RESEARCH REPORT

Literature on Early Care and Education Apprenticeships

An Annotated Bibliography

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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 people currently working in ECE. ECE Registered Apprenticeship Programs—meaning programs approved by the US Department of Labor (DOL) Office of Apprenticeship 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 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 of these nonregistered 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) within 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 for the field.[1] To develop the 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.

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[1] Tricia DelGrosso, Erin Doyle, Catherine Kuhns, Diane Schilder, and Helena Wippick, *Early Care and Education Apprenticeships Learning Agenda*, OPRE Report #2025-070 (Washington, DC: US Department of Health and Human Services [HHS], Administration for Children and Families [ACF], Office of Planning, Research and Evaluation, 2025).

In this annotated bibliography, we present summaries of the publications we reviewed that emerged from the environmental scan, including the literature search, public call, and interviews with experts. We categorized the publications into "research publications" and "nonresearch publications." The research publications include peer-reviewed journal articles, white papers, and reports and briefs sharing findings from research and evaluation projects. The nonresearch publications include program descriptions, policy briefs and reports, and technical assistance resources and toolkits. We begin with an overview of the publications we reviewed, a description of the research questions that guided the environmental scan, and the methods we used to carry out the scan.

Findings in Brief

We found a total of 44 publications that are relevant to ECE apprenticeships, 16 of which we categorized as research publications. Of these 16 research publications, 12 are summaries of descriptive research studies including implementation, process, and case studies, 3 present findings from literature reviews and discussions with experts, and 1 reviews and synthesizes available data on the ECE workforce. The remaining 28 materials and resources include policy briefs and reports, program descriptions, and technical assistance resources and toolkits.

Appendix A contains citations and summary-level information about the 44 publications included in our review. The table classifies the source (environmental scan, public call for information, or expert recommendation); the publication type (peer-reviewed or grey literature); the name of the apprenticeship program model(s), if applicable; if the publication discussed Head Start;[2] the ECE setting (center, home-based child care [HBCC], or home visiting); age of children ECE providers worked with; whether the apprenticeship program(s) discussed was or were Registered Apprenticeship Programs; and the key topics of interest the publications addressed.

Research Questions and Methods

We conducted this environmental scan to assess what is known about apprenticeships in ECE broadly and Head Start specifically, as well as to identify gaps in the knowledge base about ECE

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[2] Here and throughout this document we use the term "Head Start" to refer to "programs that support children's growth from birth to age 5 through services centered around early learning and development, health, and family well-being" ("Head Start Services," HHS, ACF, Office of Head Start, accessed June 3, 2025, https://acf.gov/ohs/about/head-start). We use the term "Head Start preschool" to refer to services for children ages 3 to 5 and their families. We use the term "Early Head Start" to refer to services for families that have children ages birth to 3 (and may also include services for expectant families).

apprenticeships. Seven questions, spanning five topic areas, guided the scan (table 1). Across all seven research questions, we explored if and how findings varied by (1) the ages of children ECE providers worked with (i.e., infant/toddler versus preschool); (2) funding type (i.e., Head Start funded versus state or local publicly funded versus privately funded); (3) apprenticeship type (i.e., registered versus nonregistered); and (4) setting type (i.e., HBCC versus center-based care versus home visiting).

For this scan's purpose, we defined ECE as including 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 (i.e., those providing coaching support and services to families with children with developmental delays and disabilities).

We searched for information about apprenticeships broadly, including Registered Apprenticeship Programs and nonregistered apprenticeship programs, which include grow-your-own programs. By design, we searched for and then reviewed publications that focused and featured information on ECE apprenticeships, featured ECE apprenticeships (e.g., among other types of apprenticeships and/or types of professional development or career pathway supports for ECE workers), or applied lessons from apprenticeships in other industries to ECE.

TABLE 1
Environmental Scan Guiding Questions, by Topic Area

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: Authors' analysis.

The methods we used for the environmental scan included conducting a focused search for existing research and, in collaboration with OPRE, issuing a public call for materials and resources on ECE apprenticeships. In total, we identified 163 unduplicated publications.

Next, we screened all resources and materials for relevance, which resulted in in-depth reviews of 44 publications. Each resource was evaluated and included if it (1) addressed what is known about ECE apprenticeships; (2) identified gaps in the knowledge base of ECE apprenticeships; or (3) addressed at least one of our research questions (table 1). News articles, webinars, web pages, program descriptions, reports, and briefs without detailed information relating to our research constructs were excluded. After screening, we coded these resources and materials using a structured coding guide. Appendix B includes detailed information about our methodology.

Across the publications included in this review, several key terms emerged. Some publications used different terms when discussing similar concepts. In our summaries of the publications, we relied on the terms used by the authors. In appendix C, we present a glossary of key terms.

In the remainder of this annotated bibliography, we provide a summary description of each of the 44 publications we reviewed. First, we present the 16 research publications in alphabetical order. Next, we present the 28 nonresearch publications in alphabetical order.

Research Publications

Bernardi, Alexandra, JoAnn Hsueh, Sydney Roach, and Lisa Rau. 2024. "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.

This literature review examines strategies for building and sustaining the child care and early education (CCEE) workforce across the country. The literature review surfaced strategies targeting five levers of change: educator economic well-being, educator qualifications and competencies, educator psychological well-being, workplace demands and supports, and CCEE system alignment and unfairness. Apprenticeship is discussed as a possible approach for targeting economic well-being, qualifications and competencies, and CCEE system alignment and unfairness.

The report outlines core components and intended outcomes of apprenticeships based on information surfaced in the scan. According to the report, apprenticeships typically target educators in center-based settings, but some target home-based educators if they can effectively adapt to the program. The duration, requirements, and compensation of apprenticeship programs depend on funding, the culminating degree or credential, and other factors. Typically, all apprenticeships require full-time employment with a sponsor and involve on-the-job learning and mentorship. The stated outcomes of apprenticeships are to promote recruitment, retention, and career progression of early educators, and to improve the quality of care they can provide.

Catalan, Nohemy, and Elli Simon. 2024. "The Impact of Cohort Learning: A Case Study of an ECEPTS Early Educator Apprenticeship." San Francisco: Early Care and Education Pathways to Success.

This report summarizes findings from a case study of the cohort model utilized by the Early Care & Education Pathways to Success (ECEPTS) Early Care and Education Registered Apprenticeship program implemented through the YMCA of the East Bay. This apprenticeship program is supported through training and technical assistance provided by ECEPTS, an industry intermediary. The case study consisted of a survey and semistructured focus group of apprentices. Of the 26 survey respondents, the majority were women, bilingual, and parents of children under 18 years old. Thirty-five percent of respondents identified as Black, and 27 percent identified as Hispanic or Latinx. Fifty-four percent of respondents had a high school diploma or some amount of college coursework.

The study found that apprentices perceive the cohorts as a critical support the program provides. Study participants reported that the cohort model helped motivate them to continue their education, provided social and academic support, and improved their engagement. Within the cohort model, apprentices identified the study groups, knowledge sharing, and teamwork as drivers of success. Based on the findings, the report identified four questions for future research: (1) How do apprentices in other demographic groups, other ECE settings, or other industries experience the impact of cohort learning on their academic experience and professional development? (2) How do academic performance, retention rates, and completion rates in Registered Apprenticeship Programs that integrate cohort learning compare with those that do not? (3) Do apprentices' perspectives on the impact of the cohort model change after completing the program (e.g., three months, six months, and/or one year later)? (4) Do the support and benefits that apprentices gain from the cohort experience persist as their professional lives continue to evolve?

Cheng, I-Fang, Robin Koralek, Adele Robinson, Sue Russell, Deena Schwartz, and Maureen Sarna. 2018. *Career Pathways in Early Education*. Bethesda, MD: Abt Associates.

This report summarizes findings from a literature review and conversations with experts on the early care and education (ECE) workforce conducted by Abt Associates. This is the third report in a series focusing on career pathways in ECE. The literature review included quantitative and qualitative research, policy briefs and recommendations, and descriptive publications from federal agencies and prominent ECE research organizations. Interviews were held with people from Head Start, preschool initiatives, federal and state agencies, community colleges, and national ECE organizations. The report explores the current approaches to ECE career pathways, challenges to ECE workforce advancement, promising practices for ECE workforce advancement, and next steps for researchers. The report highlights Registered Apprenticeship Programs as a promising approach to support ECE employees in obtaining higher education and compensation. The report describes components of West Virginia's Apprenticeship for Child Development Specialists and Vermont's apprenticeship programs, including information about degrees attained, program requirements, partnerships, and eligibility for the program.

The findings highlight challenges to developing career pathways in ECE and participation in career advancement activities by educators. Challenges to developing career pathways include current ECE management models that center the role of directors, lack of public funding for ECE, persistent low wages, risks for benefit cliffs as compensation increases, lack of compensation parity across different ECE settings, and variability in how states and care settings define professional standards. Challenges faced by educators as they try to advance along career pathways include limited financial support for postsecondary education, challenges in transferring credits from prior learning, lack of accessible and affordable professional development, and a shortage of supports particularly for adults without previous experience with higher education and English-language learners. The report also emphasizes the importance of continued data collection and research around the development and evaluation of career pathways in ECE. Identified outcomes of interest include credit-hour completion, certification and degree attainment, and employment progression by setting type, earnings, and benefits. Understanding the synergy between the goals of improving child care quality and educator economic advancement was also surfaced as a future step in research.

CNM and AWare Research Solutions. 2023. *Camp Fire School Readiness Program & Early Education Apprenticeship Program Evaluation Report 2021–2022 School Year.* **Fort Worth, TX: Camp Fire First Texas.**

This report summarizes findings from a process evaluation of two cohorts of the Camp Fire Early Education Apprenticeship Program (EEAP) in Texas. EEAP is the first Registered Apprenticeship[3] Program in the state of Texas. It is a one- to two-year program. Twenty-three apprentices were involved in the pilot cohort of the program in 2020, and 29 participated the following year. Program participants were majority female and represented a wide range of demographic and educational backgrounds and were placed in child development centers to complete their on-the-job training. Twenty-two of the 24 classrooms with apprentices showed improvement in teaching best practices over the course of the school year; however, classrooms needed improvement on measures of emotional and instructional support. Teaching practices were evaluated using the Classroom Assessment Scoring System[4] and the Best Practices Observation Tool. Apprentices who completed the program experienced wage growth of up to an average of $2.90 per hour, with average wages of up to $15.42.

