships, those who have completed apprenticeships, and ECE employers who have supported ECE apprenticeships to shape the research questions and methods

Across these topics, research is needed on Registered Apprenticeship Programs, nonregistered apprenticeship programs, and the similarities and differences across both types of apprenticeship programs.

Methods

The project team scanned available information about ECE apprenticeship programs, interviewed seven people knowledgeable about ECE apprenticeships, and held a virtual convening with 25 participants to learn about ECE apprenticeships. The team identified and reviewed 28 nonresearch publications, such as policy briefs, advocacy briefs and reports, program overviews, and technical assistance resources, and 16 research publications. The team analyzed themes from the available information, interviews, and virtual convening to inform the learning agenda and associated recommendations.

Executive Summary

Early care and education (ECE) apprenticeship programs provide structured on-the-job learning combined with job-related education or coursework and are viewed as a promising strategy to prepare people for ECE careers or to offer a career pathway to the existing ECE workforce (Bipartisan Policy Center 2019). ECE Registered Apprenticeship Programs are defined as programs approved by the US Department of Labor (DOL) or a State Apprenticeship Agency. These have grown over the past decade and are operating in more than 35 states (Smith, Williams, and Mercado 2023). In addition to Registered Apprenticeship Programs, some states and ECE programs offer nonregistered apprenticeship programs that include on-the job-training with classroom instruction but are not approved by DOL or a State Apprenticeship Agency. Some apprenticeship programs are referred to as "grow-your-own" programs, which focus on recruiting and training people from within the community the ECE program serves.

Given the growth of both registered and nonregistered ECE apprenticeships, the Office of Planning, Research and Evaluation (OPRE) in the Administration for Children and Families (ACF) in the US Department of Health and Human Services funded the Urban Institute and MEF Associates to document what is known and not known about ECE apprenticeships—to develop a learning agenda that describes gaps in the knowledge base and priorities for future research. A learning agenda presents research questions about implementation and outcomes of specific interventions. The learning agenda detailed in this report serves as a framework to guide future research and offers a strategic approach to develop a portfolio of evidence about the implementation and impacts of ECE apprenticeship programs.

Methodology in Brief

For this project, we define ECE as including nonparental, supervised care and education for children in centers, schools, and family child care settings, as well as home-visiting programs. We focused on services for children from infancy through kindergarten entry. We conducted a scan of available information, conducted interviews with seven people knowledgeable about ECE apprenticeships, and held a virtual convening with 25 participants to learn about ECE apprenticeships. We gathered information about ECE Registered Apprenticeship Programs and nonregistered apprenticeship programs. We addressed the questions listed in table E.1.

TABLE E.1

Guiding Questions, by Topic Area

Topic	Guiding questions
Development and implementation	▪ What is known about the development of apprenticeship programs and associated facilitators and challenges? ▪ What is known about the implementation of apprenticeship programs and associated facilitators and challenges?
Participation	▪ What is known about participation (at the state system, provider, and/or individual level) in apprenticeship programs?
Financing	▪ What is known about the financing of apprenticeship programs?
Outcomes and effectiveness	▪ What is known about the effectiveness of apprenticeship programs, and what are the documented outcomes? ▪ What are the outcomes of interest to the field?
Data sources	▪ What data sources are available to address questions about outcomes, implementation, participation, and financing of apprenticeship programs?

Source: Urban Institute and MEF Associates project team.

Through a scan of available information, we found and reviewed 44 publications focused on ECE apprenticeships, including 16 research publications. We coded these 44 publications using a structured topical coding guide and summarized key findings. Through interviews with seven people with expertise in ECE apprenticeships, we learned from ECE apprenticeship program administrators and developers, representatives from industry intermediaries, a researcher with expertise in ECE apprenticeships, a faculty member from a community college that sponsors an apprenticeship program, and a federal staff member from the DOL Office of Apprenticeship. We coded the interview data using codes similar to those we used for the publication reviews. This allowed us to compare interviews to assess convergence or divergence with themes identified in existing publications. We then engaged 25 people with a vested interest and expertise in ECE apprenticeships at a virtual convening to hear their reactions and recommendations to our preliminary findings. The virtual convening included federal staff from ACF and DOL, ECE apprenticeship industry intermediaries, program sponsors, funders, and researchers. During the convening, we gathered participants' input about questions to guide future research and its priorities.

Throughout the rest of this executive summary, we summarize findings from these three research activities about what is known about ECE apprenticeships, the outcomes of interest to the field, and data sources available about ECE apprenticeships. We then summarize priorities for future research.

What Is Known about ECE Apprenticeships?

Development and Implementation

Across the 44 publications, we found detailed documentation about the characteristics and components of ECE apprenticeships, including details from all 16 research publications. Drawing on this information, we identified inputs and resources that can support apprenticeship development and implementation, characteristics of apprenticeship programs that can vary depending on program design, and factors that can influence ECE apprenticeship development and implementation.

In addition, we identified a range of facilitators and challenges to apprenticeship implementation and development through our reviews of the literature and in interviews with experts. These facilitators and challenges relate to building and maintaining partnerships among the various organizations involved in implementing apprenticeships, engaging institutes of higher education (IHEs), and designing and implementing the mentorship component of programs.

Participation and Access

Evidence suggests that who participates in ECE apprenticeships is driven by the eligibility criteria set by the program, as well as the strategies programs use to recruit apprentices. Programs may focus on building the skills, knowledge, and credentials of people new to ECE, the incumbent workforce, or both. Further, experts noted that who enrolls is often driven by the program's recruitment practices. For example, some programs focus on recruiting parents of children in care and staff already working in ECE settings involved in the apprenticeship program, whereas others may focus on these populations but also recruit from within the broader community, thus expanding the pool of potential candidates. The types of recruitment practices will vary by program, but experts emphasized the importance of reaching (either directly or through partner organizations) people who reflect the characteristics of the communities where they operate. We found three research publications that report on the characteristics of apprentices (CNM and AWare Research Solutions 2023; Copeman Petig, Chavez, and Austin 2019; Gardner et al. 2019), and only one study has explored how apprentices compare with the overall ECE workforce (Gardner et al. 2019).

We also identified a range of facilitators and obstacles to people's participation in and access to ECE apprenticeships. For example, research publications describe **obstacles** to participation, such as finding time to complete assignments; underpreparation for college coursework; limited access to technology; limited access to coursework in languages other than English; and balancing full-time

work, family, and school, among others (Copeman Petig, Chavez, and Austin 2019; Simon 2024). **Facilitators** to participation include offering a range of participant supports and implementing supportive practices, including support from their supervisor, mentor, and/or coach; financial support for tuition and other program expenses; support from course instructors; and flexibility of course schedules (Copeman Petig, Chavez, and Austin 2019).

Financing

We found evidence that many apprenticeship programs rely on funding from multiple funding streams, including federal, state, and local funding sources, as well as funds from public-private partnerships and philanthropic support. Examples of specific funding sources include the TEACH Early Childhood Scholarship Initiative to fund scholarships for apprentices; and federal funding streams including the Child Care and Development Block Grant, Early Head Start-Child Care Partnerships, Workforce Innovation and Opportunity Act (WIOA), and Higher Education Act. State and local funding through subsidies and local tax revenue can also support programs.

Despite efforts to draw on multiple funding sources, several publications described the lack of sufficient or stable funding for ECE apprenticeships as a large **obstacle** to program development and implementation (Blough et al. 2023; Cheng et al. 2018; Le and Franko 2023; Simon 2024; Workman 2019). Publications describe the ways limited funding affects apprenticeship programs, including their ability to offer the levels of mentorship, coaching, and supervision that some apprentices may require; constraints on the financial supports available to apprentices; and limitations on the extent to which employers can compensate people who participate in apprenticeships for progress and skill attainment (Blough et al. 2023; Gardner et al. 2019). Experts also noted that although federal support for ECE apprenticeships has been growing, some state and local workforce boards may not direct WIOA funds to ECE apprenticeships because of concerns around whether ECE careers can lead to livable wages. Experts described ways of combining public and private funds that can **facilitate** financing apprenticeship programs that include supports for participants.

Effectiveness and Documented Outcomes

About half of the research publications described outcomes of ECE apprenticeships (CNM and AWare Research Solutions 2023; Copeman Petig, Chavez, and Austin 2019; Gardner et al. 2019; Sharrock et al. 2023; Simon 2024; Uttley and Horm 2008; West 2022). We did not identify any studies that experimentally or quasi-experimentally examined program effectiveness. The research publications we

identified were descriptive studies of outcomes and effectiveness, meaning they did not compare the outcomes of participants in apprenticeships with a comparison group of nonparticipants.

Although limited, existing research has documented

- the percentage of apprentices who complete programs (CNM and AWare Research Solutions 2023; Simon 2024);
- wage increases for apprentices (CNM and AWare Research Solutions 2023; Copeman Petig, Chavez, and Austin 2019; Gardner et al. 2019);
- quality of classrooms with apprentices (Uttley and Horm 2008); and
- teaching practices of apprentices (CNM and AWare Research Solutions 2023).

Moreover, apprentices, their employers, and mentors perceived improvements in the apprentices' caregiving knowledge and skills, practices with children and families, and classroom quality (Copeman Petig, Chavez, and Austin 2019; Gardner et al. 2019).

What Are the Outcomes of Interest to the Field?

During interviews, experts described apprenticeships as promoting a variety of positive outcomes. In addition to outcomes for apprentices measured in the research, experts identified outcomes for the ECE field more generally, including attracting and retaining educators to the field, increasing wages, promoting quality ECE, and improving educator well-being. Experts noted that these outcomes have not been measured in existing research. Table E.2 lists potential short- and long-term outcomes of ECE apprenticeships identified in publications and by experts, with an indication of the source of information for each.

TABLE E.2

Potential Short- and Long-term Outcomes of ECE Apprenticeships, by Source

Outcomes	Research publications	Nonresearch publications	Expert interviews
Short-term outcomes			
Apprentices			
Retention in and completion of apprenticeships	X	X	X
Credential/degree attainment	X	X	X
Wage/wage progression		X	X
Mastery of competencies	X	X	X

Outcomes	Research publications	Nonresearch publications	Expert interviews
Satisfaction with role; likelihood to remain in ECE field	X		
ECE providers/employers			
Staff with the competencies to provide high-quality ECE	X	X	X
Mentors			
Supportive relationships with apprentices	X		X
Professional growth			X
Communities			
Pipeline of qualified new staff		X	X
Qualified existing workforce		X	X
Long-term outcomes			
Apprentices			
Competencies to offer high-quality ECE	X	X	X
Professional advancement in ECE		X	X
Professional mobility and advancement in other fields		X	X
Economic stability		X	X
Personal well-being		X	X
Communities			
Stable workforce with competencies to offer high-quality ECE		X	X
Children and families			
Child healthy social-emotional, cognitive, and physical development		X	X
Family economic stability and reduced stress		X	X

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications and interviews with experts.

What Data Sources Are Available about ECE Apprenticeships?

Limited data exist about implementation, participation, financing, and outcomes across apprenticeship programs. The primary source of federal data on ECE Registered Apprenticeships exists within the DOL Office of Apprenticeship Registered Apprenticeship Partners Information Database System (RAPIDS) database. RAPIDS contains participant-level data such as job field, demographics, starting wage, degrees obtained, and program completion rates. In addition to federal data, some programs and intermediary organizations have explored strategies for collecting more robust data to inform

program implementation. Experts indicated that some programs collect both administrative data and data from surveys fielded to apprentices and mentors. One industry intermediary organization has used a central database to collect information on their program standards and the standards of states they work with. This centralized data system allows them to report data on a consistent set of outcomes across different states and programs.

What Are Priorities for Future Research about ECE Apprenticeships?

Development and Implementation

Currently, little research exists about the implementation of ECE apprenticeship programs, contextual factors associated with implementation, and the characteristics of programs associated with perceived or actual desired outcomes. Priorities for future research include studies that address the research questions presented in table E.3.

TABLE E.3

Priority Research Questions Related to Development and Implementation

Category	Research questions
Development	▪ How are ECE apprenticeship programs structured? What information guides decisions about program structure? ▪ What influences ECE apprenticeship program structure? ▪ What are common challenges related to the development of apprenticeship programs, and how can they be mitigated? ▪ What are the motivating factors that contribute to a participant enrolling in an apprenticeship program? How do they learn about apprenticeship programs? Why do they enroll in an apprenticeship program rather than other ECE credentialling programs? What common obstacles do apprentices experience in joining an apprenticeship program, and how can they be mitigated? ▪ What are the motivating factors that contribute to ECE providers' decision to employ apprentices? What are indicators of an ECE provider's readiness to serve an as apprenticeship employer? What common challenges do employers experience, and how can they be mitigated?

