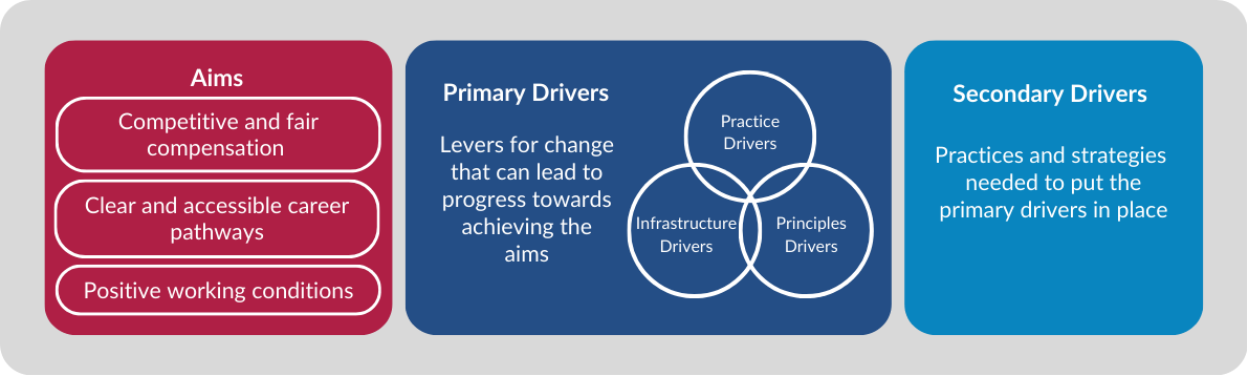
Introduction to the ECE Workforce Systems Change Framework

Anne Douglass, Rena Hallam, Yujin Lee, Lindsay Beatty, Kristy Sheffler, Annette Pic

Introduction

This brief describes the National Early Care & Education (ECE) Workforce Center's aims for improving conditions for the ECE workforce and explains how the ECE Workforce Systems Change Framework supports state and local leaders to achieve the aims. In this brief, we introduce this Change Framework (see Figure 1), including its grounding perspectives; give an overview of its aims, primary drivers and secondary drivers; and provide examples of how the Change Framework can guide efforts to make change across systems and programs.

Figure 1. ECE Workforce Systems Change Framework Structure



Defining Our Aims

A stable, qualified ECE workforce is necessary to strengthen ECE programs, provide families with reliable child care, and ensure young children receive high-quality care and education[1]. Yet, the ECE workforce continues to be impacted by challenges that have caused instability across the child care system. To address these challenges, states and communities across the U.S. are looking at ways to create good jobs for the ECE workforce, using multiple and integrated strategies.[2, 3]

Who is the ECE workforce?

The ECE workforce includes educators who provide direct care for children from birth to age five in licensed ECE programs, including center-based programs, family child care (FCC), preschool, and pre-K.

The National ECE Workforce Center ("the Center") recognizes this need and organizes its work around five policy areas, or key topics, as identified by the Early Childhood Workforce Index developed by the Center

This version has been updated from the April 2025 version to include an acknowledgements box on page 13.

for the Study of Child Care Employment (CSCCE).[4] These five policy areas include compensation, career pathways, work environment, workforce data, and financial resources. Each of these areas can be strengthened to create good jobs that support, retain, and sustain the ECE workforce.

Figure 2: Aims

The **ECE Workforce Systems Change Framework (the Change Framework) focuses on three aims for improving conditions for the ECE workforce**: competitive and fair compensation, clear and accessible career pathways, and positive working conditions (see Figure 2).[5] These areas represent the most immediate challenges that can be addressed to create good jobs for the ECE workforce. The other two policy areas (workforce data and financial resources) are embedded within each of the three aims as a means to achieve those aims for compensation, career pathways, and working conditions. The following section describes the present challenges and desired changes for each aim.