The authors made several suggestions for refinement of EEAP based on the evaluation findings, which could be applied to other apprenticeship programs. The recommendations include developing data-sharing agreements with higher education institutions to be able to track graduates' postprogram academic outcomes and following up with graduates to track postprogram outcomes including career and educational progression, wage increases, and duration within their center and the field. In regard to recommendations for future evaluations, the authors suggest (1) consistently measuring and reporting on all apprentices' classroom quality at beginning and end of the year, with the capacity for rapid response and improvement based on the findings; (2) standardizing wage reporting on a consistent, hourly basis; and (3) collecting standardized reasons for leaving the EEAP program in apprentice exit interviews.

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[3] The United States Department of Labor has trademarked the term "Registered Apprenticeship." See "Registered Apprenticeship Program," Apprenticeship USA, accessed January 7, 2025, https://www.apprenticeship.gov/employers/registered-apprenticeship-program.

[4] Karen M. La Paro, and Robert C. Pianta, "Classroom Assessment Scoring System," *The Elementary School Journal* 104, no. 5 (2012), https://doi.org/10.1086/499760.

Copeman Petig, Abby, Raúl Chávez, and Lea J. E. Austin. 2019. *Strengthening the Knowledge, Skills, and Professional Identity of Early Educators: The Impact of the California SEIU Early Educator Apprenticeship Program.* **Berkeley: University of California, Berkeley, Center for the Study of Child Care Employment.**

This report summarizes findings from an evaluation of California's Early Educator Apprenticeship programs, which include programs for center-based child care, family child care, and Head Start providers. Findings are based on results from an online survey of current and past apprentices, interviews, and focus groups with apprentices and other key informants, and an analysis of administrative data. The sample included 33 respondents working in Head Start, 13 respondents working in a center-based child care, and 55 family child care providers. The majority of apprentice respondents identified as Latina or Black, were an average age of 45, and had 11 years of experience working in early care and education (ECE) on average. About half of respondents reported a household income of below $35,000 annually. The educational attainment of apprentices before the program ranged from having some ECE training to having earned a bachelor's or graduate degree.

The evaluation found that the program had a positive impact on apprentices' interactions with children and families; their sense of professional identity, confidence, and agency; their sense of professional mobility; and their well-being. According to apprentices, the following program components were key to their success: support from supervisors, mentors, and coaches; financial support for coursework and related supports; support from course instructors; and support from classmates. Apprentices emphasized the importance of flexible schedules and locations to participate in coursework, wraparound services, the cohort-based model, and the financial support provided to them. Academic challenges, particularly as a result of heavy courseloads, the rigor of coursework, and coursework not offered in apprentices' primary languages, were identified. Apprentices also struggled to balance program and family-related responsibilities. The apprenticeship program faced challenges with understaffing and collaborating with higher education institutions. In particular, program stakeholders noted challenges recruiting higher education instructors who were willing and capable of adapting their own schedule and teaching locales, as well as teaching practices, to meet apprentices' needs. The authors noted that future evaluations should examine workplace environments and incorporate direct observation of teaching practices.

Gardner, Madelyn, Hanna Melnick, Beth Meloy, and Jessica Barajas. 2019. *Promising Models for Preparing a Diverse, High-Quality Early Childhood Workforce.* **Palo Alto, CA: Learning Policy Institute.**

This report summarizes challenges and effective approaches for preparing an early childhood workforce that represents a range of backgrounds explored through in-depth case studies. One case study focused on California's Family Child Care Apprenticeship program. Because family child care providers are typically self-employed, they cannot be defined as "apprentices" who must be sponsored by an employer. The Family Child Care Apprenticeship program in California has instead been registered as an on-the-job training program, though its components closely align with apprenticeship programs. The case studies consisted of interviews with 7 program faculty and staff and 21 current or former apprentices, observations of program participants, reviews of courses and other key program components, and as analysis of administrative data on apprentice characteristics, degree attainment, retention, wages, and job placements.

Early educators in degree programs typically face challenges such as inability to afford college coursework; balancing work, school, and household responsibilities; navigating higher education institutions; and coursework that is not contextualized or practical for early educators. These challenges are even more profound for students whose first language is not English and students of color. Common approaches to supporting a workforce that represents a range of backgrounds across the three case study sites are building local educator pipelines and pathways, relationship-building to promote persistence and success, clinical practice in feedback-rich environments, multifaceted student supports that promote college success, well-supported program staff with a range of backgrounds, and community partnerships and funding. Family child care providers face additional challenges such as isolation in their workplace and difficulty accessing supports and professional development. Identified supportive components of the Family Child Care Apprenticeship program include courses offered in the evenings and at convenient locations, instructors who contextualize learning, on-site advising and coaching, and direct financial support through free coursework and wage stipends. The program provides laptops to address challenges related to technology faced by educators and provides bilingual coursework, when possible, which was identified as a facilitator of student success by program participants. Data suggest that the program has been successful in recruiting educators of color, educators who speak a first language other than English, and educators who care for mixed-age groups including infants and toddlers. Inability to continue providing wage supplements after completion of the program is identified as a major obstacle to sustainability of the program. The authors emphasize the need for increased early educator compensation at the system level.

Kelmenson, Sophie, Allison Forbes, and Nichola Lowe. 2021. *Report on the Early Childhood Education Pre-Apprentice Model*. **Chapel Hill: University of North Carolina at Chapel Hill Center for Regional Economic Competitiveness.**

This report provides an overview of the Parkway West Early Childhood Educator Pre-Apprenticeship program in Philadelphia and was informed by interviews with 11 stakeholders within the program and its partners.[5] This program is housed at Parkway West High School and is carried out through multiple partnerships including with the District 1199C Training and Upgrading Fund and the nonprofit Philadelphia Academies, Inc. The early childhood education career and technical education (CTE) program has multiple pathways into the early educator workforce and supports available to students. In developing the program, staff at Parkway West High School worked closely with higher education partners to prepare to support students in the program by adapting coursework, strengthening college and exam preparation, and building an understanding of CTE and early childhood education (ECE) pathways. Philadelphia Academies, Inc., coordinates internships, establishes and maintains relationships with ECE providers, and provides customized case management to students and participating employers. The program also leverages a partnership with the District 1199C Training and Upgrading Fund to provide a continuous pathway into a full apprenticeship program and additional supports to students. First Up provides technical assistance related to CTE and internship curriculum development. Funding comes from federal, state, and city sources as well as the grants from the William Penn Foundation.

Identified challenges faced by participating organizations in establishing this program were developing industry-recognized practical training and education; linking high school career preparation directly to employment, apprenticeships, and higher education; creating paid learning opportunities for students; establishing connections with employers; and providing credit for previous work experience. Parkway West created a program that offered multiple pathways for students into employment, higher education, and apprenticeships, included relevant on-the-job experience and coursework, and leveraged funding to provide training wages to students. These program components made the program more accessible to students with low incomes.

Le, Alice, and Meg Franko. 2023. "Apprenticeship Program." Denver: University of Denver Butler Institute for Families.

This brief provides an overview of the apprenticeship program in Colorado, outlines an ongoing evaluation of the program, and presents preliminary findings from the evaluation. The preliminary findings presented in the brief are informed by the Colorado Department of Early Childhood's internal

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[5] Limited information on data collection is provided.

documents and interviews with higher education partners, apprenticeship employers, and Colorado Department of Early Childhood staff.[6] The apprenticeship program in Colorado is carried out through three institutions of higher education: Red Rocks Community College, Colorado Mesa University, and the Colorado Springs campus of the University of Colorado. It is funded by state and federal stimulus funds. The evaluation will examine questions about implementation successes and challenges from the perspective of higher education institutions, participation in the program, whether the program can achieve the goals of preparing a workforce that represents multiple backgrounds, and whether the program is an effective approach to support early educators in their pursuit of higher education.

Preliminary findings show that participants in the program are primarily White and female; however, demographics vary significantly by higher education institution. Stakeholders agree that the program has been successful in supporting apprentices, mentors, and apprentice employers. They note that varying mentorship structures across institutions will likely affect the quality of experience for apprentices. The higher education partners also noted that financial supports should be tailored to employers' and apprentices' specific needs. Challenges faced in implementing these programs included recruiting mentors and tailoring the program to meet federal requirements. Partnership with the State Apprenticeship Agency in Colorado helped facilitate the registration process. This partnership, as well as partnerships between higher education institutions, helped strengthen the program by providing opportunities for knowledge sharing and advocacy for apprenticeships more broadly. Moving forward, the program needs to identify new, sustainable funding sources. Stakeholders also recommend implementing bilingual coursework, training, and professional development to encourage the enrollment of an apprentice cohort than includes more people who speak languages other than English.

Manning, Colleen F., Margaret Vaughan, Lorraine Deane, and Irene F. Goodman. 2009. *A Study of Early Care and Education in Vermont.* **Cambridge, MA: Goodman Research Group, Inc.**

This report summarizes the early care and education landscape in the state of Vermont. The report includes a literature review, analysis of data from interviews with 21 key stakeholders, and secondary data analysis. It explores supply and demand for early childhood education services, funding for early care and education, and innovative approaches to addressing identified challenges. The Vermont Child Care Apprenticeship program is identified as one of many programs that aims to address early childhood educator professional development and credentialing. The program is sponsored by the Vermont Child Care Industry and Careers Council, and registered apprentices and mentors work only

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[6]   Limited information on data collection is provided.

in full-day, full-year regulated early childhood programs. The report summarizes findings from interviews with stakeholders who reported the program is most effective in center-based care settings. The authors note that participation in the apprenticeship program is concentrated in certain geographic regions—particularly Chittenden County, which includes the state capital.