Implementation	▪ How are ECE apprenticeship programs being implemented?
	  ▪ To what extent are programs implemented as designed or intended?
	  ▪ What variations in implementation, if any, occur? Why are variations occurring?
	  ▪ What factors facilitate implementation as intended?
	  ▪ What are common challenges related to implementation, and how can they be mitigated?
	▪ In what contexts are apprenticeship programs implemented? How do contexts vary?
	▪ What characteristics and practices of ECE employers help or hinder implementation of apprenticeship programs?
	▪ What characteristics and practices of IHEs that partner with ECE apprenticeship programs help or hinder apprenticeship programs' implementation?

Category	Research questions
	■ What are apprentices' experiences with apprenticeship programs? What benefits do they experience? What challenges do they experience? ▪ How do apprentice experiences vary by program structure? ■ What features of apprenticeship program structure (i.e., model characteristics, participant supports, and implementation practices) effectively support apprentices' obtainment of credentials, retention in ECE, effective practice, and personal well-being? ■ What types of federal, state, and/or local policies help facilitate the development and implementation of an apprenticeship program? What policies need to be in place to develop and implement an apprenticeship program? What types of federal, state, and/or local policies are obstacles to the development and implementation of an apprenticeship program? ■ How do apprenticeship programs fit into the broader ECE workforce strategy or system? How do apprenticeship programs fit into broader efforts to build career pathways in ECE? How are apprenticeship programs integrated in and aligned with existing ECE systems and workforce development approaches?
Across all questions	■ How do findings differ between registered and nonregistered apprenticeship programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By type of focus staff (i.e., center-based directors, center-based teachers, center-based assistant teachers, family child care providers, and/or home visitors)? By Head Start and other ECE program types?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Participation and Access

Although some research exists, additional research documenting apprentices' perspectives on the obstacles and facilitators to participation, as well as the program characteristics, participant supports, and implementation practices that help address recruitment, enrollment, and retention challenges, can inform future program development and implementation. Future research can also answer questions about ECE employers' experiences, including obstacles and facilitators to their participation in ECE apprenticeships. Priorities for future research include studies that address the research questions presented in table E.4.

TABLE E.4

Priority Research Questions Related to Participation and Access

Category	Research questions
Participation and access: apprentices	■ How do programs conduct outreach to and recruit apprentices? What are the facilitators and obstacles to recruiting apprentices? What strategies help address obstacles to apprentice participation? ■ Why do people choose to or not to participate in apprenticeship programs? What are facilitators and obstacles to participation do they experience? What strategies help address obstacles people experience? ■ How do the characteristics of apprentices (e.g., demographic, experience, baseline education/credentials, motivations) vary by characteristics of apprenticeship programs

Category	Research questions
	(e.g., registered/not registered, program model, participant supports, implementation practices)? ▪ Who is and is not being reached by apprenticeship programs? ▪ What are apprentices' experiences? What helps facilitate their retention in apprenticeship programs? What challenges do they experience? ▪ What challenges related to the retention and completion of apprenticeship programs do people experience? What features of apprenticeship programs help promote retention and completion? ▪ What are the completion rates of apprenticeship programs? ▪ How does retention and completion vary between registered and nonregistered apprenticeship programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By type of focus staff (i.e., center-based directors, center-based teachers, center-based assistant teachers, family child care providers, and/or home visitors)? By Head Start and other ECE program types? How do they vary by ECE employers' characteristics and practices?
Participation and access: ECE employers	▪ How do programs conduct outreach to and recruit ECE employers? What are facilitators and challenges related to recruiting ECE employers? What strategies help address challenges to ECE employer participation? ▪ Why do ECE employers choose to or not to participate? What are facilitators and challenges related to ECE employer participation? What strategies help address challenges to ECE employer participation?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Financing

Future research can document the costs of operating apprenticeships, including costs per apprentice, for different models of apprenticeships, such as those offering higher-intensity participant supports and those offering more limited supports. In addition, future research could explore whether and how different funding streams or combinations of funding streams affect the types of participant supports and implementation practices included in apprenticeship models, as well as who is eligible to participate in programs. Studies can explore the costs and benefits of registered and nonregistered ECE apprenticeships. Table E.5 presents priority research questions to build the knowledge base on financing ECE apprenticeship programs.

TABLE E.5

Priority Research Questions Related to Financing

Category	Research questions
Costs, financing, and cost-effectiveness	▪ What is the cost of ECE apprenticeship programs? What are the various cost components and cost drivers? ▪ How does the combination of different funding streams affect the ECE apprenticeship program design, eligibility criteria for apprentices, implementation of programs, and sustainability of programs? ▪ What facilitators and challenges exist to blending and braiding funding from multiple sources to support ECE apprenticeship programs? What strategies can help address the challenges? ▪ What facilitators and challenges exist to sustaining ECE apprenticeship programs? What strategies can help facilitate sustainability? ▪ What is the return on investment for apprentices, ECE employers, and communities? ▪ What is the potential cost-effectiveness of ECE apprenticeships compared with alternative professional development approaches for the ECE workforce?
Across all questions	▪ How do findings differ between registered and nonregistered apprenticeship programs? By the combination of funding sources used to finance programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By Head Start and other ECE program types?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Outcomes and Effectiveness

Research is needed about the effectiveness of ECE apprenticeships and the potential outcomes for participants, employers, and communities. To further the evidence on these topics, future research can include descriptive, experimental, and quasi-experimental studies. Descriptive studies can be used to describe outcomes of people who participate in an apprenticeship program. Because these designs do not include a comparison with a group of people who did not receive the program, they do not allow researchers to say the program caused changes in outcomes. Longitudinal studies, a type of descriptive study, can gather data on apprentices over time to observe their outcomes months or years after participation in an apprenticeship program. Experimental designs that use random assignment to compare the outcomes of a program on one or more groups of people with a comparable group of people who did not enroll in the apprenticeship program allow researchers to attribute changes in outcomes to the program being studied. Quasi-experimental designs that compare outcomes of a group, including individual people, ECE centers, or communities, that receives an intervention with comparable groups that do not receive it allow researchers to attribute changes in outcomes to the program being studied, similar to experimental designs. Table E.6 presents priority research questions to build the knowledge base on ECE apprenticeships' effectiveness.

TABLE E.6

Priority Research Questions Related to Outcomes and Effectiveness

Category	Research questions
Descriptive studies of outcomes	▪ Are people who participate in apprenticeship programs satisfied with their role? How long do they intend to work in ECE (in their current role or another role)? ▪ How long do people who complete ECE apprenticeship programs remain in their current role? How long do they remain with their current employer? How long do they remain in ECE? ▪ To what extent do apprenticeships create pathways to higher education for apprentices? ▪ Does participation in an apprenticeship program help people achieve their goals such as professional advancement in ECE, professional mobility, economic stability, and educational attainment? ▪ What is the association between participation in an apprenticeship program and changes in apprentices' competencies (specific to their role) to deliver high-quality ECE? ▪ To what extent do apprenticeships help stabilize the ECE workforce in communities with programs? To what extent do ECE providers have access to staff with the competencies to deliver high-quality ECE? To staff with cultural and language competencies?
Effectiveness studies	▪ Do people who participate in ECE apprenticeships have higher wages and degree or credential attainment than staff who do not participate in apprenticeships? ▪ Are people who participate in ECE apprenticeships more likely to demonstrate competencies (specific to their role) to deliver high-quality ECE compared with staff who do not participate in apprenticeships? ▪ Are people who complete ECE apprenticeships more likely to remain in their current role than ECE staff who do not participate in apprenticeships? Do they remain in ECE longer than ECE staff who do not participate in apprenticeships? ▪ Do ECE staff in communities with apprenticeship programs have higher wages than staff in communities without apprenticeship programs? Do ECE providers have higher levels of staff retention? Are ECE providers able to fill vacancies more quickly?
Across all questions	▪ How do findings differ between registered and nonregistered apprenticeship programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By type of focus staff (i.e., center-based directors, center-based teachers, center-based assistant teachers, family child care providers, and/or home visitors)? By Head Start and other ECE program types?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Future Directions

This learning agenda is designed to inform future research that can begin to fill existing knowledge gaps. It can inform efforts to systematically collect data across multiple ECE apprenticeship programs and serve as a framework for short- and long-term research activities that can build the evidence base about ECE apprenticeship programs. We identified a need for high-quality, rigorous research to build the evidence base about ECE apprenticeships.

Experts and people with a vested interest in apprenticeships who participated in interviews and a virtual convening identified a range of priority questions to guide future research to begin to fill the gaps in the existing knowledge base. These questions are presented in this learning agenda. Drawing on findings from project activities, the following recommendations emerged as needed next steps to build the evidence base about ECE apprenticeships:

- conduct a scan of existing data about ECE apprenticeships
- identify common definitions and frameworks of ECE apprenticeships to establish a consistent understanding about ECE apprenticeships
- carry out studies that can build the field's foundational knowledge of ECE apprenticeships and set the stage for future studies that examine the overall effectiveness of these programs in achieving their intended outcomes
- do research that assesses outcomes and impacts for participants, employers, and communities
- conduct research on the specific characteristics of ECE apprenticeship programs that lead to desired and actual outcomes and that compare the cost of ECE apprenticeships with the value of their benefits
- engage people enrolled in apprenticeships, those who have completed apprenticeships, and ECE employers who have supported ECE apprenticeships to shape the research questions and methods

Introduction

Early care and education (ECE) apprenticeship programs provide structured on-the-job learning combined with job-related education or coursework. ECE apprenticeships are viewed as a promising strategy to prepare people for careers in ECE and provide career pathways for the people currently working in ECE (Bipartisan Policy Center 2019). ECE Registered Apprenticeship Programs—meaning programs approved by the US Department of Labor (DOL) or a State Apprenticeship Agency—have grown over the past decade. In 2023, ECE Registered Apprenticeship Programs were operating in more than 35 states (Smith, Williams, and Mercado 2023). In recent years, the federal government, states, and communities have supported public-private partnerships that expand Registered Apprenticeships (Butrica et al. 2023). In addition to Registered Apprenticeship Programs, some states and ECE programs offer nonregistered apprenticeship programs that provide on-the job-training with classroom instruction but are not approved by DOL or a State Apprenticeship Agency. Some apprenticeship programs are referred to as "grow-your-own" programs, which focus on recruiting and training people from the community the ECE program serves.

Given the growth of ECE apprenticeships, the Office of Planning, Research and Evaluation (OPRE) in the Administration for Children and Families (ACF) in the US Department of Health and Human Services funded the Urban Institute and MEF Associates to document what is known and not known about ECE apprenticeships to develop a learning agenda that describes gaps in the knowledge base and describes priorities for future research. A learning agenda presents research questions about implementation and outcomes of specific interventions. The learning agenda detailed in this report serves as a framework to guide future research and offers a strategic approach to develop a portfolio of evidence about the implementation and impacts of ECE apprenticeship programs.

Methods

To develop this learning agenda, the Urban Institute and MEF Associates project team conducted an environmental scan of publications on the topic of ECE apprenticeships, conducted interviews with experts, and held a virtual convening to discuss key findings from the scan and interviews (see appendix A for detailed information about our methods). We identified seven research questions, spanning five topic areas (table 1).

TABLE 1

Environmental Scan Guiding Questions, by Topic

Topic	Guiding questions
Development and implementation	1. What is known about the development of apprenticeship programs and associated facilitators and challenges?
	2. What is known about the implementation of apprenticeship programs and associated facilitators and challenges?
Participation	3. What is known about participation (at the state system, provider, and/or individual level) in apprenticeship programs?
Financing	4. What is known about the financing of apprenticeship programs?
Outcomes and effectiveness	5. What is known about the effectiveness of apprenticeship programs, and what are the documented outcomes?
	6. What are the outcomes of interest to the field?
Data sources	7. What data sources are available to address questions about outcomes, implementation, participation, and financing of apprenticeship programs?

Source: Urban Institute and MEF Associates project team.

Across the seven research questions, we explored if and how findings varied by the ages of children served by apprentices (e.g., infants and toddlers versus preschoolers); apprenticeship program funding type (e.g., Head Start funded versus state/local publicly funded); apprenticeship type (i.e., registered versus nonregistered); and ECE setting where apprentices work (i.e., family child care versus center-based). We created this learning agenda based on a synthesis of findings across these activities.

Environmental Scan

We compiled and synthesized publications, including peer-reviewed journal articles, white papers, research reports and briefs, policy briefs, and technical assistance resources. To identify these publications, we conducted a literature search, and, in collaboration with OPRE, published a public call for information. We disseminated the public call widely, including through vehicles such as OPRE's website and relevant Urban Institute listservs. The Urban Institute listserv includes research, policy, and technical assistance organizations as well as other ECE stakeholders. We also shared the link with contacts at various organizations such as the BUILD Initiative, the National Institute for Early Education Research, the National Association of State Leaders in Early Education, and the Early Learning Consortium. We asked the experts we interviewed for recommendations for additional publications.