McLean, Caitlin, Lea J. E. Austin, Marcy Whitebook, and Krista L. Olson. 2021. *Early Childhood Workforce Index 2020*. **Berkeley: University of California, Berkeley Center for the Study of Child Care Employment.**

The *Early Childhood Workforce Index of 2020* provides an overview of the state of the early education workforce, challenges facing this workforce, and key policy areas where states can intervene to improve outcomes for children and providers, as well as the early care and education system overall. Interrelated state workforce policies are categorized into educational requirements and supports, work environment, compensation, workforce data, and financial resources. Income and family supports are also explored. The report analyzes and scores states based on progress across these seven policy areas using data from nationwide databases, the National Institute for Early Education Research *State of Preschool Report*, state early childhood agency websites, and state data files. Apprenticeship is explored as one of many degree attainment supports for early educators. The index includes a table of apprenticeship programs nationwide as of 2020, which provides information on the registered status and credential components of each existing program.

Although limited evidence on apprenticeship programs exists, the index suggests research supports the effectiveness of certain strategies used by apprenticeship models in promoting early educator degree attainment. These components include cohort-based learning, targeted advising, classes at nontraditional hours and locations, and financial support. However, apprenticeship programs have limited reach because of low public investment. The report emphasizes the necessity of longitudinal data for understanding the workforce broadly and highlights the importance of understanding who has access to educational supports such as apprenticeship programs.

Sharrock, Emily, Annie Schaeffing, Lily Rosenthal, and Thelma Wong. 2023. *A Snapshot of ECE Apprenticeship Programs.* **New York: Bank Street College of Education.**

This report summarizes findings from multiple sources of data including interviews, a survey of 10 program administrators, and discussions during community of practice meetings—collected by Bank Street in 2022 to depict the experiences of early educator apprenticeship program administrators. This effort was part of Bank Street College's Learning Starts at Birth Community of Practice initiative, which was designed to offer administrators the chance to discuss the facilitators and challenges they

face in offering high-quality apprenticeship programming. Key takeaways include that the majority of programs (90 percent) had four or more partners involved in the apprenticeship program; 70 percent of surveyed programs offer a Child Development Associate credential (the most common entry-level requirement); more than half of surveyed respondents (60 percent) were not receiving funding from the Department of Labor; and there is significant variability among programs in how mentors are selected, prepared, and compensated. It also offers spotlight features on apprenticeship programs in Colorado, Vermont, and Rhode Island.

The report offers several research questions for future investigation and highlights a need for incorporating the voice of early educators in the planning and design of programs to ensure they are responsive and attuned to their experiences and goals. The five questions for future research are (1) how can systems of job-embedded support be strengthened to bridge the gap between theory and practice? (2) How do we define and communicate the role of a mentor in a way to make it attractive and meaningful for experienced educators? (3) How do we support educators to learn the art of coaching and reflective supervision to strengthen the mentoring experience? (4) How can mentoring and coaching approaches be best customized or designed in family child care settings? (5) How are existing early educator apprenticeship programs creating opportunities for current and former apprentices to codesign aspects of the program to ensure they are truly responsive to the field's needs?

Simon, Elli. 2023. *Advancing the Design and Development of ECE Apprenticeships: Implementation Evaluation of an ECEPTS Home Visitor Apprenticeship.* San Francisco: Early Care and Education Pathways to Success.

This report summarizes the results of an implementation evaluation of the Early Care & Education Pathways to Success (ECEPTS) Home Visiting Apprenticeship model. Findings are informed by interviews with ECEPTS staff and other partner leadership members, focus groups with program staff from partner employers, and a survey collected from apprentices each semester eliciting feedback. The Home Visitor Apprenticeship is a partnership between ECEPTS, the Child Care Resource Center, Antelope Valley College, and Antelope Valley Partners for Health, and is funded with a $500,000 grant from the California Apprenticeships Initiative. The program designers made a particular effort to recruit and prioritize selection of apprentices who reflected the background of families served in home-visiting programs. Of the final cohort of 15 apprentices, 20 percent identified as Black, 80 percent identified as Hispanic, and close to 75 percent had received home-visiting services in the past.

The implementation evaluation explores challenges, facilitators, and lessons learned for the following components of the program: outreach, recruitment, selection, and enrollment; related supplemental instruction; and on-the-job learning. Overall challenges faced in implementing this program included COVID-19 related challenges such as scheduling delays and needing to adapt coursework and on-the-job learning, staff shortages, insufficient funding for training, and challenges collaborating across multiple partner organizations. Identified facilitators of program success were the previous experiences of ECEPTS and the Child Care Resource Center in designing apprenticeship programs, monthly learning community meetings with mentors, the availability of ECEPTS to troubleshoot problems with implementation faced by other partners, relationship-building between mentors and apprentices, the coordination between field placement staff and college instructors, and ongoing support provided to mentors by supervisors. The evaluation makes the following recommendations for future design and implementation of apprenticeship programs: dedicate additional time to planning and design and internal partnership development and processes for collaboration; provide additional training for mentors, college instructors, and apprentices before implementation; set the expectation for all partner organizations to be flexible throughout implementation; and identify sustainable funding streams. The authors note that creating sustainable funding streams is beyond the realm of program-level improvements.

Simon, Elli. 2024. *A Professional Development Pathway for Spanish-Speaking Family Child Care Providers: Program Report of an ECEPTS FCC Apprenticeship*. San Francisco: Early Care and Education Pathways to Success.

This report summarizes the results of an implementation evaluation of the Early Care & Education Pathways to Success (ECEPTS) Family Child Care Apprenticeship program. Findings are informed by interviews with program staff, focus groups of apprentices, a literature review, and program and course evaluation documents. The program targets Spanish-speaking family child care providers in California and provides coursework and on-the-job learning culminating in a California Child Development Associate Teacher Permit. To support family child care providers, the program recruited course instructors, mentors, and tutors who had experience working with this population. They also adapted certain components of the program, such as providing all coursework and textbooks in Spanish, requiring the mentor to attend courses to be able to better provide support to apprentices, and hosting classes at one of the program partners rather than the college campus.

Apprentices identified that personal connections with other students, the mentor, and the tutor helped facilitate their success in the program. Ultimately, 15 out of 20 apprentices in the original cohort graduated with high grades, and those who did not finish cited personal rather than

programmatic reasons. The report identifies obstacles faced by family child care providers when pursuing higher education including long workdays, low compensation, and limited literacy and experience with systems of higher education. Additionally, family child care providers are often undervalued and excluded from workforce development initiatives and policies within the wider early care and education field because of perceptions that they provide lower-quality or inadequate services. There are also challenges to developing apprenticeship programs for these educators. Because these providers are small business owners and are frequently self-employed, they cannot qualify for Registered Apprenticeship Programs that require employer sponsorship. The California program instead registered as an on-the-job training program. This approach limits family child care apprenticeship programs' ability to secure the sustainable and necessary funding from the Department of Labor provided to Registered Apprenticeship Programs.

US Department of Labor (DOL), Women's Bureau. 2019. *Advancing Opportunities for Women through Apprenticeship.* **Washington, DC: DOL.**

This guide created by the Women's Bureau of the Department of Labor explores apprenticeship programs that promote success for women through four case studies. One of the case studies focuses on the Philadelphia Early Childhood Education Apprenticeship program. Case studies included site visits; interviews with program staff, partners, and participants; and a review of program publications and data.

Women make up a minority of apprenticeship program participants and are overrepresented in social service industries. They face challenges to participation in apprenticeship programs such as finding affordable child care. The guide identifies the following strategies that promote both participant and program success across the case studies: personalized support before and after the program, role models who have shared experiences, financial assistance particularly for child care and time spent on coursework, approaches that bolster self-confidence, strategic partnerships, rigorous application and selection processes, alignment of training to the industry, and leveraging the role of intermediaries. Facilitators of success for the Philadelphia apprenticeship program include clear communication and shared understanding between partner organizations, engagement and feedback from employers through regular apprenticeship committee meetings, and ensuring mentors are trained to be effective leaders and communicators. Though there is limited evidence on the program's impact, apprenticeship stakeholders have noted tangible changes in classroom practices since program implementation. Apprentices are also evaluated at 6 months and 18 months using the Classroom Assessment Scoring System, though results are not described.

Uttley, Clarissa M., and Diane M. Horm. 2008. "Mentoring in Early Childhood Professional Development: Evaluation of the Rhode Island Child Development Specialist Apprenticeship Program." *Journal of Early Childhood Teacher Education* **29 (3): 237–52.** https://doi.org/10.1080/10901020802275286.

This journal article summarizes two evaluation studies of the Rhode Island Child Development Specialist Apprenticeship Program. The evaluations were informed by Environmental Rating Scale results, an adapted version of the National Association for the Education of Young Children Family Questionnaire, a director survey, a satisfaction survey for apprentices and mentors, and open-ended interviews with apprentices and mentors. Piloted in 2003 and funded through a federal apprenticeship program—the Quality Child Care Initiative—this apprenticeship program combines 4,000 hours of on-the-job training with 24 college credits that encompass general education and early childhood education specific coursework. The first cohort of the program consisted of 21 apprentices with limited experience in early care and education. All apprentices in the first cohort were female and 9 out of 21 were White.

The evaluation describes program outcomes, including staff turnover, wages, classroom quality, and apprentice-mentor relationships. Because of challenges encountered through the data collection, no results were reported for staff turnover or wage effects. Results from Early Childhood Environmental Rating System Revised (ECERS-R)[7] and Infant/Toddler Environmental Rating System Revised (ITERS-R)[8]—two Environmental Rating Scales used in early care and education—indicate that classroom quality improved after the program was implemented for both infants and toddlers and preschool classrooms, though the results were only significant for the preschool level. Using a combination of surveys and interviews, the study found that apprentices expressed neutral satisfaction with their relationship with mentors, while mentors were overall satisfied. Qualitative data surfaced important themes affecting satisfaction such as course-load and workload of apprentices, challenges balancing family responsibilities, and the importance of apprentices and mentors working in the same classroom and with the same age group.

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[7] Thelma Harms, Richard M. Clifford, and Debby Cryer, *Early Childhood Environment Rating Scale (Rev. ed.)* (New York: Teachers College Press, 1998).

[8] Thelma Harms, Debby Cryer, and Richard M. Clifford, *Infant/Toddler Environment Rating Scale (Rev. ed.)* (New York: Teachers College Press, 2003).

West, Suzanne. 2022. "Strengthening Child Care Training, Curriculum, and Credentialing: A Case Study of the Child Care Apprenticeship Program of Pinellas." Dissertation. Tallahassee: Florida State University College of Education.

This dissertation is a case study exploring the Child Care Apprenticeship of Pinellas. Semistructured interviews with 11 people, including coordinators, instructors, and advisory board members of the program, examine perceptions of the curriculum and credential alignment of the program. The program is registered through the State Apprenticeship Agency and combines 288 hours of coursework with 4,000 hours of on-the-job learning with a mentor. At the time of the study, the program was shifting to align with the national CDA credential.

Findings suggest that program participants believe the curriculum should adapt to reflect the reality of the child care landscape by aligning with the national Child Development Associate credential and offering greater rigor and flexibility in the coursework. Participants highlight that more supports are necessary for apprentices, especially for participants with learning disabilities, such as providing instruction around technology.

Nonresearch Publications

Baronak, Keely O., and William M. Baronak. 2023. "Honoring the Power of Place: Rural Educator Development in Early Childhood & Elementary Education Using a Childcare Apprenticeship Model." *Thresholds in Education* 46 (3): 480–94.

This peer-reviewed journal article presents a practitioner perspective. It explores apprenticeships and other "place-based" approaches as possible solutions to teacher workforce shortages, particularly in rural communities. The article provides an overview of Registered Apprenticeship Programs and apprenticeships in education, and it highlights the Carlow University Registered Apprenticeship model in Pennsylvania. The Carlow model offers multiple pathways into the apprenticeship program for high school students and adults and provides supports to students such as a dedicated financial aid advisor, discounted tuition, mentors, access to technology necessary for coursework and Wi-Fi, and a yearly lending library of textbooks. Students are required to complete 24 college credits in coursework and 120 hours on the job. The program is funded through a mixture of discounted tuition, Free Application for Federal Student Aid and other financial aid to the student, and grants and endowments from private foundations.

Identified challenges faced by early childhood educators in rural areas in pursuing further education and training include limited financial resources, scheduling conflicts, access to technology and high-speed internet, difficulty navigating systems in higher education, child care, and beliefs in their own abilities. Difficulty obtaining transcripts from previous institutions, particularly due to unpaid tuition or number of years since previous coursework, was highlighted as an obstacle to participation in the Carlow apprenticeship program. Some facilitators to participation in apprenticeship programs were described in the paper, such as offering coursework online, offering professional development on-site in the evening, increasing access to technology, delivering coursework in locations where educators already work, and reducing or eliminating the cost of the program for educators through discounted tuition and financial aid support.

Bipartisan Policy Center. 2019. "Registered Apprenticeships: A Viable Career Path for the Early Childhood Workforce." Washington, DC: Bipartisan Policy Center.

This policy brief argues that Registered Apprenticeship Programs are a potentially effective strategy for creating career pathways for early childhood educators. It outlines components of Registered Apprenticeship models and highlights three existing early care and education (ECE) Registered Apprenticeship Programs. The West Virginia Apprenticeship for Child Development Specialist program is available for educators ages 18 and older who are currently employed by an early

childhood center and culminates in a US Department of Labor "journeyperson" certificate. The certificate provides a pathway into associate and bachelor's degree programs. The Philadelphia ECE Apprenticeship program is designed for educators who have already received their Child Development Associate credential and builds toward an associate degree. The Colorado Child Care Development Specialist Apprenticeship culminates in the Department of Labor designation of "child development specialist" and the completion of the Colorado Childhood Professional Credential. Apprentices must be ages 16 and older. Each of these programs combines coursework with on-the-job training and mentorship. The report also makes recommendations to Congress, the US Department of Labor and US Department of Health and Human Services, states, philanthropic organizations, and community leaders to promote the development and expansion of ECE apprenticeships, utilizing new and existing efforts.

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.**

This policy report summarizes the seven early care and education (ECE) Registered Apprenticeship Programs that existed in the state of Michigan at the time the report was written and offers recommendations to continue building on this workforce strategy within the state. The authors conducted interviews with state sponsorship and intermediary agencies to inform the report. ECE Registered Apprenticeships in Michigan are carried out through various sponsorship and partnership organizations. All programs include employer involvement, on-the-job learning, coursework, compensation for progress and skill attainment, and industry-recognized credentials, which are the primary components of any Registered Apprenticeship Program. The majority of programs in Michigan culminate in a CDA and apprenticeship certificate, and a couple culminate in an associate degree. Partnership with Michigan Works! Agencies, the statewide workforce development system, helps support apprenticeship programs because of the agencies' experiences securing various funding sources and sponsoring intermediaries. The Child Care Innovation Fund provides technical assistance throughout the state.

The report identifies two broad issues that hinder the expansion of ECE Registered Apprenticeship Programs: compensation of early educators and program funding challenges. The low compensation of early educators not only presents challenges for ECE staff, but also precludes ECE apprenticeships from obtaining policy and financial support from organizations that prioritize apprenticeships that lead to higher wages. ECE Registered Apprenticeship Programs face obstacles in obtaining additional funding because of the complexity of funding sources and the limited capacity of staff. Lack of sufficient funding prevents programs from carrying out essential components of the

program such as outreach to employers, compensation bumps for apprentices, and incentives for employers and mentors. The creation of employer networks is highlighted as a facilitator for knowledge sharing and collaboration. The authors make several recommendations to expand apprenticeships including additional grants for design and expansion, increased technical assistance, and statewide efforts to improve educator compensation.

Clark, Mitchell. 2023. "Apprenticeships: A New Pathway for Early Childhood Professionals." Lincoln: First Five Nebraska.

This policy brief describes the basic components of Registered Apprenticeship Programs in early care and education (ECE) and outlines how such a program could be leveraged in Nebraska. The brief describes how Registered Apprenticeship Programs in ECE fit into typical career and technical education frameworks at both the secondary and postsecondary levels, describes the credential pathways and position options for early childhood educators, and the settings in which ECE Registered Apprenticeships can be implemented. The authors also describe funding streams that can be leveraged at the state and federal levels and the program components that can serve as entry points to funding Registered Apprenticeship Programs. Partners in Nebraska are currently working to identify components of a successful statewide model and have contracted the Child Care Services Association, which is a national intermediary registered with the US Department of Labor, to provide consultation and technical assistance in the development process.

The brief emphasizes the role of mentors in effective programs and describes best practices related to mentorship. These best practices include matching apprentices with mentors who have completed the degree they are pursuing and matching bilingual mentors with bilingual apprentices when possible. Ultimately, the author posits that ECE Registered Apprenticeships are an avenue through which to address obstacles faced by early childhood professionals, such as lack of financial resources, complexity of postsecondary institutions, and coursework not offered in professionals' primary languages.

Dowsett, Chantelle, Julianna Carlson, and Dale Epstein. 2019. "Spotlight on Pennsylvania's Early Childhood Education Apprenticeship Program." Rockville, MD: Child Trends.

This is a program description of Pennsylvania's Early Childhood Apprenticeship Program developed and implemented by the District 1199C Training and Upgrading Fund. The program description is informed by interviews with state and local leaders. Staff at the District 1199C Training and Upgrading Fund had observed a trend of partial degree completion within segments of the early care and education (ECE) workforce in Philadelphia, which motivated them to develop an apprenticeship

program that would build on early educators' existing skills and experience. The article outlines basic components of apprenticeship models such as academic supports, community college enrollment, and on-the-job learning, and provides details on the Pennsylvania model's execution of these components.

Highlighted obstacles to developing ECE apprenticeship programs include a lack of a centralized funding source and the need to build the capacity of four-year colleges that have less awareness of the benefits of degree-based apprenticeships and lack the infrastructure for on-the-job training. The authors credit certain components of the model, such as providing access to bridging coursework, cohort-based programming, and mentors, with its success and notes that these features have made the program more appealing to prospective participants.

Dwyer, Tara. 2023. "Apprenticeship Kick-Start Guide." Alexandria, VA: National Head Start Association.

This toolkit adapts a design and implementation guide for Registered Apprenticeships created by the US Department of Labor for the context of Head Start and early care and education (ECE) apprenticeships. The five basic implementation steps are (1) explore program options; (2) partner with other organizations; (3) design the detailed components of the program such as on-the-job learning and coursework; (4) register the apprenticeship program; and (5) launch the program while making efforts to track outcomes and progress of apprentices. For each implementation step, the guide outlines key considerations and examples relevant to ECE apprenticeships.

Elliott, Diana, and Robert Lerman. 2020. "Competency-Based Occupational Framework for Registered Apprenticeship: Early Childhood Educator." Washington, DC: Urban Institute.

This resource presents a competency-based framework for early childhood educators developed by the Urban Institute for the US Department of Labor, and it outlines how the proposed competency-based framework can be used to develop and implement an early care and education (ECE) Registered Apprenticeship Program. The resource provides an overview of the early childhood educator occupation, necessary attitudes and behaviors, apprenticeship prerequisites, pathways, credential requirements, and job functions. The resource further identifies competencies associated with each job function and performance criteria to assess those competencies. The authors emphasize that while sponsors can customize their apprenticeship programs, applications for Registered Apprenticeship Programs should reference a significant number of job functions and competencies identified in this framework. "Cross-Cutting Competencies" are also outlined, which include skills and attitudes that are necessary across different occupation types. The primary job functions identified for early childhood educators are (1) establish and maintain a safe, caring, and healthy learning environment; (2) plan and

implement intentional and developmentally, culturally, and linguistically appropriate learning experiences; (3) observe, document, and assess children's learning and development; (4) develop reciprocal, culturally responsive relationships with families and communities; (5) advance and advocate for an effective early childhood education profession; and (6) engage in reflective practice and continuous learning. The authors highlight which sections of the resource are most helpful for different steps in the process of developing an ECE apprenticeship program—for example, pointing curriculum developers to the "Detailed Job Functions" section.