SEARCH CRITERIA AND RESULTS

For this project, we defined ECE as nonparental, supervised care and education for children in centers, schools, and homes, as well as home-visiting programs. We focused on services for children from infancy through kindergarten entry. We defined home-visiting programs as those where staff work with families of young children in the home setting to provide parent education and support. We excluded apprenticeships focused on the early intervention workforce who work with children with developmental delays and disabilities.

We searched for information about apprenticeships broadly, including Registered Apprenticeships and nonregistered apprenticeship programs that include grow-your-own programs.[1] By design, we searched for and then reviewed publications focused on and featuring information about ECE apprenticeships. We included publications focused solely on ECE apprenticeships and others that featured ECE apprenticeships among other types of apprenticeships. For example, we included publications that describe other types of professional development activities, career pathway supports for ECE workers, or applied lessons from apprenticeships in other industries to ECE.

SCREENING AND CODING

We identified 163 unduplicated publications. After screening for relevance, we selected 44 publications to include. We coded these 44 publications using a structured coding guide and summarized key findings across the codes.

Expert Interviews

We interviewed seven people with expertise in ECE apprenticeships. To identify them, we considered people whose names emerged from the environmental scan, and we gathered recommendations from staff in ACF, staff internal to Urban with expertise in apprenticeships, and from the experts we interviewed. We developed a semistructured interview protocol for the expert interviews, which was approved by Urban's Institutional Review Board. In total, we interviewed seven people, including program administrators and developers, representatives from industry intermediaries, a researcher with expertise in ECE apprenticeships, a faculty member from a community college that sponsors an apprenticeship program, and a federal staff person from the DOL Office of Apprenticeship. Following each interview, we prepared a detailed summary. We coded the interview data in a spreadsheet using

[1] For more information about grow-your-own programs in ECE, see Wong and Hibbard (2024). This brief and related resources, produced by the National ECE Workforce Center, were published after the environmental scan for this project was completed and as a result are not reflected in the findings presented in this report.

the same constructs used to code the environmental scan and public call resources (appendix A). This allowed us to compare data surfaced through different resources and identify places where the interview data confirmed or built on the literature.

We used the findings from the environmental scan and expert interviews to draft preliminary findings answering the project's research questions about what is known (and not known) about each topic. This preliminary draft included a set of research questions designed to fill the knowledge gaps we identified in the scan.

Virtual Convening

We then engaged a group of 25 people with a vested interest and expertise in ECE apprenticeships in a virtual convening to hear from their reactions and recommendations to our preliminary findings. The virtual convening included federal staff from ACF and DOL, ECE apprenticeship industry intermediaries, program sponsors, funders, and researchers. The convening provided an opportunity for these participants to share and learn from one another. During the convening, we gathered participants' input on questions that can guide future research. Although we presented findings from the scan and interviews on what is known about ECE apprenticeships, we did not focus the discussion during the convening on these findings.

Based on the discussions that took place during the convening, we have identified the priority questions to guide future research that we present in this learning agenda. These research questions are not intended to be exhaustive of all the issues related to ECE apprentices. Rather, they represent some of the most pressing topics on the minds of the experts, funders, researchers, program administrators, and other stakeholders who participated in the convening.

Participants in the convening noted a limitation of this learning agenda is that we did not specifically seek input from people participating in or who have completed apprenticeships and ECE employers. As noted in the conclusion, based on this input from experts, we recommend that future research include these perspectives when designing future research focused on ECE apprenticeships.

Overview of Publications on ECE Apprenticeships

We identified a small but growing research base on ECE apprenticeships. Notably, we identified 16 research publications and another 28 nonresearch publications. These nonresearch publications

included policy briefs, advocacy briefs and reports, program overviews, and technical assistance resources. Finally, we learned about an additional four studies that are currently underway.[2] Table 2 provides an overview of the 16 research publications (see appendix B for additional information about these publications). The project's "Annotated Bibliography of Literature on Early Care and Education Apprenticeships"[3] provides detailed information about all 44 of the publications we reviewed.

TABLE 2

Overview of Research Publications

Characteristics of publications	Number of publications
Type of research described in publications	
Process, implementation, and case studies	12
Literature reviews combined with expert interviews	3
Secondary analysis of data on ECE workforce	1
Apprenticeship programs described in publications focused on workforce members with the following characteristics:	
ECE setting where apprentices work	
Center-based	13
Family child care	6
Home-visiting program	1
Not specified	1
Includes a program for Head Start staff	4
Age of children in care of apprentices	
Infant and toddler	0
Preschool	0
Both or not specified	16
Among the 12 studies, types of data sources reported included:	
Interviews and focus groups	
Apprenticeship program leadership and staff	8
Apprentices (current and/or former)	6
Program partners	3
ECE employers	2
Mentors	1
Others with a vested interest in apprenticeships	6
Surveys	
Apprentices (current and/or former)	3

[2] During expert interviews, researchers from the Center for the Study of Child Care Employment described a series of three studies they are conducting, including a multistate case study of Registered Apprenticeship Programs. Following the convening, staff from Neighborhood Villages shared a case study report of the Neighborhood Villages Registered Apprenticeships program (Neighborhood Villages 2024). This report was released after the environmental scan for this project was completed, so the findings are not reflected in this report.

[3] Tricia DelGrosso, Erin Doyle, Catherine Kuhns, Diane Schilder, and Mariama Badjie (2025), *Literature on Early Care and Education Apprenticeships: An Annotated Bibliography*, OPRE Report #2025-071, (Washington, DC: US Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation).

Characteristics of publications	Number of publications
Apprenticeship program leadership and staff	2
Families of children in ECE settings staffed by apprentices	1
Document reviews	5
Program administrative data	4
Observations/assessments of classrooms staffed by those in apprenticeship programs	
ECERS-R/ITERS-R	1
CLASS	1
Best Practices Observation Tool	1
Unspecified measure	1

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts and a convening of people with experience and expertise in ECE apprenticeships.
Notes: ECERS-R is the Early Childhood Environment Rating Scale-Revised Edition (see "Early Childhood Environment Rating Scale® (ECERS)," Teachers College Press, accessed January 29, 2025, https://www.tcpress.com/early-childhood); ITERS-R is the Infant/Toddler Environment Rating Scale-Revised Edition (see "Infant/Toddler Environment Rating Scale®, Revised (ITERS-R™)," University of North Carolina Chapel Hill Frank Porter Graham Child Development Institute, accessed January 29, 2025, https://ers.fpg.unc.edu/infanttoddler-environment-rating-scale%C2%AE-revised-iters-r%E2%84%A2.html); CLASS is the Classroom Assessment Scoring System (LaParo and Pianta 2012); Best Practices Observation Tool (measure not cited; see CNM and AWare Research Solutions 2023).

Ultimately, 80 percent of the publications we included focused primarily on Registered Apprenticeship Programs. Although we included home visiting in our definition of ECE, we only identified one publication focused on apprenticeships for home visitors. Similarly, nearly all the experts we interviewed were most familiar with Registered Apprenticeships. **As a result, the findings summarized in this report primarily reflect what is known about Registered Apprenticeship Programs for ECE educators working in centers, schools, or family child care settings.**

Roadmap to the Learning Agenda

In the remainder of this report, we describe findings from the environmental scan and expert interviews about what we know about ECE apprenticeships, including facilitators and challenges. In our summaries of what is known about ECE apprenticeships, we distinguish between information gleaned from research publications, nonresearch publications, and expert interviews. Throughout, we provide additional detail about findings from research publications given the focus of this learning agenda on identifying gaps in the existing research literature and developing a framework to guide future research. We then describe priorities for future research to address gaps in the knowledge base and present questions that can be used to guide research drawing on findings from our review of existing publications, the expert interviews, and input we gathered during a virtual convening of

people with experience and expertise in ECE apprenticeships. We organized the report to align with the guiding questions for the environmental scan, such that the first section focuses on development and implementation of ECE apprenticeships, the next section focuses on participation in and access to ECE apprenticeships, the third section focuses on financing ECE apprenticeships, the fourth section focuses outcomes and effectiveness of ECE apprenticeships, and the last section focuses on available data on ECE apprenticeships. We conclude this report with a discussion of our recommendations for next steps for future research on ECE apprenticeships.

Development and Implementation of ECE Apprenticeships

What Is Known about the Development and Implementation of ECE Apprenticeships?

Evidence suggests several inputs and resources can support the development and implementation of apprenticeships and that apprenticeship programs vary depending on the characteristics of the model, types of supports offered apprentices, and implementation practices program operators adopt. Evidence also pointed to ECE system and other system-level and sociocultural factors that can influence the development and implementation of ECE apprenticeships. Finally, we identified several common challenges related to the development and implementation of apprenticeships as well as facilitators that may help address challenges.

Inputs and resources that can support ECE apprenticeships include funding, sponsors, partnerships, institutions of higher education (IHEs), and technical assistance providers. As detailed in table 3, funding for ECE apprenticeships typically includes a mix of public and private funding sources. This topic is discussed in more detail later in this report. Sponsors are the organizations that operate the apprenticeship program, which is typically the employer (such as the ECE provider) that employs the apprentice(s) and offers on-the-job training. However, for ECE apprenticeships, Institutions of Higher Education (IHEs) and other organizations and associations typically sponsor apprenticeship programs rather than the ECE employer. Partnerships between the sponsor, ECE employer, and IHEs can ensure apprentices have access to appropriate coursework, on-the-job training opportunities, and other resources that support their success. Other common types of partners include organizations with direct access to and experience working with ECE providers (e.g., Child Care Resource and Referral agencies, child care networks, other technical assistance providers); state and local departments and offices for workforce development, K–12 education, and ECE; unions; social services organizations; and technical assistance providers. IHEs are another important input, particularly those with the infrastructure to support ECE apprenticeships. Such infrastructure includes organizational knowledge and experience working with the ECE workforce, many of whom are nontraditional students, and qualified faculty with experiences and demographics that align with apprentices. Technical assistance providers, including Registered Apprenticeship industry intermediaries, funded by the DOL Office of Apprenticeship, support the development and implementation of ECE

apprenticeships in a variety of ways, including with applications for registration and funding, designing appropriate program requirements, and providing professional development services.

TABLE 3

Inputs and Resources That Support ECE Apprenticeships, by Source

Input/resource	Research publications	Nonresearch publications	Expert interviews
Funding			
Private/philanthropic		X	X
Head Start		X	X
Child Care and Development Fund (CCDF)		X	X
Workforce Innovation and Opportunity Act		X	X
Higher Education Act		X	X
Temporary Assistance for Needy Families		X	X
TEACH Early Childhood© scholarships		X	X
Other state and local funding (i.e., tax revenue, stipends, etc.)		X	X
Employer/sponsor			
Demand for apprentices			X
Recruitment practices			X
Organizational readiness			X
Partnerships			
Organizations with direct access to and experience working with ECE providers (e.g., child care resource and referral agencies, child care networks, other technical assistance providers)		X	X
Employers (i.e., ECE providers)		X	X
Sponsors		X	X
Institutes of higher education (four- and two-year institutions)		X	X
State and local departments and offices for workforce development, K–12 education, and ECE		X	X
Industry intermediary		X	X
Social services organizations			X
Unions		X	X
IHE infrastructure			
Knowledge of and experience working with the ECE workforce	X		X
Faculty qualifications, experiences, and demographics (including match with apprentices)	X		X
Technical assistance providers			
DOL-funded industry intermediaries		X	X
National Association for the Education of Young Children (NAEYC), child care resource and referral agencies, and other technical assistance providers		X	X

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications and interviews with experts.

Although several components of apprenticeships are required for Registered Apprenticeship Programs, apprenticeships vary depending on other characteristics that program developers and implementers adopt. Registered Apprenticeship Programs culminate in a national credential and require participants to receive a paid job, on-the-job training or work-based learning, classroom-based learning, and mentorship as part of the program (table 4). In addition, Registered Apprenticeship Programs are required to ensure apprentices are afforded worker protections. Although these components are only required of Registered Apprenticeships, experts said they are also common features of nonregistered programs.

TABLE 4

ECE Apprenticeship Program Characteristics, by Source

ECE apprenticeship program characteristics	Research publications	Nonresearch publications	Expert interviews
Registered Apprenticeship Program components			
Mentorship	X	X	X
Paid job	X	X	X
Work-based learning	X	X	X
Classroom-based learning	X	X	X
National credential	X	X	X
Apprenticeship model			
Approach (time- or competency-based, hybrid)	X	X	X
Specific standards	X	X	X
Compensation structure	X	X	X
Credential type (Child Development Associate, associate degree, bachelor's degree, etc.)	X	X	X
Target population (assistant teacher, lead teacher, director, family child care provider, home visitor)	X	X	X
Eligibility criteria and selection process	X	X	X
Participant supports and practices			
Tutoring	X	X	X
Tech access (funding for laptops and Internet) and training	X	X	X
Child care	X	X	X
Other needs: mental health services, housing support, transportation, etc.		X	X
Cohort-based learning	X	X	X
Academic counseling	X	X	X
Program support and navigation	X	X	X
Bilingual coursework, tutoring	X	X	X
Mentorship			
Initial training and professional development on topics relevant to their role as a mentor (e.g., adult education, reflective supervision)		X	X
Access to reflective supervision		X	X

ECE apprenticeship program characteristics	Research publications	Nonresearch publications	Expert interviews
Qualifications and experiences		X	X
Demographics; including match with apprentices		X	X
Whether mentor works in same setting as apprentice or not, if applicable			X

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications and interviews with experts.