Everitt, Shay, Julie Morris, Patrick Gill, Ali Lozano, Stephanie Phipps, and Megan Burk. 2019. "Early Childhood Apprenticeship Programs: Creating a Pipeline of Highly-Qualified Teachers." Houston: Children at Risk.

This policy brief describes the state of the child care workforce, apprenticeships' potential to address the challenges the workforce faces, the process of creating child care apprenticeship programs, and ways that state and federal governments can support these initiatives. Low educational standards, low wages, low supply of quality care, and high turnover all plague the child care workforce. Apprenticeships provide a potential solution to many of these challenges by creating a supported career pathway to higher credentials and higher wages for child care providers. The essential components of any apprenticeship program, recommended by the US Department of Labor, are employer involvement, on-the-job learning, related coursework, reward for skills gains, and a credential or a degree. For each of these components, the brief provides examples of ways the state of Texas is already working to improve the child care workforce—for example, through scholarships and other initiatives to promote educator preparedness. The brief outlines four basic steps for creating an apprenticeship program and elaborates on potential funding sources at the federal, state, local, and private levels. Multiple considerations for programs are highlighted, including the importance of multiple entry points into the program depending on previous educational attainment; cohort-based learning, including directors, home-based providers, infant and toddler educators, and dual-language apprentices; and coordinating with shared services alliances. Shared services alliances are collaboratives of providers striving to provide quality care who share best practices and resources. These alliances can also be promising avenues for recruiting and providing employment for apprentices. Finally, the brief provides program descriptions of the apprenticeship models developed by the District 1199C Training and Upgrading Fund and Early Care and Education Pathways to Success.

Franchett, Audrey, Kate Steber, and Dale Epstein. 2019. "Spotlight on the Montana Early Childhood Apprenticeship Program." Rockville, MD: Child Trends.

This is a program description of the Montana Early Childhood Apprenticeship Program (MACEP) informed by interviews with state and local leaders. The authors outline a brief history of the program's development, program requirements, funding, and participation levels over recent years. MACEP is a Registered Apprenticeship Program funded by Child Care Development Fund dollars and is implemented through a partnership between a state agency, the Early Childhood Services Bureau, the Department of Labor and Industry, and Montana State University's Early Childhood Program. At the time the program description was written, more than 250 apprentices had completed the program.

The co-management structure and roles of each partner are described in depth, and the authors highlight how sharing responsibilities has allowed the program to succeed, particularly through creating opportunities for the higher education partner to focus on providing support services to apprentices. The authors identified a significant challenge in the early stages of developing this apprenticeship program. Though the Department of Labor and Industry was an effective partner for understanding the requirements of Registered Apprenticeship Programs statewide, they lacked the knowledge and networks within the early childhood education field to effectively identify and recruit potential early childhood educator apprentices. As a result, Montana State University's Early Childhood Program was brought in to build recruitment systems and establish networks between the Department of Labor and Industry and early childhood education communities to address this challenge.

Friedlander, Amy, and Peter Chomko. 2018. "Program Tool Kit: CDA to Associate's Degree Early Childhood Education Registered Apprenticeships." Philadelphia: District 1199C Training and Upgrading Fund.

This toolkit is a resource for programs seeking to design and implement a Registered Apprenticeship Program for early childhood educators modeled on the program developed by the District 1199C Training and Upgrading Fund. The authors begin by summarizing the program design, on-the job learning components, compensation increases, financing, and partnership structure of the Philadelphia Early Childhood Educator Registered Apprenticeship Program. Motivation for the program originated from a report describing the challenges and needs of the early care and education (ECE) workforce and the citywide expansion of Pre-K services for families with low incomes, which also mandated additional teacher requirements and compensation levels. In designing the program, the higher education institution partnered with a technical assistance provider to align course competencies with

National Association for the Education of Young Children competencies. Bridging coursework, cohort-based learning, and the contextualization of general education courses are highlighted as key aspects of the program's higher education component. The toolkit also emphasizes and provides examples of successful wage step structures and supports for on-site coaching to facilitate on-the-job learning.

The implementation steps for a successful multi-employer approach to an ECE Registered Apprenticeship Program are (1) determine the need for ECE teachers with advanced degrees; (2) identify funding to support planning and implementation; (3) identify an apprenticeship program intermediary and partners; (4) develop an implementation plan; (5) define the higher education apprenticeship components; (6) define the coaching model; (7) recruit employer partners; (8) identify apprentice candidates; (9) register the apprenticeship program; (10) initiate the apprenticeship program; and (11) evaluate the apprenticeship model. These implementation steps will often be carried out simultaneously. For each implementation step, the toolkit provides a list of considerations and resources to guide programs and partnerships. Shared understanding and clearly defined roles and responsibilities between multiple partners are described as critical to the design and implementation processes. The document also contains resources for designing wage schedules, budgeting for program design and implementation, and implementing standards for the Registered Apprenticeship Program created by the District 1199C Training and Upgrading Fund.

Friedlander, Amy, and Cheryl Feldman. 2018. "Philadelphia Early Childhood Education Apprenticeship Program: Support for the ECE Workforce and the Children They Teach." Philadelphia: Public Health Management Corporation Early Childhood Action Collective.

This is a program description of the Philadelphia Early Childhood Education Apprenticeship Program, developed by the District 1199C Training and Upgrading Fund. The resource describes program components such as how the program was originally developed, required coursework and on-the-job learning, credentials attained, and program funding. Participants in the apprenticeship program receive academic supports such as bridging coursework, academic advisors, facilitated study groups, and cohort-based learning. Workplace supports include coaching and monitoring of competencies and associated compensation increases. The program partners with the Community College of Philadelphia, TEACH scholarships, and the Delaware Valley Association for the Education of Young Children, which provides training and technical assistance to on-site coaches. The roles of each partner organization are outlined in detail. At the time the snapshot was written, the program had a 90 percent retention rate, apprentices had an average GPA of 3.5, and the average wage increase ranged from $2 to $3 from program start to finish.

Hofstetter, Jacob, Alexis Fintland, and Maki Park. 2022. "Apprenticeship Programs Are a Promising Solution to Bring More Multilingual Workers into Early Childhood Field." Washington, DC: Migration Policy Institute.

This blog post written by the Migration Policy Institute argues for the potential of early childhood education and care apprenticeships to engage multilingual and multicultural workers in the early childhood education field. Immigrants make up a large portion of the early childhood education workforce but tend to be concentrated in the lowest-paying positions and face multiple obstacles to attaining higher credentials such as limited English proficiency, exclusionary eligibility requirements, and the high cost of pursuing further training and education. The authors argue that apprenticeships can address many of these obstacles faced by immigrant workers, especially if programs consider using literacy and language supports; integrating best practices for English-language learners in coursework; eliminating formal educational requirements; targeting outreach to family, friend, and neighbor providers and parents of children enrolled in bilingual programs; and partnering with high school career and technical and Workforce Innovation Opportunity Act adult education programs. Additionally, they recommend evaluation metrics that capture languages spoken, English proficiency levels, and participation rates of multilingual providers, and research that aims to identify best practices for engaging dual-language learners in apprenticeship programs.

Lawrence, Brandy Jones, Emily Sharrock, and Courtney Parkerson. 2021. "Realizing the Promise of Early Educator Apprenticeships." New York: Bank Street College of Education.

This policy brief presents considerations for implementing effective early childhood apprenticeship programs. The authors make six recommendations: (1) connect apprenticeship programs with compensation reform; (2) prioritize infant and toddler care to fill critical gaps in access; (3) design program requirements to accommodate the existing workforce; (4) design programs that meet the unique needs of home-based child care; (5) define quality coaching; and (6) invest in overall program improvement. The authors emphasize the importance of policy environments that are committed to capacity building and pay parity for early educators. Some concrete considerations for programs include offering flexible course delivery, utilizing a competency-based approach, offering cohort-based learning, establishing specific guidelines around coaching dosage and competencies, and allowing educators to participate in the apprenticeship through their existing employer. Training and technical assistance for implementation are highlighted. The brief concludes by outlining considerations for a research agenda related to apprenticeships. The authors recommend that the research agenda should consider outcomes beyond retention and completion of programs, such as impacts on child outcomes and quality and best practices for supporting early educators.

Lieberman, Abbie, Laura Bornfreund, Elise Franchino, Clare McCann, and Iris Palmer. 2020. *Supporting Early Educator Degree Attainment: Takeaways from New America's Working Group.* **Washington, DC: New America.**

This report summarizes challenges that institutes of higher education face in serving early childhood educators and identifies existing exemplary programs that aim to address those challenges. To identify challenges and innovative programs, the authors engaged a working group made up of experts from organizations such as state boards of education, early childhood research and policy organizations, and higher education institutions. The District 1199C Training and Upgrading Fund Early Childhood Education Apprenticeship program in Philadelphia was identified as one of many programs effectively supporting students and addressing some of the obstacles faced by institutions of higher education in supporting early childhood educators. The report describes how the partnership between federal and state governments, the Training and Upgrading Fund, and higher education institutions have supported students by offering courses in other languages and helping students access laptops for online coursework.

Challenges faced by higher education institutions identified by the working group include (1) providing the social, academic, and financial support that this population of students (e.g. low-income, first generation, part-time college students) needs to be successful; (2) serving the particular needs of students who speak languages other than English; (3) supporting developmental education and general education requirements; (4) navigating quality and access challenges with clinical experiences; and (5) supporting faculty recruitment and development. The report highlights programs and approaches that have addressed these challenges. For each overarching strategy, the authors outline levers at the federal, state, community, and philanthropic levels that can be utilized to address the identified challenges across multiple strategies.