Apprenticeships, including Registered Apprenticeship Programs and nonregistered programs, vary depending on the model in terms of program target population (such as assistant teachers, lead teachers, center directors or other administrators, and family child care providers); the approach to measuring on-the-job learning (whether measured in hours, demonstration of competencies, or hybrid of these); the specific standard or competencies; compensation structure for apprentices; the national credential type (such as Child Development Associate credential, associate degree, or bachelor's degree); and the program's eligibility criteria and selection process for apprentices. The 16 research publications we reviewed describe 10 ECE apprenticeship models (table 5).

TABLE 5

Apprenticeship Models Described in Research Publications

Apprenticeship model	Type of Program	Research publication citation
Camp Fire Early Education Apprenticeship Program, Texas	Registered Apprenticeship Program	CNM and AWare Research Solutions (2023)
Child Care Apprenticeship Program of Pinellas, Florida	Registered Apprenticeship Program	West (2022)
Colorado Department of Education Apprenticeship program	Registered Apprenticeship Program	Le and Franko (2023)
District 1199C Training and Upgrading Fund—Early Childhood Education Apprenticeship	Registered Apprenticeship Program	"Seeking Partners to Help with Your Apprenticeship Program?," US Department of Labor, accessed April 15, 2024, https://www.apprenticeship.gov/partner-finder.
District 1199C Training and Upgrading Fund Pre-Apprenticeship at Parkway West	Pre-apprenticeship	Kelmenson, Sophie, Allison Forbes, and Nichola Lowe, *Report on the Early Childhood Education Pre-Apprentice Model* (Chapel Hill: University of North Carolina at Chapel Hill Center for Regional Economic Competitiveness, 2021).
Early Care & Education Pathways to Success (ECEPTS) Family Child Care Apprenticeship	On-the-job training program[a]	Gardner et al. (2019); Simon (2024)
ECEPTS Home Visitor Apprenticeship program	Registered Apprenticeship Program	Simon (2023)

Apprenticeship model	Type of Program	Research publication citation
Rhode Island Child Development Specialist Apprenticeship Program	Registered Apprenticeship Program	Uttley and Horm (2008)
SEIU Early Educator Apprenticeships, California, including a center-based apprenticeship program in one city; a family child care provider on-the-job training program in two counties; and a Head Start apprenticeship program in one county	Registered Apprenticeship Programs and one on-the-job training program[a]	Copeman Petig, Chavez, and Austin (2019)
Early Educator Apprenticeship Program	Registered Apprenticeship Program	Catalan, Nohemy, and Elli Simon, "The Impact of Cohort Learning: A Case Study of an ECEPTS Early Educator Apprenticeship" (San Francisco: Early Care & Education Pathways to Success, 2024).

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing research publications.
[a] The apprenticeship program for family child care providers was registered in California as an on-the-job training program because family child care providers did not qualify for a Registered Apprenticeship Program given the programs are designed for employees and family child care providers are small business owners (Simon 2024). The program was designed to include the same components as Registered Apprenticeship Programs, but it could not be registered with DOL.

Apprenticeships also often include participant supports for apprentices, as well as the set of practices programs implemented to support apprentices. The types of supports available to apprentices may include tutoring, technology access and training, child care for the apprentices' own children, and/or supportive services for other needs of apprentices (i.e., mental health services, housing support, transportation, etc.); academic counseling to help apprentices navigate coursework and plan pathways to degrees; and navigation to help identify and address apprentices' needs. Implementation practices may include cohort-based learning and bilingual coursework and/or tutoring for apprentices who speak a primary language other than English.

Mentorship is a structured and required component of Registered Apprenticeship Programs and common among nonregistered apprenticeships but varies in its structure. Programs vary in whether mentors are offered initial training and professional development on topics relevant to their role (e.g., adult education, reflective supervision); ongoing professional development, including access to reflective supervision; whether mentors work in the same center as apprentices; as well as the extent to which mentor qualifications, experiences, and demographic overlap with those of the apprentices with whom they work.

Evidence suggests several factors can influence the development and implementation of ECE apprenticeships, including those at system level and sociocultural factors (table 6):

- **ECE system factors** include the credential and/or degree requirements for the ECE workforce, which is typically defined by state licensing requirements, quality rating and improvement system standards, and prekindergarten teacher requirements; limited and often unstable funding available to ECE providers and members of the ECE workforce; and the typically low wages available to the ECE workforce.
- **Other system-level factors** include state and local workforce board perspectives on ECE as a career offering livable wages and therefore an industry where they direct resources available for apprenticeships.
- **Sociocultural factors**, as defined by Hsueh and colleagues (2024) in their model depicting levels of influence that act upon ECE workforce dynamics, include societal perceptions about the value of ECE; and the socioeconomic positionality of ECE educators.

TABLE 6

Contextual Factors That Support or Hinder ECE Apprenticeships, by Source

Contextual factors	Research publications	Nonresearch publications	Expert interviews
ECE system			
Credential/degree requirements (i.e., state licensing, QRIS, pre-K; Head Start Program Performance Standards; national accreditation)			X
Limited and unstable funding	X	X	X
Low wages		X	X
Other system-level factors			
State and local workforce board decisions about whether to direct funds to ECE apprenticeships		X	X
Sociocultural factors[a]			
Societal perception about the value of ECE	X		
Socioeconomic positionality of the ECE workforce	X	X	X

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications and interviews with experts.

[a] Authors' adaptation of Hsueh et al. (2024).

What Is Known about Facilitators and Challenges Related to the Development and Implementation of ECE Apprenticeships?

We identify a range of facilitators and challenges related to the implementation and development of apprenticeships through our reviews of the literature and in interviews with experts (table 7).

TABLE 7

Facilitators and Challenges to ECE Apprenticeships, by Source

Facilitators and challenges	Research publications	Nonresearch publications	Expert interviews
Partnership challenges			
Agency differences among partners		X	X
Limited staff availability to dedicate to apprenticeships and the partnerships			X
Partners with limited knowledge of and experience working with the ECE workforce and ECE employers		X	X
Partnership facilitators			
Building in time for partner organizations to develop a shared understanding and clearly defined roles and responsibilities when designing and implementing apprenticeships		X	X
Working with intermediary organizations that can support coordination among partners			X
IHE challenges			
Limited institutional knowledge of and experience working with the ECE workforce		X	X
Lack of faculty with expertise in infant- and toddler-focused coursework	X		X
IHE facilitators			
Building in time for IHEs to build capacity to meet ECE apprentices' needs			X
Hiring multilingual faculty, advisors, and staff		X	X
Using curricula that meet the linguistic needs of students		X	
Ensuring campus resources meet the linguistic needs of students		X	
Setting standards for ECE higher education programs		X	
Ensuring ECE coursework reflects what children need		X	X

Facilitators and challenges	Research publications	Nonresearch publications	Expert interviews
Adjusting promotion and tenure policies		X	X
Increasing sustainable funding for IHEs		X	
Mentor challenges			
Recruiting mentors	X		
Finding mentors who are in close proximity to the ECE settings where apprentices work (especially in rural areas)	X		X
Availability of professional development to support their role	X		X
Mentor facilitators			
Matching apprentices with mentors who have completed the same degree they are pursuing	X		
Matching apprentices who are bilingual with mentors who speak their primary language when possible	X		
Training mentors on adult education and reflective practices	X		
Registered Apprenticeship qualification challenges			
Meeting qualifications for Registered Apprenticeships for programs for family child care providers	X		X
Registered Apprenticeship qualification facilitators			
Developing apprenticeship programs for family child care programs with similar components to Registered Apprenticeships but without the formal designation	X		X
Participant support funding challenges			
Finding funding for participant supports	X		X
Funding facilitators			
Combining multiple funding sources	X		X

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications and interviews with experts.

Given the complex nature of apprenticeships, several publications and multiple experts describe partnerships as essential to the development and implementation of apprenticeships. Challenges related to forming and maintaining partnerships include differences across partners (such as program sponsors, employers, IHEs, and others) in philosophies, missions, culture, and structure; limited staff availability to dedicate to apprenticeships and the partnerships; and partners with limited knowledge

of and experience working with the ECE workforce and ECE employers (see, e.g., Franchett, Steber, and Epstein 2019; Sharrock et al. 2023).[4] **Facilitators** to successful partnerships include building in time for partner organizations to develop a shared understanding and clearly defined roles and responsibilities when designing and implementing apprenticeships; building in time for IHEs to build capacity to meet ECE apprentices' needs; and working with intermediary organizations that could support coordination among partners (see, e.g., Blough et al. 2023; Friedlander and Chomko 2018).[5]

Experts described IHEs as key partners in developing and implementing apprenticeships, and some institutions serve as sponsors for Registered Apprenticeship Programs, but some colleges and universities may have limited knowledge of and experience working with the ECE workforce. One paper reports **challenges** faced by IHEs identified by a working group of experts from organizations such as state boards of education, early childhood research and policy organizations, and IHEs (Lieberman et al. 2020). They find limited capacity to provide social, academic, and financial supports to a population of students who may have low incomes, speak a range of languages, include a range of races, and be primarily first-generation college students among IHEs as a key challenge. Another report finds that some colleges lack faculty with expertise in infant- and toddler-focused coursework (Sharrock and Parkerson 2023). In their paper on challenges IHEs face in serving and preparing early educators, Leiberman and colleagues (2020) make recommendations about policy levers that may help **facilitate** development and implementation. These recommendations are about how IHEs can better meet the needs of the ECE workforce that speak languages other than English by hiring multilingual faculty, advisors, and staff; using curricula that meet the students' linguistic needs; and ensuring campus resources meet students' linguistic needs. Other recommendations include recruiting and supporting the development of faculty prepared to train the ECE workforce. To support the workforce, they recommend setting standards for ECE higher education programs, developing educator preparation programs with research on what young children need, altering recruitment strategies for faculty, adjusting promotion and tenure policies, and increasing predictable and sustainable funding for IHEs. During interviews, experts reinforced many of these recommendations. For example, one expert discussed the need to recruit and retain faculty with experience working with ECE educators and to ensure that coursework reflects the latest research on child development.

[4] "Seeking Partners to Help with Your Apprenticeship Program?," US Department of Labor, accessed April 15, 2024, https://www.apprenticeship.gov/partner-finder.

[5] "Seeking Partners to Help with Your Apprenticeship Program?," US Department of Labor, accessed April 15, 2024, https://www.apprenticeship.gov/partner-finder.

Multiple publications, including one research study, describe mentors (sometimes referred to as a journey worker or coach) as essential to the success of apprenticeship programs given their role supporting apprentices throughout the process (Clark 2023; Copeman Petig, Chavez, and Austin 2019; Dowsett, Carlson, and Epstein 2019). For example, in a study of the SEIU Early Educator Apprenticeships in California, more than 90 percent of current and former apprentices who responded to a survey report that support from a mentor, supervisor, or coach was important to their success in the program (Copeman Petig, Chavez, and Austin 2019). **Challenges** related to implementing mentorship within apprenticeships, as reported in one policy brief and one other study, include difficulty recruiting mentors, finding mentors who are in close proximity to the ECE settings where apprentices are placed (especially in rural areas), and having insufficient professional development available to mentors to support their role (Le and Franko 2023; Sharrock et al. 2023). **Facilitators** from one policy brief include matching apprentices with mentors who have completed the degree they are pursuing and matching apprentices who are bilingual with mentors who speak their primary language when possible (Clark 2023). Another publication providing an overview of the Bank Street College of Education's teacher residency programs describes practices that programs can implement to support mentors, including training mentors on adult education and reflective practices (Rosenthal, Schaeffing, and Sharrock 2023).

One study and several experts describe challenges related to developing and implementing Registered Apprenticeship Programs for family child care providers. Because family child care providers are typically self-employed, they cannot qualify as apprentices because they must be sponsored by an employer, covered by worker's compensation, and work with a mentor to be a Registered Apprenticeship Program (Simon 2024). To address this challenge, one apprenticeship program, the Early Care & Education Pathways to Success (ECEPTS) Family Child Care Apprenticeship, is designed as an on-the-job training program with components closely aligning Registered Apprenticeship Programs (Gardner et al. 2019). In this model, family child care providers receive college coursework, individualized supports, and wage enhancements, and the program culminates in a credential (in this example, a California Child Development Permit). They receive job-embedded coaching on-site at their family child care home. However, family child care providers are not sponsored by an employer and do not have access to workers' compensation (because they are self-employed).