Lutton, Alison. 2018. *Apprenticeship as a Degree-Attainment Strategy for the Early Childhood Workforce.* **Philadelphia: District 1199C Training and Upgrading Fund.**

This is a report on the Philadelphia Early Childhood Education Apprenticeship program informed by interviews and correspondence with experts from New America, the University of Maryland School of Public Policy, and members of the National Association of Early Childhood Specialists in State Departments of Education. The report begins by providing an overview of the growing interest in high-quality early education and the new requirements for teacher degree and credential attainment. New requirements add complexity to a system that is already experiencing a shortage of teachers, particularly of early educators of color and who speak a language other than English. Furthermore,

while all early educators face consistently low wages, wage inequality is even more profound for educators of color. The report describes the basic components of the Philadelphia Early Childhood Education Apprenticeship program, including the initial partners, the credential and degree pathways, and on-the-job learning components. The author argues that this program is well positioned to increase teacher degree attainment while addressing these concerns by building partnerships between early learning and workforce programs, exploring strategies that promote fairness for all people, advocating for policy and funding changes, and adapting the Registered Apprenticeship framework to the realities of the early childhood education field.

Early childhood employers face obstacles to participating in apprenticeship programs because they often lack the capacity to guarantee increased wages, provide professional development to apprentices on-site, and cannot administratively support an apprenticeship program. The District 1199C Training and Upgrading Fund addresses this obstacle by serving as the sponsor agency for multiple employers and taking on the responsibility of recruiting and supporting apprentices, employers, and coaches, with the help of other partner agencies. The program additionally addresses the reality of the early care and education (ECE) field by focusing recruitment efforts on smaller ECE programs, programs in low-income areas, first generation-college students, and teachers of color.

Lutton, Alison. 2019. **"Applying Knowledge to Practice: How Degree Apprenticeships Support Early Educators."** *Young Children* 74 (4): 46–54.

This policy brief describes the primary components of Registered Apprenticeship Programs and applies that framework to apprenticeships for early childhood education. The authors describe the need for strategies such as apprenticeship programs due to existing racial differences in wages and consistently lower pay for early care and education (ECE) teachers, particularly infant and toddler teachers. Traditional supports for degree completion are designed to support full-time students, but low-income and first-generation students typically attend college part time. The primary components of Registered Apprenticeship Programs are described including on-the-job-learning, mentorship, and college coursework. Alignment with Department of Labor standards for Registered Apprenticeship Programs is described as a primary consideration when designing programs for ECE. The authors emphasize the partnerships that help apprenticeship programs function and the supports that such programs provide for early educators and participating employers. The brief highlights the Philadelphia Apprenticeship model and describes the centrality of partnerships to the program's success. The essential partners emphasized are the intermediary, the District 1199C Education and Training Fund, higher education partners, and technical assistance providers. The primary role of the intermediary is to serve as a liaison with the Department of Labor while ensuring that the program aligns with federal

and state requirements. In the Philadelphia model, they also play a critical role in recruiting and supporting apprentices. Higher education partners are responsible for designing the coursework and degree pathways while ensuring they are in alignment with state and national accreditation standards, such as those defined by NAEYC. Technical assistance providers support apprentices, mentors, and ECE employers by helping mentors develop strength-based approaches and deepen their understanding of competencies and their alignment with college coursework and helping centers with various functions such as aligning apprenticeship wage requirements with centers' existing salary scales. The authors identify various critical supports provided by the apprenticeship program to apprentices and employers: (1) help with on-site apprenticeship functions; (2) assistance with the cost of college; (3) assistance with college readiness through bridging and college preparation coursework; (4) increased compensation; (5) counseling provided by multiple partners; (6) high-quality degree programs; (7) an effective higher education pathway; and (8) steady and sustaining funding through a mixture of public and private funding from workforce and ECE dollars.

Macon, Megan. 2022. "Developing Registered Apprenticeships within Inclusive Postsecondary Education: Next Steps at Vanderbilt." Think College Insight Brief, Issue No. 56. Boston: University of Massachusetts Boston, Institute for Community Inclusion.

This is a program overview of the pilot apprenticeship program developed by Next Steps at Vanderbilt. In this resource, the author argues for the potential of apprenticeship programs within postsecondary education programs that include students with intellectual disabilities and their peers with and without disabilities. Certain dimensions of apprenticeship, such as obtaining paid employment with an industry-recognized credential and on-the-job learning, are highlighted as being particularly advantageous to students with developmental and intellectual disabilities. The article describes how Next Steps decided to pilot an early childhood educator apprenticeship program based on student interest, community need, and resources available through Vanderbilt. Next Steps successfully partnered with Vanderbilt Child and Family Centers to provide the program's on-the-job learning component.

McCarthy, Mary Alice. 2017. "Rethinking Credential Requirements in Early Education: Equity-Based Strategies for Professionalizing a Vulnerable Workforce." Washington, DC: New America.

This policy brief outlines the motivations and challenge associated with raising degree requirements for early educators and proposes early care and education (ECE) apprenticeships as a strategy for improving the qualifications of the ECE workforce while addressing typical obstacles to degree

attainment. The resource describes the recent push for higher degree requirements for the ECE workforce as a way of unifying and professionalizing a fragmented field.

Identified obstacles to degree attainment for early educators include demanding a general course that is not contextualized to early childhood development, cost and time commitment of programs, and the persistent low wages in the field even after degree attainment. The authors argue that ECE apprenticeships are well positioned to address these obstacles because of their focus on contextualized and on-the-job learning, as well as the scholarships and wage increases that accompany program participation. Specific programmatic information is provided on the Philadelphia ECE Career Pathways Partnership. Both the structured compensation increases and guaranteed time off for study groups and tutoring are emphasized as key features of the program.

National Center on Early Childhood Development Teaching and Learning (NCEDTL). 2020. "Early Childhood Education Apprenticeships: The Why, What, and How." Washington, DC: NCEDTL.

This policy brief describes how early childhood education apprenticeships can address challenges educators face in pursuing further education or training, describes basic components of early childhood education apprenticeships, and highlights examples of programs in Colorado, Pennsylvania, Vermont, and West Virginia. Common features of apprenticeships include employer involvement, structured on-the-job learning, related instruction, rewards for skill gains, and an industry-recognized credential. The brief examines differences in the amount of required coursework, the degree or credential earned, the target audience of the program, and mechanisms for supervision between Colorado, Pennsylvania, Vermont, and West Virginia. States adapt to meet the needs of educators in their local context. Colorado's target audience is center-based early childhood teachers and directors, while Pennsylvania targets educators working with infants and toddlers and preschool-age children who have earned a Child Development Associate credential. Vermont's target audience includes infant and toddler, preschool, and mixed-age early childhood educators, and West Virginia targets educators working with infants and toddlers, preschool-age children, or school-age children working a minimum of 20 hours a week.

Parton, Brent, and Michael Prebil. 2020. "The Road to 500,000 Apprentices: Ideas for Expanding Apprenticeships in California." Washington, DC: New America.

This brief provides policy recommendations to support the state of California's goal of reaching 500,000 apprenticeship programs annually by 2029. The brief was informed by insights from state policy leaders and practitioners. To reach the goal of 500,000 apprenticeships, California must build on existing apprenticeship models while expanding apprenticeships into nontraditional fields, including

education. The role of sector intermediaries is highlighted in the expansion of nontraditional apprenticeships because of their ability to set and regulate industry standards across programs, pool resources, and engage multiple employers. Early Care and Education Pathways to Success is a prominent sector intermediary for early care and education apprenticeships and has established programs for center-based, home-based, and Head Start providers. The organization supports apprenticeships through a variety of mechanisms including offering training and technical assistance, coordinating employer networks, and unifying regional goals and knowledge. Sector intermediaries work with other essential partners in apprenticeships such as K–12 and higher education systems and workforce development agencies.

The four policy recommendations offered in the brief are (1) accelerate new program growth in nontraditional fields through sector intermediaries and a statewide quality framework; (2) accelerate growth of apprenticeship through a regional investment strategy; (3) leverage public investment and employment to support the growth of nontraditional apprenticeship programs in critical sectors; and (4) design and implement a statewide strategy for connecting young people to apprenticeship opportunities.

Rolland, Keith. 2017. *Apprenticeship Guide 2017.* **Philadelphia: Federal Reserve Bank of Philadelphia.**

This apprenticeship guide created by the Federal Reserve Bank of Philadelphia explores Registered Apprenticeship Programs in various industries and features the Philadelphia Early Childhood Education Apprenticeship. The program was developed with support from the Pennsylvania Office of Child Development and Early Learning and the Philadelphia Mayor's Office of Education and in partnership with Delaware Valley Association for the Education of Young Children, Public Health Management Corporation, Community College of Philadelphia, and early childhood education employers. Major components of the program include a mix of classroom-based instruction and on-the-job learning, and the program culminates in an associate degree in early childhood education. The Community College of Philadelphia and Drexel University are working on articulation agreements that would allow the associate degree to articulate into a bachelor's degree and teaching certification programs.

The guide highlights human capital increases, program challenges, and noteworthy aspects of the program. Apprentices start at $10 to $13 dollars and receive scheduled wage bumps throughout the program. The primary challenge identified is underfunding. The guide notes that the program successes include creating a well-defined career pathway, developing articulation agreements, and engaging providers of multiple sizes and organizational structures.

Rosenthal, Lily, Annie Schaeffing, and Emily Sharrock. 2023. "Cultivating Powerful Mentorship in Educator Credential Programs." New York: Bank Street College of Education.

This brief presents an overview of Bank Street College of Education's teacher residency programs and the importance of mentorship. The brief is informed by interviews with the chair of the Department of Teaching and Learning, the residency program administrator who is also the director of General and Special Education programs, and the director of the Teaching English as a Second Language programs, who is also a supervised fieldwork advisor and course instructor. Though the brief focuses on residency programs, which are distinct from apprenticeships, the authors argue that lessons learned from the mentorship structures within residency programs can be applied to early educator apprenticeships.

They highlight, through their conversations with experts, the importance of training mentors around topics such as adult education and instructing reflective practices and establishing collaboration between higher education partners and placement settings. For centers, lead teachers can serve as mentors to assistants, whereas for family child care providers, mentors often come from outside of the home-based care setting. Creating opportunities for structured observation and feedback is especially important for mentorship of family child care providers.