Difficulty securing funding for participant supports (such as tech access and training, tutoring, etc.) can be a challenge. Funding sources typically have restrictions on how funds can be used, which often does not include funding for participant supports. More flexible funding sources can help ECE

workforce members navigate programs and needed supports and pay for supports such as tutoring and child care. Yet these sources of funding can be more difficult to identify and access. To address this challenge, experts in one study (Gardner et al. 2019) described the benefits of combining multiple funding sources, including federal, state, and philanthropic dollars.

What Are Priorities for Future Research about ECE Apprenticeship Development and Implementation?

Our review of the research finds detailed documentation of the characteristics and components of ECE apprenticeships, as well as contextual factors that can influence the development and implementation of ECE apprenticeship programs. We also document several facilitators and challenges related to developing and implementing these programs. Yet we find little research on evaluating program implementation and little documentation or exploration of program characteristics that may drive positive outcomes for apprentices, their employers, and the broader field. For example, publications and experts emphasize the significant role of mentors in supporting apprentices' participation, but limited research exists on the effectiveness of varying approaches to recruiting, training, and supporting mentors in their role. Future research could additionally fill gaps in the field's understanding of strategies to address the range of challenges we identified. Limited research exists on state and community contextual factors and the interplay of contextual factors with the development and implementation of ECE apprenticeships.

In addition, while studies focus on several types of apprenticeship programs (e.g., family child care apprenticeships, apprenticeships for center-based staff including directors, teachers, and assistant teachers, and apprenticeships in Head Start programs or apprenticeship programs in other ECE settings), more research on each type of program is needed. Further, future research could explore the development and implementation of nonregistered apprenticeship programs, including understanding how and why some organizations choose to develop and implement programs but not pursue certification as a Registered Apprenticeship Program. Future research can also explore programs that target home visitors and the infant and toddler workforce.

Table 8 presents priority research questions to build the knowledge base on ECE apprenticeships' effectiveness.

TABLE 8

Priority Research Questions Related to Development and Implementation

Category	Research questions
Development	▪ How are ECE apprenticeship programs structured? What information guides decisions about program structure? ▪ What influences ECE apprenticeship program structure? ▪ What are common challenges related to the development of apprenticeship programs, and how can they be mitigated? ▪ What are the motivating factors that contribute to a participant enrolling in an apprenticeship program? How do they learn about apprenticeship programs? Why do they enroll in an apprenticeship program rather than other ECE credentialling programs? What common obstacles do apprentices experience in joining an apprenticeship program, and how can they be mitigated? ▪ What are the motivating factors that contribute to ECE providers' decision to employ apprentices? What are indicators of an ECE provider's readiness to serve an as apprenticeship employer? What common challenges do employers experience, and how can they be mitigated?

Implementation	▪ How are ECE apprenticeship programs being implemented?
	  ▪ To what extent are programs implemented as designed or intended?
	  ▪ What variations in implementation, if any, occur? Why are variations occurring?
	  ▪ What factors facilitate implementation as intended?
	  ▪ What are common challenges related to implementation, and how can they be mitigated?
	▪ In what contexts are apprenticeship programs implemented? How do contexts vary?
	▪ What characteristics and practices of ECE employers help or hinder implementation of apprenticeship programs?
	▪ What characteristics and practices of IHEs that partner with ECE apprenticeship programs help or hinder apprenticeship programs' implementation?
	▪ What are apprentices' experiences with apprenticeship programs? What benefits do they experience? What challenges do they experience?
	  ▪ How do apprentice experiences vary by program structure?
	▪ What features of apprenticeship program structure (i.e., model characteristics, participant supports, and implementation practices) effectively support apprentices' obtainment of credentials, retention in ECE, effective practice, and personal well-being?
	▪ What types of federal, state, and/or local policies help facilitate the development and implementation of an apprenticeship program? What policies need to be in place to develop and implement an apprenticeship program? What types of federal, state, and/or local policies are obstacles to the development and implementation of an apprenticeship program?
	▪ How do apprenticeship programs fit into the broader ECE workforce strategy or system? How do apprenticeship programs fit into broader efforts to build career pathways in ECE? How are apprenticeship programs integrated in and aligned with existing ECE systems and workforce development approaches?

Across all questions	▪ How do findings differ between registered and nonregistered apprenticeship programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By type of focus staff (i.e., center-based directors, center-based teachers, center-based assistant teachers, family child care providers, and/or home visitors)? By Head Start and other ECE program types?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Participation in and Access to ECE Apprenticeships

What Is Known about Participation in and Access to ECE Apprenticeships?

Limited evidence exists about the characteristics of people who participate in ECE apprenticeships and how they compare with the overall ECE workforce. Three research publications reported on the characteristics of apprentices. One study of an apprenticeship program for family child care providers in California noted that the apprenticeship program served a greater share of providers of color than were represented in the state's family child care workforce overall (Gardner et al. 2019). Two other studies report on data on the characteristics of participants of apprenticeship programs (CNM and AWare Research Solutions 2023; Copeman Petig, Chavez, and Austin 2019), but these studies do not compare the participants with the people the programs intended to enroll.

According to experts, the characteristics of who participates in ECE apprenticeships is driven by the program's target population, the eligibility criteria set by the program, and the strategies programs use to recruit apprentices. Programs may focus on building the skills, knowledge, and credentials of people new to ECE, the incumbent workforce, or both. Further, experts noted that who enrolls may be driven by the program's recruitment practices. For example, some programs focus on recruiting parents of children in care and staff already working in ECE settings involved in the apprenticeship program, whereas others may focus on these populations but also recruit from within the broader community, thus expanding the pool of potential candidates. The types of recruitment practices will vary by program, but experts emphasized the importance of reaching (either directly or through partner organizations) people who reflect the characteristics of the communities where they operate.

What Is Known about Facilitators and Challenges Related to Participation in ECE Apprenticeships?

Like many in the ECE workforce, apprentices face obstacles to obtaining credentials and degrees. For example, studies using qualitative data from apprentices, program administrators, and others describe **obstacles** to participation such as finding time to complete assignments, underpreparation for college

coursework, limited access to technology, language barriers, and balancing full-time work, family, and school, among others (Copeman Petig, Chavez, and Austin 2019; Simon 2024). In addition, although ECE apprenticeship programs have a wide-ranging participant pool, experts reported that family child care providers, the incumbent workforce, people living in rural communities, and people with negative relationships to higher education may be less likely to participate in apprenticeships. **Facilitators** to participation retention and completion include offering a range of participant supports and implementing supportive practices. Copeman Petig and colleagues (2019) conducted surveys of and focus groups with people who participated in the SEIU Early Educator Apprenticeships program in California. Study participants were asked about the program components they found most beneficial to their participation in the program. Among survey respondents, more than 85 percent describe the following program components as very important to their success in the program: support from their supervisor, mentor, and/or coach; financial support for tuition and other program expenses; support from course instructors; and flexibility of course schedules. In addition to these supports, apprentices discussed services such as academic advising, technology access and training, and on-site child care as facilitators of their participation. A few experts also emphasized that obstacles to participation can be alleviated through targeted recruitment and intentional program design that addresses obstacles to participation.

What Are Priorities for Future Research about Participation in and Access to ECE Apprenticeships?

Based on information from publications and expert interviews, many programs already collect data on the characteristics of apprentices, including age, levels of education and experience upon entry, and other demographic characteristics. However, more information is needed about these data (e.g., variables, unit of observation, quality, availability, and accessibility to researchers) to understand if and how they could be used for future research. If these data can be used for research, future research could explore whether and how the characteristics of apprentices reflect the state or local ECE workforce to better understand who is and is not being reached by programs. Research reporting on longitudinal data is also needed to describe completion rates, including whether and how completion rates vary by participant characteristics.

Although some research exists, additional research documenting apprentices' perspectives on the obstacles and facilitators to participation, as well as the program characteristics, participant supports, and implementation practices that help address recruitment, enrollment, and retention challenges, can

inform future program development and implementation. Across these topic areas, future research could explore whether and how participation and access differ for registered and nonregistered apprenticeship programs; for apprenticeships in Head Start versus those in other ECE settings; for apprenticeships focused on center-based teachers versus family child care providers versus home visitors; for apprenticeships for the infant and toddler workforce versus preschool workforce; and for apprenticeships with different types of funding (e.g., Head Start versus state/local versus multiple funding streams). In addition, at the virtual convening, participants expressed an interest in future research about the characteristics of ECE employers that participate in apprenticeships, including the challenges employers face to participation.

Priorities for future research include studies that address the research questions presented in table 9.

TABLE 9

Priority Research Questions Related to Participation and Access

Category	Research questions
Participation and access: apprentices	▪ How do programs conduct outreach to and recruit apprentices? What are the facilitators and obstacles to recruiting apprentices? What strategies help address obstacles to apprentice participation? ▪ Why do people choose to or not to participate in apprenticeship programs? What are facilitators and obstacles to participation do they experience? What strategies help address obstacles people experience? ▪ How do the characteristics of apprentices (e.g., demographic, experience, baseline education/credentials, motivations) vary by characteristics of apprenticeship programs (e.g., registered/not registered, program model, participant supports, implementation practices)? ▪ Who is and is not being reached by apprenticeship programs? ▪ What are apprentices' experiences? What helps facilitate their retention in apprenticeship programs? What challenges do they experience? ▪ What challenges related to the retention and completion of apprenticeship programs do people experience? What features of apprenticeship programs help promote retention and completion? ▪ What are the completion rates of apprenticeship programs? ▪ How does retention and completion vary between registered and nonregistered apprenticeship programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By type of focus staff (i.e., center-based directors, center-based teachers, center-based assistant teachers, family child care providers, and/or home visitors)? By Head Start and other ECE program types? How do they vary by ECE employers' characteristics and practices?
Participation and access: ECE employers	▪ How do programs conduct outreach to and recruit ECE employers? What are facilitators and challenges related to recruiting ECE employers? What strategies help address challenges to ECE employer participation? ▪ Why do ECE employers choose to or not to participate? What are facilitators and challenges related to ECE employer participation? What strategies help address challenges related to ECE employer participation?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Financing ECE Apprenticeships

What Is Known about Financing ECE Apprenticeships?

Apprenticeship programs commonly rely on funding from multiple funding streams, including federal, state, and local funding sources, as well as funds from public-private partnerships and philanthropic support. Examples of specific funding sources include the TEACH Early Childhood® Scholarship Program to fund scholarships for apprentices and federal funding streams including the Child Care and Development Block Grant, Head Start, Workforce Innovation and Opportunity Act (WIOA), and the Higher Education Act. State and local funding through subsidies and local tax revenue can also support programs.

What Is Known about Facilitators and Challenges Related to Financing ECE Apprenticeships?

Despite efforts to draw on multiple funding sources, several publications described the lack of sufficient or stable funding for ECE apprenticeships as a significant **challenge** to program development and implementation (Blough et al. 2023; Cheng et al. 2018; Le and Franko 2023; Simon 2024; Workman 2019). Publications describe the ways limited funding affects apprenticeship programs, including their ability to offer the levels of mentorship, coaching, and supervision that some apprentices may require; constraints on the financial supports available to apprentices; limitations on the extent employers can compensate people who participate in apprenticeships for progress and skill attainment; and other challenges (Blough et al. 2023; Gardner et al. 2019). Experts described limitations of some funding streams, including WIOA, which is tied to individual people, which makes it challenging to fund services for a cohort of apprentices. In addition, WIOA, which is administered by local workforce boards, is interpreted differently across counties. Experts also noted that although federal support for ECE apprenticeships has been growing, some state and local workforce boards may not direct WIOA funds to ECE apprenticeships because of concerns around whether ECE careers can lead to livable wages.

Experts described financing strategies that can **facilitate** the implementation of ECE apprenticeship programs. They noted that Head Start preschool and Early Head Start programs can leverage training funds for ECE apprenticeship programs; these funds are stable and sustainable and

can be spent flexibly. Head Start training funds can be used to pay for apprentices' tuition, for example. Experts also emphasized the utility of philanthropic funds and public-private partnerships because of the flexibility they offer to programs. In particular, flexible, philanthropic funding can help programs reduce obstacles to participation, such as using funds to pay for transportation, child care, and applicants' outstanding fees at other institutions that prevent students from enrolling.

What Are Priorities for Future Research about Financing ECE Apprenticeships?

Although existing publications describe a range of funding sources and funding models and one toolkit outlines a process for estimating costs (Sharrock and Parkerson 2020), we did not identify any research on the costs of operating apprenticeships, including costs per apprentice. Given the different characteristics of apprenticeship programs, future research could document costs for different models of apprenticeships, such as those offering higher-intensity participant supports and those offering more limited supports.

Findings from our review apply primarily to Registered Apprenticeship Programs; therefore, future research could explore financing models for nonregistered apprenticeship programs, as well as models for other variations of programs, including programs focused on center-based programs, family child care, and/or home visitors; those focused on the infant and toddler workforce and/or the preschool workforce; and those operating in Head Start programs and/or other ECE settings. One expert noted that this information is important both because it can assist programs with planning, but also because it can inform research on the return on investment. In addition, future research could explore whether and how different funding streams or combinations of funding streams affect the types of participant supports offered to apprenticeships, as well as who is eligible to participate in programs.

During the virtual convening, participants expressed a particular interest in understanding the return on investment of apprenticeships for both apprentices and ECE employers. They noted that understanding the costs and benefits can help inform policy and funding decisions.

Table 10 presents priority research questions to build the knowledge base on financing ECE apprenticeship programs.

TABLE 10

Priority Research Questions Related to Financing

Category	Research questions
Costs, financing, and cost-effectiveness	▪ What is the cost of ECE apprenticeship programs? What are the various cost components and cost drivers? ▪ How does the combination of different funding streams affect the ECE apprenticeship program design, eligibility criteria for apprentices, implementation of programs, and sustainability of programs? ▪ What facilitators and challenges exist to blending and braiding funding from multiple sources to support ECE apprenticeship programs? What strategies can help address the challenges? ▪ What facilitators and challenges exist to sustaining ECE apprenticeship programs? What strategies can help facilitate sustainability? ▪ What is the return on investment for apprentices, ECE employers, and communities? ▪ What is the potential cost-effectiveness of ECE apprenticeships compared with alternative professional development approaches for the ECE workforce?
Across all questions	▪ How do findings differ between registered and nonregistered apprenticeship programs? By the combination of funding sources used to finance programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By Head Start and other ECE program types?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Outcomes and Effectiveness of ECE Apprenticeships

What Is Known about the Effectiveness of ECE Apprenticeships, and What Are the Documented Outcomes?

Although about half of the research publications we reviewed describe outcomes of ECE apprenticeships (CNM and AWare Research Solutions 2023; Copeman Petig, Chavez, and Austin 2019; Gardner et al. 2019; Sharrock et al. 2023; Simon 2024; Uttley and Horm 2008; West 2022), we did not identify any studies that experimentally or quasi-experimentally examine programs' effectiveness. The research publications that report on outcomes include descriptive studies, meaning they did not compare the outcomes of participants in apprenticeships with a comparison group of nonparticipants. Table 11 lists the types of outcomes measured or reported in the seven research publications that described outcomes.

TABLE 11

Outcomes Measured and Reported in Research Publications and Data Sources

Outcome	Data source(s)
Apprentice retention rates	Administrative data; surveys of apprentices
Apprentice completion rates	Administrative data; surveys of apprentices
Apprentice wages/wage increases	Administrative data; surveys of apprentices
Apprentice average grades/GPA	Administrative data
Apprentice confidence in role, satisfaction with role, likelihood to remain in ECE field	Interviews and focus groups with apprentices
Apprentice likelihood to seek additional training/education in ECE, likelihood to seek career advancement in ECE	Interviews and focus groups with apprentices
Apprentice satisfaction	Surveys of current and past apprentices
Apprentice-mentor relationship	Surveys of apprentices and mentors
Quality of classrooms staffed by apprentices	Early Childhood Environment Rating Scale-Revised Edition (ECERS-R; see "Early Childhood Environment Rating Scale® (ECERS)," Teachers College Press, accessed January 29, 2025, https://www.tcpress.com/early-childhood) and the Infant/Toddler Environment Rating Scale-Revised Edition (ITERS-R; see "Infant/Toddler Environment Rating Scale®, Revised (ITERS-R™)," University of North Carolina Chapel Hill Frank Porter Graham

Outcome	Data source(s)
	Child Development Institute, accessed January 29, 2025, https://ers.fpg.unc.edu/infanttoddler-environment-rating-scale%C2%AE-revised-iters-r%E2%84%A2.html); Classroom Assessment Scoring System (CLASS; see Karen M. La Paro, Robert C. Pianta, and Megan Stuhlman, "Classroom Assessment Scoring System," *The Elementary School Journal* 104, no. 5 (2004): 409–26, https://doi.org/10.1086/499760)
Practices with children and families (i.e., knowledge and skills, perceived quality of care and instruction, engagement with families to support children's development and learning)	Surveys of apprentices and ECE employers; interviews and focus groups with apprentices; Best Practices Observation Tool (not cited)

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing research publications.

Findings from descriptive research on these outcomes can begin to inform future research. Data on the percentage of apprentices who complete programs was limited in the publications we reviewed. However, a couple of publications report that between 50 and 75 percent of people enrolled in ECE apprenticeships complete the programs (CNM and AWare Research Solutions 2023; Simon 2024). In interviews, experts emphasized that completion rates can vary quite a bit from program to program, and one program administrator has observed that apprentices working toward a Child Development Associate credential tend to have lower completion rates than apprentices working toward an associate or bachelor's degree. Three research publications report that, on average, apprentices experience wage increases (CNM and AWare Research Solutions 2023; Copeman Petig, Chavez, and Austin 2019; Gardner et al. 2019). A few studies measured apprentices' satisfaction with apprenticeship programs, but studies reported varied findings, with some studies describing high satisfaction among those who participated in apprenticeships and other studies reporting satisfaction as neutral (Copeman Petig, Chavez, and Austin 2019; Uttley and Horm 2008; West 2022). One study finds that classrooms with apprentices had a significant increase in classroom quality over time on the ECERS-R, and an increase, though not statistically significant, on the ITERS-R (Uttley and Horm 2008). Another publication finds that 22 of the 24 classrooms with apprentices showed improvement in teaching best practices over time; however, apprentices needed improvement on measures of emotional and instructional support (CNM and AWare Research Solutions 2023). Apprentices, their employers, and mentors perceived improvements in the apprentices' caregiving knowledge and skills, practices with children and families, and classroom quality (Copeman Petig, Chavez, and Austin 2019; Gardner et al. 2019).

What Outcomes Are of Interest to the Field?

During interviews, experts described apprenticeships as promoting a variety of positive outcomes. In addition to outcomes for apprentices measured in the research, experts identified outcomes for the ECE field more generally, including attracting educators to and retaining them in the field, increasing wages, promoting quality ECE, and improving educator well-being. Experts noted, and our environmental scan revealed, that these outcomes have not been measured in existing research. Table 12 lists potential short- and long-term outcomes of ECE apprenticeships identified in the literature and by experts, with an indication of the source of information for each.

TABLE 12

Potential Short- and Long-Term Outcomes of ECE Apprenticeships, by Source

Outcomes	Research publications	Nonresearch publications	Expert interviews
Short-term outcomes			
Apprentices			
Retention in and completion of apprenticeships	X	X	X
Credential/degree attainment	X	X	X
Wage/wage progression		X	X
Mastery of competencies	X	X	X
Satisfaction with role; likelihood to remain in ECE field	X		
ECE providers/employers			
Staff with the competencies to provide high-quality ECE	X	X	X
Mentors			
Supportive relationships with apprentices	X		X
Professional growth			X
Communities			
Pipeline of qualified new staff		X	X
Qualified existing workforce		X	X
Long-term outcomes			
Apprentices			
Competencies to offer high-quality ECE	X	X	X
Professional advancement in ECE		X	X
Professional mobility and advancement in other fields		X	X
Economic stability		X	X
Personal well-being		X	X
Communities			
Stable workforce with competencies to offer high-quality ECE		X	X

Outcomes	Research publications	Nonresearch publications	Expert interviews
Children and families			
Child healthy social-emotional, cognitive, and physical development		X	X
Family economic stability and reduced stress		X	X

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications and interviews with experts.

What Are Priorities for Future Research about Outcomes and Effectiveness of ECE Apprenticeships?

To date, limited information is available about the effectiveness of ECE apprenticeships and the potential outcomes for participants, employers, and communities. To further the evidence on these topics, future research could include descriptive, experimental, and quasi-experimental studies. Descriptive studies can be used to describe outcomes of those who participate in an apprenticeship program. Because these designs do not include a comparison with a group of people who did not receive the program, they do not allow researchers to say the program caused changes in outcomes. Longitudinal studies—a type of descriptive study—can gather data on apprentices over time to observe their outcomes months or years after participation in an apprenticeship program. Experimental designs that use random assignment to compare the outcomes of an apprenticeship program on one or more groups of people with a comparable group of people who did not enroll in the program allow researchers to attribute changes in outcomes to the program being studied. Quasi-experimental designs that compare outcomes of a group—including individual people, ECE centers, or communities—that receives an intervention with a comparable group that does not receive it allow researchers to attribute changes in outcomes to the program they are studying (similar to experimental designs).

More research is needed exploring the variability across apprenticeship programs with varying program characteristics, including Registered Apprenticeship Programs and/or nonregistered programs; programs focused on center-based programs, family child care, and/or home visitors; those focused on the infant and toddler workforce and/or the preschool workforce; and those operating in Head Start and/or other ECE settings.

Table 13 presents research questions that can guide future research documenting outcomes and assessing the effectiveness of ECE apprenticeships. Importantly, when addressing these questions,

researchers will need to consider how "participation," "completion," "wage increases," and other outcomes are defined with a goal of establishing consistent definitions for use in future research.

TABLE 13

Priority Research Questions Related to Outcomes and Effectiveness

Category	Research questions
Descriptive studies of outcomes	▪ Are people who participate in apprenticeship programs satisfied with their role? How long do they intend to work in ECE (in their current role or another role)? ▪ How long do people who complete ECE apprenticeship programs remain in their current role? How long do they remain with their current employer? How long do they remain in ECE? ▪ To what extent do apprenticeships create pathways to higher education for apprentices? ▪ Does participation in an apprenticeship program help people achieve their goals such as professional advancement in ECE, professional mobility, economic stability, and educational attainment? ▪ What is the association between participation in an apprenticeship program and changes in apprentices' competencies (specific to their role) to deliver high-quality ECE? ▪ To what extent do apprenticeships help stabilize the ECE workforce in communities with programs? To what extent do ECE providers have access to staff with the competencies to deliver high-quality ECE? To staff with cultural and language competencies?
Effectiveness studies	▪ Do people who participate in ECE apprenticeships have higher wages and degree or credential attainment than staff who do not participate in apprenticeships? ▪ Are people who participate in ECE apprenticeships more likely to demonstrate competencies (specific to their role) to deliver high-quality ECE compared with staff who do not participate in apprenticeships? ▪ Are people who complete ECE apprenticeships more likely to remain in their current role than ECE staff who do not participate in apprenticeships? Do they remain in ECE longer than ECE staff who do not participate in apprenticeships? ▪ Do ECE staff in communities with apprenticeship programs have higher wages than staff in communities without apprenticeship programs? Do ECE providers have higher levels of staff retention? Are ECE providers able to fill vacancies more quickly?
Across all questions	▪ Do findings differ between registered and nonregistered apprenticeship programs? By program structure (i.e., model characteristics, participant supports, and implementation practices)? By type of focus staff (i.e., center-based directors, center-based teachers, center-based assistant teachers, family child care providers, and/or home visitors)? By Head Start and other ECE program types?

Source: Urban Institute and MEF Associates project team's synthesis of findings from reviews of existing publications, interviews with experts, and input gathered during a convening of people with experience and expertise in ECE apprenticeships.

Data Sources

What Data Are Available on ECE Apprenticeships?

Data on financing, participation, implementation, and outcomes of apprenticeship programs are critical to building the existing evidence base. As noted previously, four research publications report findings from administrative data, but overall, we find limited information through the environmental scan about data sources available to address questions about outcomes, implementation, participation, and apprenticeship program financing.

Experts shared information on existing data sources on apprenticeships, described available data, and identified data that would help the field answer critical research questions. The primary source of federal data on ECE apprenticeships exists within the DOL Office of Apprenticeship RAPIDS database. RAPIDS contains participant-level data including race, ethnicity, education level at start of the program, wage at program start and at exit, and program start and end dates. Experts surfaced a couple of challenges with RAPIDS data: as of 2024, 47 states submit data to the RAPIDS system,[6] whereas 9 maintain their own state data system and do not report to RAPIDS. DOL is pursuing efforts to increase participation in RAPIDS—for example, by including reporting to RAPIDS as an expectation in their grant applications. Industry intermediaries similarly are promoting participation in RAPIDS in their work with states and programs. Another challenge is that there are nearly 20 different occupational titles on the DOL website that can be used to categorize ECE educators, and some of these occupations may also apply to other fields, such as K–12 education or early intervention. This presents a significant challenge for researchers trying to capture participation and outcomes relating to ECE apprenticeships. In addition to federal data, some programs and intermediary organizations have explored strategies they can use to collect more robust data to inform program implementation. A couple of the experts we interviewed indicated that some programs collect and report both administrative data and data from surveys fielded to apprentices and mentors. A leader from one industry intermediary organization reported using their own central database to collect information on their program standards and the standards of states they work with. This centralized data system allows them to report data on a consistent set of outcomes across different states and programs.