Sharrock, Emily, and Courtney Parkerson. 2020. "Opportunities for Reflective Practice in Early Childhood Apprenticeships." New York: Bank Street College of Education.

This brief describes reflective practices within residency or apprenticeship programs and presents it as an essential component of early care and education workforce strategies. The authors recommend that in workforce initiatives that incorporate on-the-job learning programs should integrate individual and small group opportunities for reflective practice, supervised fieldwork, and coursework. The brief outlines how reflective practice can be utilized through coaching, small group advising, and mentorship, and it provides guidance on the cost of developing high-quality residency or apprenticeship programs, the training and professional development of coaches and mentors, and considerations for high-quality adult education programs. Ultimately, the authors urge program designers to consider how to implement the principles outlined in the guide to meet the needs of educators within their local context and supply a set of questions to guide program designers in this process.

Sharrock, Emily, and Courtney Parkerson. 2021. "Designing Early Childhood Educator Residency/Apprenticeship Programs: A Guide to Estimating Costs." New York: Bank Street College of Education.

This toolkit outlines key considerations when designing an early childhood education (ECE) apprenticeship program and provides guidance on estimating program costs. The authors propose that there are seven primary design considerations for effective residency and apprenticeship models: (1) placement in high-quality settings; (2) intensive and sustained coaching; (3) opportunities to reflect and learn alongside other residents in advisory or cohort groups; (4) accessible coursework delivered online and in-person; (5) coursework tailored to the needs of early educators and a competency-based approach; (6) scholarships to cover tuition and other costs of participation; and (7) sustained financial incentives. Related to each of these considerations, the resource provides guidance on estimating ongoing and one-time costs, using the state of New Jersey as an example, and includes a cost calculator for programs. Estimating ongoing costs requires considering who the program will target, compensation for participants in the program, the culminating credential or degree, cohort size, technology needs, mentorship dosage, and compensation for mentors. Programs need to also consider available funding sources from the federal, state, and local levels. The importance of partnership and coordination between entities, particularly with higher education institutions, is emphasized. Finally, the resource outlines key policies that fall outside of the realm of program design, including making efforts to increase early educator compensation, simplifying the process of transferring credits between institutions of higher education, building the guidance capacity of institutes of higher education so they can effectively support nontraditional students, training child care program leaders, and building the capacity child care networks.

Sharrock, Emily, and Courtney Parkerson. 2023. *Investing in the Birth-to-Three Workforce: A New Vision to Strengthen the Foundation for All Learning*. New York: Bank Street College of Education.

This report gives policy recommendations for improving quality in child care and early education through a residency or apprenticeship program, terms the authors use interchangeably, for new and existing infant and toddler educators. It was informed by insights from a working group. The report describes that apprenticeships are a practice-based credentialing option for the early childhood education workforce and suggests that components of an apprenticeship model should include a full-time job working as an infant and toddler educator in a high-quality placement site, opportunities for reflective supervision and expert coaching, and a competency-based approach to coursework blended with online and in-person formats. Partnerships with local colleges, universities, intermediaries, and community-based organizations can facilitate the implementation of apprenticeships by offering

program support and curriculum design as "anchor institutions." Additionally, partnerships with family child care networks can fund participants in home-based settings and help ensure access to resources. TEACH Early Childhood Scholarship Initiative funded scholarships can be leveraged for teachers in the program. Federal funding streams that can support apprenticeship programs include the Child Care and Development Block Grant, Early Head Start-Child Care Partnerships, US Department of Labor Registered Apprenticeship Programs through the Workforce Innovation and Opportunity Act, and the Higher Education Act. State and local funding through subsidy rates and local tax revenue can also support programs. The resource discusses how the collaboration of leaders in government, higher education, and organizations could help implement and sustain apprenticeship programs. This might include distributing resources to states and localities to support them in building capacity and offering technical assistance when implementing apprenticeships. In terms of implementation, the authors discuss that supply could affect the availability of a placement site, and low investment in universities could lead to fewer faculty with expertise and fewer infant and toddler focused courses.

Further, the resource describes the example of the University of Illinois at Chicago Alternative Certification Program, which is geared toward helping existing preschool teachers with a bachelor's degree work toward a teaching certification. The program applies a strengths-based approach by prioritizing years of experience and bilingualism over GPA, and other characteristics of the program include supporting educators in completing the observations and evaluations they need for the certification process and assigning each participant a mentor. Additionally, the Chicago Commons Program called Pathways for Parents is a program that recruits parents of children enrolled in Head Start. Parents participating in the program complete coursework while working alongside existing teachers. The program helps parents navigate the program by offering tailored transportation, child care, and financial support.

Sklar, Cara. 2020. "Youth Apprenticeship in Early Childhood Education: Lessons and Opportunities." Washington, DC: New America.

This article provides an overview of the Early Care & Education Pathways to Success (ECEPTS) pilot youth apprenticeship programs and outlines the dual purpose of youth apprenticeships as a strategy to address workforce shortages and prepare adolescents for careers and higher education. The report was informed by conversations with Randi Wolfe and other early care and education (ECE) apprenticeship experts, as well as interviews with program staff and students. The ECEPTS pilot youth apprenticeship in ECE is based at Castlemont High School and consists of four courses at Berkeley City College and on-the-job learning at an on-site child care center. The required multidisciplinary coursework fulfills the general education coursework for California university systems. Upon

completion of the program, apprentices earn a California Child Development Associate Teacher Permit. Supports for students include tutors and stipends.

Early lessons gleaned from this pilot are that mentorship is crucial to youth apprenticeship programs, credits must be transferable, pathways to higher pay must exist, and coordination from program partners is essential. Despite the potential of this program to prepare young people for ECE careers, there are concerns about encouraging high school students to pursue a career that is so consistently underpaid and undervalued, particularly for a high school population that is 70 percent Latinx, 25 percent Black, and almost 90 percent qualified for free- and reduced-price lunch. Accordingly, the report points to the importance of understanding how strategies can effectively address workplace shortages while ensuring the best professional opportunities for high school students.

Smith, Linda K., Tara Williams, and Katherine Mercado. 2023. "Apprenticeships: Building a Strong Child Care Workforce Pipeline." Washington, DC: Bipartisan Policy Center.

This policy brief highlights child care Registered Apprenticeships as a strategy for building the child care workforce and outlines funding streams and policy actions that can help facilitate program development. Basic instructions for starting a Registered Apprenticeship Program are outlined. The resource describes child care and early childhood apprenticeship programs being implemented in West Virginia, Alabama, Arkansas, Colorado, Florida, Kentucky, Maryland, Oklahoma, Pennsylvania, Rhode Island, Texas, Wisconsin, Honolulu, Kalamazoo, San Francisco, Santa Fe, Southwest Oregon, and Worcester, Massachusetts. These states are utilizing a variety of funding strategies to implement apprenticeship programs, including leveraging American Rescue Plan Act, Preschool Development Grant Birth through 5, Child Care and Development Fund, and Workforce Innovation and Opportunity Act funds, as well as partnering with TEACH Scholarship programs. Rhode Island is implementing programs for both family child care providers and the infant and toddler workforce. The resource culminates in recommendations to Congress, federal departments, states, counties and municipalities, businesses and philanthropic organizations, and community colleges to align their policies to support efforts to develop and expand child care apprenticeship programs.

Workman, Emily. 2019. *Earning While Learning with Early Educator Apprenticeship Programs*. Washington, DC: New America.

This article describes the rise of Registered Apprenticeship Programs and their role in responding to the growing push for higher education and credential attainment for early childhood educators and is informed by insights from program stakeholders. The article addresses the demographics of the early

childhood workforce; how Registered Apprenticeships can improve access and completion of college degrees as well as partnerships and coordination with education institutions; and how to manage high costs through partnerships and federal funding. Registered Apprenticeships offer students on-the-job training while receiving ongoing mentorship and classroom-based instruction that can result in college credit through articulation agreements, which helps break down some of the challenges to accessing higher education for the early childhood workforce. While early childhood employers might not have the same resources and infrastructure to manage apprenticeships compared with larger industries, federal funding and partnerships with states and localities, including educational institutions and community organizations, can support the development and implementation of Registered Apprenticeships in early care and education. The article spotlights programs in California, West Virginia, Kansas, and Pennsylvania, and describes some common features of these programs such as the types of degrees and credentials earned, typical partners, funding mechanisms, and policy considerations such as the need for articulation agreements and federal funding.

Appendix A. Overview of Publications

Publications Overview

Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/facilita-tors
			Characteristics of Apprenticeship Program(s)						Topics Addressed				
Baronak and Baronak (2023)	ES	Peer-reviewed journal	Apprentice-ship Model at Carlow University in Pennsylvania		Center	P	X	X		X	X	X	X
Bernardi et al. (2023)	PC	Grey literature	Mentions the Camp Fire First Early Educator Apprentice-ship		HBCC; center	Not speci-fied		X					
Bipartisan Policy Center (2019)	ES	Grey literature	Describes West Virginia Apprentice-ship for Child Developmen t Specialist, Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship, and Colorado's Child Care Developmen t Specialist		Center	Not speci-fied	X	X		X	X		

Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./ implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/ facilita-tors
			Apprentice-ship										
Blough et al. (2023)	ES	Grey literature	Describes multiple Michigan Apprentice-ship programs		Center	Not speci-fied	X	X	X		X	X	X
Catalan and Simon (2024)	Rec	Grey literature	YMCA of the East Bay Early Educator Apprentice-ship	X	Center	Not speci-fied	X	X		X			
Cheng et al. (2018)	ES	Grey literature	West Virginia's Apprentice-ship for Child Development Specialist Vermont Early Educator Apprentice-ship		Center	Not speci-fied	X	X	X	X	X		X
Clark (2023)	ES	Grey literature			Not speci-fied	Not speci-fied	X	X	X		X	X	X
CNM and AWare Research Solutions (2023)	PC	Grey literature	Camp Fire Early Education Apprentice-ship		Center	Not speci-fied	X	X	X	X			X

			Characteristics of Apprenticeship Program(s)						Topics Addressed				
Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./ implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/ facilita-tors
Copeman Petig, Chávez, and Austin (2019)	ES	Grey literature	SEIU Early Educator Apprentice-ships: (1) Early Educator Center-Based Apprentice-ship; (2) Family Child Care Provider On-the-Job Training Program; (3) Head Start Apprentice-ship	X	HBCC; center	Not speci-fied	X	X		X		X	X
Dowsett, Carlson, and Epstein (2019)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship		Center	Not speci-fied	X	X	X	X	X	X	X
Dwyer (2023)	ES	Grey literature		X	Not speci-fied	IT/P	X		X			X	
Elliott and Lerman (2020)	Rec	Grey literature			Not speci-fied	Not speci-fied	X	X					
Everitt et al. (2019)	ES	Grey literature	Mentions the Camp Fire First Texas Apprentice-		Not speci-fied	Not speci-fied	X	X	X			X	

			Characteristics of Apprenticeship Program(s)						Topics Addressed				
Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./ implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/ facilita-tors
			ship; spotlights the Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship and ECEPTS										
Franchett, Steber, and Epstein (2019)	ES	Grey literature	Montana Early Childhood Apprentice-ship Program (MECAP)		HBCC; center	Not speci-fied	X	X	X	X	X	X	X
Friedlander (2018)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship		Not speci-fied	Not speci-fied	X	X	X	X	X	X	
Friedlander and Chomko (2018)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship		Not speci-fied	Not speci-fied	X	X	X	X	X	X	

| | | | Characteristics of Apprenticeship Program(s) | | | | | Topics Addressed | | | | | |
Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./ implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/ facilita-tors
Gardner et al. (2019)	ES	Grey literature	SEIU California Early Educator Apprentice-ships	X	HBCC; center	Not speci-fied	X	X	X	X	X	X	X
Hofstetter, Fintland, and Park (2022)	ES	Grey literature			Not speci-fied	Not speci-fied	X						X
Kelmenson, Forbes, and Lowe (2021)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund Early Childhood Pre-Apprentice-ship		Center	Not speci-fied	X	X	X	X	X	X	X
Lawrence et al. (2021)	ES	Grey literature			HBCC; center	I/T		X	X				
Le and Franko (2023)	ES	Grey literature	Colorado Department of Early Childhood (CDEC) Apprentice-ship		HBCC; center	Not speci-fied	X	X	X	X	X	X	X
Lieberman et al. (2020)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund		Center	Not speci-fied	X						X

Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./ implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/ facilita-tors
			Apprentice-ship										
Lutton (2018)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship		Center	Not speci-fied	X	X	X	X	X		X
Lutton (2019)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship		Center	Not speci-fied	X	X	X		X	X	
Macon (2022)	ES	Grey literature	Next Steps at Vanderbilt Early Childhood Education Apprentice-ship		Center	IT; P	X	X	X		X		
Manning et al. (2009)	ES	Grey literature	Vermont Child Care Apprentice-ship		Center	Not speci-fied	X	X		X		X	
McCarthy (2017)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund		Center	Not speci-fied	X	X			X	X	X

			Characteristics of Apprenticeship Program(s)						Topics Addressed				
Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./ implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/ facilita-tors
			Apprentice-ship										
McLean et al. (2021)	ES	Grey literature	Includes a table of Apprentice-ship programs across states and territories		Not speci-fied	Not speci-fied	X						X
National Center on Early Childhood Develop-ment Teaching and Learning (2020)	ES	Grey literature	Describes apprentice-ship programs in Colorado, Pennsyl-vania, Vermont, and West Virginia		Center	IT; P	X	X		X	X		
Parton and Prebil (2020)	ES	Grey literature	Spotlights SEIU Early Educator Apprentice-ships including the center-based, home-based, and Head Start Apprentice-ship programs	X	HBCC; center	Not speci-fied	X		X		X	X	
Rolland (2017)	ES	Grey literature	Philadelphia District 1199C Training and		Center	Not speci-fied	X	X		X	X	X	X

			Characteristics of Apprenticeship Program(s)						Topics Addressed				
Author (year)	**Source**	**Publication type**	**Apprenticeship program name**	**HS**	**ECE setting**	**Age of children**	**RAP**	**Program components**	**Dev./ implement.**	**Participation**	**Partnerships**	**Financing**	**Challenges/ facilitators**
			Upgrading Fund Apprenticeship										
Rosenthal, Schaeffing, and Sharrock (2023)	ES	Grey literature	Bank Street residency programs		HBCC; center	Not specified		X					
Sharrock and Parkerson (2020)	ES	Grey Literature	Chicago Commons Head Start apprenticeships for parents	X	Center	IT	X	X		X	X	X	X
Sharrock and Parkerson (2021)	ES	Grey literature			HBCC; center	IT			X		X	X	
Sharrock and Parkerson (2023)	PC	Grey literature			Not specified	Not specified		X				X	
Sharrock et al. (2023)	ES	Grey literature	Spotlights Rhode Island's Family Child Care Registered Apprenticeship program and Vermont's pre-apprenticeship and apprentice-		HBCC; center	Not specified	X		X	X	X	X	X

Author (year)	Source	Publication type	Apprentice- ship program name	HS	ECE setting	Age of children	RAP	Program compo- nents	Dev./ implement.	Participa- tion	Partner- ships	Financ- ing	Challen- ges/ facilita- tors
			ship programs										
Simon (2023)	ES	Grey literature	ECEPTS Home Visitor Apprentice- ship	X	Home visit- ing	Not speci- fied	X	X	X	X	X	X	X
Simon (2024)	PC	Grey literature	ECEPTS Family Child Care Apprentice- ship		HBCC	Not speci- fied		X	X	X	X	X	X
Sklar (2020)	ES	Grey literature	ECEPTS Youth Apprentice- ship program		Center	Not speci- fied	X	X		X	X		X
Smith, Williams, and Mercado (2023)	ES	Grey literature	Spotlights apprentice- ship programs in multiple states including Rhode Island's pilot Registered Apprentice- ship for the infant and toddler workforce and their program for family child care providers		HBCC; center	IT	X		X			X	

Note: Above the "Characteristics of Apprenticeship Program(s)" spanning header and "Topics Addressed" spanning header.

Author (year)	Source	Publication type	Apprentice-ship program name	HS	ECE setting	Age of children	RAP	Program compo-nents	Dev./ implement.	Participa-tion	Partner-ships	Financ-ing	Challen-ges/ facilita-tors
			Characteristics of Apprenticeship Program(s)						Topics Addressed				
US Department of Labor, Women's Bureau (2019)	ES	Grey literature	Philadelphia District 1199C Training and Upgrading Fund Apprentice-ship		Center	Not speci-fied	X	X		X	X	X	X
Uttley and Horm (2008)	ES	Peer-reviewed journal	Rhode Island Child Developmen t Specialist Apprentice-ship Program (RICDSAP)		Center	IT/P	X	X		X	X	X	
West (2022)	ES	Grey literature	Child Care Apprentice-ship of Pinellas (CCAP)		Center	IT/P	X	X		X			X
Workman (2019)	ES	Grey literature	Describes Registered Apprentice-ship Programs in California, West Virginia, Kansas, Virginia, and Pennsylvania		Center	Not speci-fied	X	X			X	X	X

Source: Authors' analysis.

Notes: ES = publications we identified through the literature search conducted as part of the environmental scan; PC = publications we received through the public call for information; Rec = a publication recommended by an expert during interviews; HS = Head Start; HBCC = home-based child care; IT = infant/toddler; P = preschool; RAP = Registered Apprenticeship Program; SEIU = Service Employees International Union; ECEPTS = Early Care & Education Pathways to Success. The research team coded resources

as "HBCC" when they included a discussion of specific considerations for home-based educator apprenticeship programs or described specific home-based educator apprenticeship programs. The team coded resources as "IT" if they discussed considerations for apprenticeships focused on the infant and toddler workforce or described a specific apprenticeship program that included the infant and toddler workforce. The "HBCC" and "IT" codes do not signify that the resource focused exclusively on apprenticeships for the HBCC or infant and toddler workforce.

Appendix B. Methods

Search Process

We began by identifying a list of search terms relevant to early care and education (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, grey literature such as research and policy briefs, technical assistance materials and toolkits, and other resources such 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 B.1). We identified 163 publications as potentially relevant based on title and abstract and catalogued those 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 B.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 Care & Education Pathways to Success (ECEPTS)	

 Source: Authors' analysis.

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 the Office of Planning, Research and Evaluation'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 that were 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 plus 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 include 12 summaries of

descriptive research studies including case studies and implementation and process studies. The other publications include 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

Resource Coding

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 B.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 studies, 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.

Key Information Coded for Each Resource

Category	Codes/description
Key information about publications	
Source	Literature search
	Public call submission
	Recommendation from expert or research team
Publication type	Peer-reviewed article
	Grey literature: research report or brief
	Grey 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)	
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: Authors' analysis.

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.

Appendix C. Glossary of Key Terms

Across the publications included in this review, several key terms emerged. Some publications used different terms when discussing similar concepts. In our summaries of the publications, we relied on the terms used by the authors. In the table below we present definitions of key concepts and the terms used in the publications included in this review to describe these concepts. Several of these definitions are quoted directly from US Department of Labor resources about Registered Apprenticeships; one definition is taken from materials produced by the National Early Care and Education Workforce Center; we developed the other definitions, drawing on the information from the publications included in this scan.

TABLE C.1
Key Terms 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]
Intermediary Apprenticeship industry intermediary	"An organization with the capacity, expertise, and network to help businesses successfully create, launch, and expand apprenticeship programs."[c] 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]

Term(s) used	Definition
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.[d]
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 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.[e] 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 Virginia, Wyoming.[e] 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, Wisconsin.[e]
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."[c]
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

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

Source: Urban Institute and MEF Associates project team based on 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] "Seeking Partners to Help with Your Apprenticeship Program?," US Department of Labor, accessed April 15, 2024, https://www.apprenticeship.gov/partner-finder.

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

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

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