[6] Of these 47 states and territories, 24 are registered by the DOL Office of Apprenticeship and report to RAPIDS in real-time and 23 are registered by State Apprenticeship Agencies and report partial information to RAPIDS quarterly.

What Data Are Needed?

Additional information is needed about existing data, including the variables and their definitions, the unit of analysis (e.g., whether data are collected at the apprentice level or aggregated across apprentices), data quality including the level of missing data, and the availability of data for use in future research. One research publication on the Camp Fire First Texas Early Education Apprenticeship Program, a Registered Apprenticeship Program, offers recommendations to Camp Fire First Texas for improving data (CNM and AWare Research Solutions 2023). These recommendations include standardizing data on participation, wage reporting, and reasons apprentices exit programs. This study also recommends developing data-sharing agreements with higher education institutions to be able to track graduates' post-apprenticeship program academic outcomes.

Experts, as well as people who participated in the virtual convening, discussed needing data on mentors, including their characteristics, the professional development they receive for their role as a mentor, how often they engage with apprentices, and the focus of mentoring activities. Convening participants also recommend data that can be tracked longitudinally, or over time, to help the field better understand the longer-term outcomes of apprenticeships. However, when requesting or gathering additional data from ECE apprenticeship programs and apprentices the additional resources required to track these data and the added burden on participants should be considered.

Future Directions

Apprenticeship programs are one potentially promising strategy to prepare people for careers in ECE and advance the career pathways of people currently working in ECE. Registered Apprenticeship Programs operate in most states and continue to expand. We identified detailed documentation about programs in a range of nonresearch publications. In addition, we identified a small number (16) of research publications. These studies describe implementation of 10 ECE apprenticeship models. Moreover, we found four studies that reported a link between participation in apprenticeship programs and perceived outcomes. Yet, to date, we found no studies that employ a methodology that would show causal relationship between participation in ECE apprenticeships and desired outcomes. Experts and people with a vested interest in apprenticeship who participated in a virtual convening identified a range of priority questions to guide future research to begin to fill the gaps in the existing knowledge base.

This learning agenda presents these priority research questions and is designed to inform future research to begin filling existing knowledge gaps. It can inform efforts to systematically collect data across multiple ECE apprenticeship programs and serve as a framework for short- and long-term research activities that can build the evidence base about ECE apprenticeship programs. We identified a need for high-quality, rigorous research to build the evidence base about ECE apprenticeships.

Recommended Next Steps for Research

Drawing on findings from project activities, the following recommendations emerged as needed next steps to build the evidence base about ECE apprenticeships:

- **Conduct a scan of existing data about ECE apprenticeships to systematically identify data that are available to answer descriptive, correlational, outcome, and impact research questions and/or could be strengthened to better address questions about ECE apprenticeships that are relevant for policy and practice.** Although this project sought to identify resources about ECE apprenticeships, we did not conduct an exhaustive scan of ECE apprenticeship data sources, including administrative data collected at the federal, state, community, and program levels. Although it is possible that existing data could be analyzed to address important questions of interest, more research is needed about the nature, scope, and limitations of existing data. Future efforts to scan and catalogue the range of data available

could inform what questions could be answered by analyzing existing data and questions that require primary data collection. Addressing this research question could position future research to more efficiently answer questions we identified.

- **Identify common definitions and frameworks of ECE apprenticeships to establish a consistent understanding about ECE apprenticeships.** Registered and nonregistered apprenticeship programs vary substantially from model to model. As a result, defining an ECE apprenticeship and its characteristics is important for all future research. The inputs, characteristics of programs, contextual factors, and outcomes presented in this report are a first step.
- **Engage people who have participated in and completed ECE apprenticeships and ECE employers to shape the research questions and methods.** This engagement can draw on existing toolkits and best practices for community-engaged research (Falkenburger et al. 2024) and can include outreach to people enrolled in apprenticeships, those who have completed apprenticeships, and ECE employers who have supported ECE apprenticeships.
- **Carry out studies that can build the field's foundational knowledge of ECE apprenticeships and set the stage for future studies that examine the overall effectiveness of these programs in achieving their intended outcomes.** These studies can expand the knowledge base on how ECE apprenticeship programs are implemented, if they are implemented as intended, how variation in implementation relates to who participates in ECE apprenticeships, the challenges and facilitators of implementation, and how state and local context affects implementation. Research methods that could begin to address these questions include qualitative interviews with program administrators and implementers, policy analysis of key contextual factors (such as minimum requirements for staff credentials and training to meet licensing standards), surveys of ECE employers, and focus groups with apprentices. Methods to address this question could include case studies across different settings that collect consistent data documenting (1) the on-the-job training, coursework, participant supports, and other services and supports apprentices *receive* (not only the services and supports offered or intended) and (2) apprentices' characteristics. Data on apprentices could build on the data Registered Apprenticeship Programs submit to DOL in the RAPIDS database (such as demographic characteristics, start and exit date, and wage and start and exit) and include other variables of interest to the field such as language and years of experience in ECE.
- **Do research that assesses outcomes and impacts for participants, employers, and communities.** For example, these studies can address questions, such as the following: do participants in ECE apprenticeships demonstrate improvements in short-term, intermediate,

and longer-term outcomes? Is there evidence that participation in an ECE apprenticeship program has an impact on participants? Methods that could be used to begin to address these questions include longitudinal survey data collection from ECE apprentices and control groups or matched comparison groups. To answer questions about short-, intermediate-, and longer-term outcomes, research should collect comparable data over time from people who complete programs and those who do not complete programs. To isolate the degree to which the ECE apprenticeship is causally related to desired outcomes and impacts, the research should collect information about apprentices' years of experience in ECE; and information about possible changes over time, such as completion of the apprenticeship, credentials and degrees, wages, career advancement in ECE, and educator well-being.

- **Conduct research on the specific characteristics of ECE apprenticeship programs that lead to desired and actual outcomes and that compare the cost of ECE apprenticeships with the value of their benefits.** By collecting cost data from a range of ECE apprenticeship programs with differing characteristics, the study could also address questions related to the costs of different apprenticeship models or different program components. Data sources for the study can document the actual costs of labor for staff who oversee and administer programs, staff from ECE employers who employ apprentices, mentors, and apprentices; expenditures for coursework, materials, and supplies; and labor and expenditure costs related to providing participant supports.

Despite the growth in ECE apprenticeships and dozens of publications that exist describing them, opportunities exist to build the evidence base about these programs. Given the importance of supporting the ECE workforce to address the existing workforce shortage and the needs employers are facing to hire qualified members of the ECE workforce, apprenticeships offer promise. Experts and participants in a virtual convening pointed to the importance of these apprenticeships and the need for additional evidence about promising approaches to implementing ECE apprenticeships, these apprenticeships' outcomes, and the costs associated with providing apprenticeships that lead to desired outcomes. This learning agenda is designed to guide future research that can fill this existing gap.

Appendix A. Methods

Environmental Scan

Search Process

We began by identifying a list of search terms relevant to ECE apprenticeships, government agencies relevant to ECE and apprenticeships, and organizations who are potentially involved in research, policy, or training and technical assistance around ECE apprenticeships. Eligible types of publications and materials included peer-reviewed studies, gray literature such as research and policy briefs, technical assistance materials and toolkits, and other resources such as webinars and blog posts.

We searched the terms on their own and in combination on Google, Google Scholar, and Child Care and Early Education Research Connections, and we searched each website of identified organizations and government agencies using the search terms or navigating through the website to find relevant information (table A.1). We identified 163 publications as potentially relevant based on title and abstract and captured them in Zotero, a web-based reference management tool. For each individual search, we stopped searching after three pages with no relevant results and stopped our overall search after reaching saturation of publications.

TABLE A.1
Search Terms and Identified Organizations

Search terms	Organizations	Search engines
Early care and education apprenticeships	Administration for Children and Families	Google
Early childhood education apprenticeships	Department of Labor	Google Scholar
Head Start apprenticeships	Early Childhood Learning and Knowledge Center	Research Connections
Early Head Start apprenticeships	Center for the Study of Child Care Employment	
Apprenticeship(s)	Bank Street College of Education	
Registered Apprenticeship(s)	BUILD Initiative	
Effectiveness	Child Trends	
Outcomes	Mathematica	
	Bipartisan Policy Center	
	New America	
	Abt Associates	
	National Association for the Education of Young Children	
	National Association for Family Child Care	

Search terms	Organizations	Search engines
	Early Childhood Education Pathways to Success	

Source: Urban Institute and MEF Associates project team.

Public Call for Information

To identify information about ECE apprenticeships that was not publicly available, we issued a public call for information. We disseminated the public call widely, including the through vehicles such as OPRE's website and relevant Urban Institute listservs. The Urban Institute listserv includes research, policy, and technical assistance organizations as well as other ECE stakeholders. We also shared the link with contacts at various organizations such as the BUILD Initiative, the National Institute for Early Education Research, the National Association of State Leaders in Early Education, and the Early Learning Consortium.

Recommendations from Subject Matter Experts and Team Members

We also screened and, if relevant, included publications recommended by experts or by members of our research team (e.g., publications that team members identified when reading other publications).

Screening

After we pulled publications into Zotero, an open-access reference management tool, we assessed each source for relevance. In the screening process we confirmed that the title, abstract, and key words were related to specific aspects of ECE apprenticeships in the United States. Additionally, we evaluated whether the resource (1) addressed what is known about ECE apprenticeships; (2) identified gaps in the knowledge base about ECE apprenticeships; or (3) addressed at least one of our constructs of interest (see next section). We identified 44 publications and 16 webinars that met our criteria to include. After an initial review of the webinars, we decided not to code them given the available publications for this scan and because the content typically overlapped with written publications. Of the 44 publications, we categorized 16 as research publications. These included 12 summaries of descriptive research studies including case studies and implementation and process studies. The other publications included three publications that present findings from literature reviews and discussions with experts and one review and synthesis of available data on the ECE workforce.

Key Constructs of Interest for the ECE Apprenticeships Environmental Scan

- outcomes/effectiveness of apprenticeships programs
- apprenticeship program components
- development/implementation of apprenticeship programs
- building/maintaining partnerships to support apprenticeship programs
- apprenticeship program participation and access
- training and/or technical assistance to support apprenticeship programs
- financing apprenticeship programs
- policy context for apprenticeship programs
- data sources on apprenticeship programs

Coding Publications

A team of researchers and analysts used a coding spreadsheet to record key information about each of the publications using a structured set of codes. Table A.2 lists the key information we coded for each resource. Researchers documented both whether the resource addressed each code and narrative descriptions for each code. For research publications, we documented information about data sources and design, but we did not review the quality or rigor of the study methodology. To ensure reliability across coders, each team member underwent a reliability check before coding independently.

TABLE A.2
Key Information Coded for Each Publication

Category	Codes/description
Key information about publications	
Source	▪ Literature search ▪ Public call submission ▪ Recommendation from expert or research team
Publication type	▪ Peer-reviewed article ▪ Gray literature: research report or brief ▪ Gray literature: policy or issue brief ▪ Technical assistance materials or toolkit
Did resource include original data collection or secondary analysis of administrative data?	Yes/no
If applicable, data sources (describe)	
If applicable, study design and sample characteristics (describe)	

Category	Codes/description
Apprenticeship type	▪ Registered Apprenticeship ▪ Nonregistered apprenticeship or other
Name of apprenticeship program(s)/model(s)	
Does the resource discuss Head Start?	Yes/no
ECE setting	▪ Center-based ▪ Family child care ▪ Home visiting
Age(s) of children	▪ Infant/toddler ▪ Preschool/prekindergarten
Summary of key findings in each category	
Program components	
Development and implementation processes	
Building/maintaining partnerships	
Program participation and access	
Training and technical assistance	
Financing	
Policy context/alignment	
Challenges/facilitators: developing and implementing programs	
Challenges/facilitators: participating/accessing programs	

Source: Urban Institute and MEF Associates project team.

Summarizing Information about Each Resource

Drawing on the information from the coding spreadsheet, we produced an annotated bibliography. The bibliography describes key information about each resource. In addition, we summarized information from the publications related to recommended topics or questions for future research, data sources that could be used in future research, and gaps in the knowledge base related to research and practice.

Summarizing Information across Publications

We used the coding spreadsheet to review information by code and summarize relevant information across publications. We presented our findings in an initial memo, and they informed the learning agenda. When summarizing information across publications, we included information and findings from research publications and policy, advocacy, and practice publications.

Expert Interviews

Selecting Experts for Interviews

In addition to reviewing literature from the environmental scan and public call, we conducted key informant interviews with seven experts. Before finalizing our protocols, we had informational conversations with experts within the Urban Institute and ACF. We identified our initial group of experts through these informational conversations and the environmental scan. When selecting our initial set of interviewees, we prioritized inviting experts who represented a variety of perspectives within ECE including research, policy, and practice. We asked each key informant we interviewed to recommend additional experts who could speak to our research constructs. Our final list of experts represented a wide range of organizations involved in ECE apprenticeships and who have varying expertise (table A.3).

TABLE A.3
People Participating in Expert Interviews

Informant	Organization/affiliation	Perspective represented
Randi Wolfe, PhD	Executive director, Early Care & Education Pathways to Success	Industry intermediary; apprenticeship sponsor
Pamm Shaw	Director, strategic funding and partnerships, YMCA of the East Bay	Program implementer (ECE)
Elizabeth Pufall Jones	Director of preparation and work environment programs, Center for the Study of Child Care Employment	Researcher
Megan Burk	TEACH Early Childhood National Center, Child Care Services Association	Industry intermediary
Joya Chavarin	Education program coordinator, Berkeley City College	Program implementer (higher education)
Megan Baird	Deputy administrator, Office of Apprenticeship, Employment and Training Administration, DOL	Federal policy
Reeva Sullivan Murphy	Project director, Early Childhood Workforce Connector	Industry intermediary

Source: Urban Institute and MEF Associates project team.

Developing Protocols and Obtaining Institutional Review Board (IRB) Approval

We structured the interview protocol according to the project's seven research questions (see table 1 in the main section of the report). The interviews were designed to supplement information the team gathered from the literature and to probe on issues not addressed in the literature. The Urban Institute's IRB approved our interview protocol and processes.

Conducting Interviews and Developing Detailed Summaries

A core member of the research team facilitated the interviews; another team member took near-verbatim notes in a template designed to capture key information. The lead interviewer tailored the interview based on participants' areas of expertise and background. With approval from the participant, we recorded interviews to supplement the information available in the notes. Following the interview, the research team created a summary of the interview drawing on the detailed notes and the recording as needed.

Coding Interview Data and Summarizing Findings across Expert Interviews and Publications

Once the summary was finalized, we coded the qualitative data in a spreadsheet using the same constructs used to code the resources surfaced through the environmental scan and public call (table A.2). This allowed us to compare data surfaced through different resources and identify places where the interview data confirmed or built on the literature and identify gaps in the data overall. We summarized these findings in the learning agenda outline and will build on them further in the final learning agenda.

Appendix B. Overview of Research Publications

Authors	Study setting	Study methods	Sample size
Alexandra Bernardi, JoAnn Hsueh, Sydney Roach, and Lisa Rau, "Child Care and Early Education Workforce Recruitment and Retention: Insights from a Current Landscape of Strategies," BASE Knowledge Report Series, OPRE Report #2023-178 (Washington, DC: US Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation, 2024).	National	**Design:** Literature review, environmental scan, and expert interviews **Data sources:** ▪ Interview with experts ▪ Review of strategies for building, advancing, and retaining the child care and early education workforce	▪ 36 expert interviews ▪ 144 strategies identified through the environmental scan and literature review
Nohemy Catalan, and Elli Simon, "The Impact of Cohort Learning: A Case Study of an ECEPTS Early Educator Apprenticeship" (San Francisco: Early Care & Education Pathways to Success, 2024).	ECEPTS Early Educator Apprenticeship Program	**Design:** Case study **Data sources:** ▪ Survey of early educator apprentices including demographic information and perceptions of the cohort learning model ▪ Semistructured focus group of early educator apprentices	26 apprentices responded to the survey
Cheng et al. (2018)	National	**Design:** Literature review and discussions **Data sources:** ▪ Review of quantitative and qualitative research on the ECE sector ▪ Interview with experts	23 experts
CNM and Aware Research Solutions (2023)	Camp Fire Early Education Apprenticeship Program (Texas)	**Design:** Process evaluation (interim findings) **Data sources**: ▪ Classroom/center outcomes: Classroom Assessment Scoring System and Best Practices Observation Tool ▪ Program administrative data that focuses on characteristics, motivations, and obstacles or supports for success of apprentices in the initial cohort	▪ Not reported directly ▪ 23 apprentices enrolled in pilot year (2020) and 29 enrolled in 2021
Copeman Petig, Chavez, and Austin (2019)	SEIU Early Educator Apprenticeships in California (includes a center-based apprenticeship program in	**Design:** Mixed-methods implementation study **Data sources:** ▪ Online survey to previous and current apprentices	▪ Online survey (*n* = 101; response rate = 38%) ▪ 6 one-on-one interviews; 4 focus groups

Authors	Study setting	Study methods	Sample size
	Los Angeles; Family Child Care On the Job Learning program in San Fernando Valley, Los Angeles County, and Alameda; and Head Start apprenticeship program in Alameda County)	▪ Interviews and focus group discussions with key program informants ▪ Focus group discussions with current apprentices ▪ Administrative data (demographic information, number of permits earned, etc.)	▪ 5 focus group discussions (*n* = 26); 2 focus groups were Head Start providers, 2 were family child care providers, 1 was center-based
"Seeking Partners to Help with Your Apprenticeship Program?," US Department of Labor, accessed April 15, 2024, https://www.apprenticeship.gov/partner-finder.	Four case study sites: 1. Techtonic Software Developer Apprenticeship 2. Moore Community House—Women in Construction Pre-Apprenticeship 3. District 1199C Training and Upgrading Fund—Early Childhood Education Apprenticeship 4. National Restaurant Association Education Foundation and American Hotel and Lodging Association—Hospitality Sector Registered Apprenticeship	**Study design:** In-depth case studies (preliminary findings*) **Data sources:** ▪ Interviews with program staff, partners, and current and former participants ▪ Review of program materials and data (*This is an ongoing evaluation with additional data sources that are not reported in this publication. Additional data sources include (1) 28 ECE apprentices evaluated using CLASS at 6 months and 18 months and (2) pre- and postsurveys and interviews with coaches and employers.)	Not reported
Gardner et al. (2019)	Three case study sites: 1. Family Child Care Apprenticeship (Early Care & Education Pathways to Success—ECEPTS) 2. Skyline College 3. EDvance at San Francisco State University	**Design:** Case studies **Data sources:** ▪ Interviews of key stakeholders, including program faculty, current and former program participants, local ECE leaders, community organization leaders ▪ Observations of program participants in the study site ▪ Observations of program courses and other key components ▪ Analysis of data on program participants and outcomes	For Family Child Care Apprenticeship (ECEPTS) site: 7 program faculty and staff 21 participants and alumni

Authors	Study setting	Study methods	Sample size
Sophie Kelmenson, Allison Forbes, and Nichola Lowe, *Report on the Early Childhood Education Pre-Apprentice Model* (Chapel Hill: University of North Carolina at Chapel Hill Center for Regional Economic Competitiveness, 2021).	District 1199C Training and Upgrading Fund Pre-Apprenticeship program at Parkway West	**Design:** Case study **Data sources:** ▪ Interviews with program staff and key partners, including people from the District 1199C Training and Upgrading Fund, School District of Philadelphia, Parkway West High School, Community College of Philadelphia, William Penn Foundation, New America, Philadelphia Academies, Inc., Philadelphia Works, Inc., and Keystone College	11 interviews
Le and Franko (2023)	Colorado Department of Education (CDEC) Apprenticeship program	**Study design:** Mixed-methods implementation study (preliminary findings*) **Data sources:** ▪ CDEC internal tracking documents ▪ Interviews with CDEC stimulus program leads, IHEs, and apprenticeship employers (*Brief presents preliminary findings; full evaluation will include additional data sources but source not described)	Not reported
Colleen F. Manning, Margaret Vaughan, Lorraine Deane, and Irene F. Goodman, *A Study of Early Care and Education in Vermont* (Cambridge, MA: Goodman Research Group, Inc., 2009)	Vermont	**Design:** Stakeholder interviews and literature review **Data sources:** ▪ Semistructured interviews with stakeholders including state officials, advocacy group leaders, child care facility directors, funders, and researchers ▪ Review of qualitative and quantitative research from policy papers, legislative action, and available federal and state data to document the demand, supply, and quality of care	Interviews with 21 key stakeholders
Caitlin McLean, Lea J. E. Austin, Marcy Whitebook, and Krista L. Olson, *Early Childhood Workforce Index 2020*. (Berkeley: University of California, Berkeley Center for the Study of Child Care Employment, 2021).	National	**Design:** Review and synthesis of available data, including: ▪ **Educator pay and economic insecurity:** Occupational Employment Statistics (OES) data from the US Bureau of Labor Statistics ▪ **Early educator workforce policies:** National Institute for Early Education Research Preschool Yearbook, Quality Rating and Improvement Systems Compendium—two phases: (1) update information based on agency websites and (2) individual files of state data sent to one or more representative to vary and supplement previous data—and publicly available information such as from the TEACH Early Childhood	Not applicable

Authors	Study setting	Study methods	Sample size
		National center and the National Workforce Registry Alliance ▪ **Family and income support policies:** cross-state databases and supports, and other resources tracking policies nationally, such as the National Conference of State Legislatures and the National Partnership for Women and Families	
Sharrock et al. (2023)	National	**Design:** Survey of community of practice participants **Data sources:** ▪ Survey of approximately 65 people who administer 36 pre-apprentice and apprenticeship programs and had previously participated in community of practice meetings	10 people completed the survey
Simon (2023)	ECEPTS Home Visitor Apprenticeship program	**Design:** Mixed-methods implementation study **Data sources:** ▪ Interviews with ECEPTS leadership and employer administrators ▪ Focus groups with project staff from partner employers ▪ Program-related documents and materials such as outreach materials and meeting notes ▪ Survey data providing apprentices' feedback	Not reported
Simon (2024)	ECEPTS Family Child Care Apprenticeship program	**Study design:** Mixed-methods implementation study **Data sources:** ▪ Interviews with program staff ▪ Focus group of program participants ▪ Review of relevant literature ▪ Participants' written evaluations ▪ College course evaluations	Not reported
Uttley and Horm (2008)	Rhode Island Child Development Specialist Apprenticeship Program	**Study design:** Mixed-methods implementation study **Data sources:** Study #1 ▪ ECERS-R, ITERS-R ▪ Adapted Family Questionnaire assessing parents' perceptions of quality ▪ Survey of director-reported staff turnover and wages	12 apprentice-mentor dyads, totaling 24 participants

Authors	Study setting	Study methods	Sample size
		*For study 1, ECERS-R and ICERS-R were the only reliable set of data, results from the other data sources were not reported Study #2 ▪ Open-ended interviews with apprentices and mentors ▪ 2 surveys assessing participants' satisfaction with the mentoring relationship (contained fixed and open-ended responses)	
West (2022)	Child Care Apprenticeship Program (CCAP) of Pinellas (Florida)	**Design:** Case study **Data sources:** ▪ Semistructured interviews with convenience sample of CCAP advisory committee, coordinators, and instructors ▪ Curriculum and standards document analysis	11 semistructured interview participants

Source: Urban Institute and MEF Associates project team's review of existing research publications.

References

In this report, we include references for different types of publications: (1) research publications we reviewed as part of the environmental scan and cited in this report; (2) nonresearch publications we reviewed as part of the environmental scan and cited in this report; (3) other publications cited in this report; and (4) nonresearch publications we reviewed as part of the environmental scan but did not cite in this report. The other literature includes citations for measures used in research publications, as well as background information about apprenticeships and learning agendas.

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Blough, Joan, Abi Kaka, Misti Conley-Rogers, and Christina Wheeler. 2023. *Early Care and Education Registered Apprenticeships in Michigan*. Lansing, MI: Early Childhood Investment Corporation.

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About the Authors

Tricia DelGrosso is a principal research associate in the Family and Financial Well-Being Division at the Urban Institute. Her research focuses on early childhood research. For this study, she oversaw the environmental scan, led the expert interviews, and led analysis and writing.

Erin Doyle is a research analyst in the in the Family and Financial Well-Being Division. Her research focuses on early childhood research. For this study, she led the environmental scan, supported the expert interviews, and contributed to analysis and writing.

Catherine Kuhns is a senior research associate in the Family and Financial Well-Being Division. Her research focuses on child welfare and public programs that support the well-being of low-income children and families. For this study, she led site visit data collection and contributed to the data collection, analysis, and report writing.

Diane Schilder is a senior research fellow in the Family and Financial Well-Being Division. She leads a range of early childhood research and evaluation projects. She is principal investigator and project director of the Conversion of Enrollment from Head Start to Early Head Start project.

Helena Wippick is a research associate in the Children and Families domain at MEF Associates. Her research focuses on strengthening evidence-based interventions that support low-income and minoritized children and families. She contributed to the report writing.

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