Aim 1: Competitive and Fair Compensation

- **Current challenges**: The ECE profession is often seen as an economically unviable and stagnant career choice. With a national median wage of just $13.07 per hour, it ranks among the lowest-paid occupations in the United States.[6] This low pay makes it difficult for educators to afford basic living expenses, leading many to question whether a long-term career in the field is sustainable.[7] Low wages are one of the most pressing problems in the ECE sector.[8] However, only a few states have implemented wage scales or structured pay guidelines that take into account job roles, experience, or education, and such efforts are still rare and often limited in reach. The lack of structured compensation and wage systems contributes to inadequate and inconsistent salaries within and across ECE settings.[9] Although many states offer stipends and other financial incentives, these efforts are often too small to make a meaningful difference on income levels, may be temporary and reliant on unstable funding, and/or result in loss of other social service benefits such as Medicaid for dependents.[10] These conditions make it difficult to attract and retain experienced and skilled educators, leading to high turnover rates and ongoing workforce instability.
- **Desired change**: The Center's goal is to achieve **competitive and fair compensation for early educators** across all settings—FCC, center-based programs, Head Start, and public pre-K—by aligning salaries with those of similarly qualified K-12 teachers. This may involve strategies such as establishing wage scales that take into account roles, qualifications, experience, or education levels; ensuring that FCC providers are included in fair and competitive pay efforts; guaranteeing benefits such as health insurance, retirement contributions, and paid leave; and securing sustainable public and/or private funding to ensure that salary increases do not cause educators to lose access to essential public benefits or lead to higher costs for ECE that place a financial burden on families.

Aim 2: Clear and Accessible Career Pathways

- **Current challenges**: The ECE workforce lacks clear, accessible career pathways. For many, the cost of training and education remains a major barrier to career advancement[11]. Additionally, although almost all states have adopted a set of competencies for ECE educators, what educators are expected to know varies across states and is often shaped more by job setting (e.g., schools, centers, homes) and program funding sources (e.g., public pre-K, Child Care Development Fund, Head Start, private/family fees) than by the knowledge needed to perform the job.[12] These inconsistencies result in preparation and degree programs with differing goals, content, and practices; and this then results in inconsistencies in the professional preparation of the ECE workforce.[13] Furthermore, a lack of support from workplaces and professional development systems creates additional barriers to career growth.[14]

- **Desired change**: The Center's goal is **clear, accessible career pathways** with multiple entry points for early educators with varying qualifications, experiences, and education levels. This can be achieved through a range of strategies, such as setting consistent qualification standards across settings, aligning funding streams with preparation and degree programs, and creating a structured pathway for career advancement. Professional development programs and systems can provide holistic support that is targeted at the varied needs and entry points of the ECE workforce. This includes financial assistance, effective delivery of educational programs (e.g., higher education, apprenticeships, professional learning opportunities), diverse learning environments, and individualized support. Equally important is that career pathways are aligned with clear competencies, and the progression on these pathways should result in increased competencies. Mechanisms such as higher wages and bonuses upon completion can reward accomplishments and create career pathways for professional advancement.

Aim 3: Positive Working Conditions

- **Current challenges**: The demanding working conditions, along with low compensation and lack of essential benefits—such as health insurance and retirement plans—further destabilize the workforce.[15] The ECE work environment often fails to ensure safe, healthy, and supportive conditions for educators.[16] Conditions, such as paid planning time, breaks away from children, support for professional learning, and manageable workloads, are missing in many workplaces. Limited resources make it difficult for ECE programs and centers to establish and maintain high standards for work environments, leading to educator stress, burnout, and high turnover rates.[17]
- **Desired change**: The Center's goal is to **have clear work environment standards and support for ECE programs in adopting them to ensure safe, healthy, and supportive conditions for educators**. This can involve strategies such as policies for work environments, along with financial and technical assistance, to enable ECE programs to implement and sustain these standards. The role of instructional and distributed leadership is an important aspect, as supports for effective ECE leadership can promote the adoption of standards, foster collaborative practices, and engage educators. By improving these conditions, programs can enhance job satisfaction, reduce stress and burnout, and retain skilled educators.

Achieving these aims related to compensation, career pathways, and working conditions is critical to building a stable, high-quality ECE workforce. Investing in these areas can support the well-being of early educators and ensure high-quality experiences for children and families across ECE settings.

Taking a Systems Change Approach to Achieving the Aims

The ECE workforce challenges described above are complex problems that do not arise from a single cause. Instead, they are shaped by multiple, interrelated factors, such as policies, governance structures, and underlying norms and beliefs. Addressing such complex issues requires a holistic, system-level approach. However, there is limited guidance on how to take a system-level approach that addresses these complexities.

Often, change efforts focus on the part of a system that appears "broken" and attempt to fix just that part, only to wonder why we did not achieve better results. This is because changing one part on its own rarely works when the issue is interconnected with other parts of the system[18]. Without considering the broader system, solutions may fail to address underlying causes or be difficult to sustain over time.

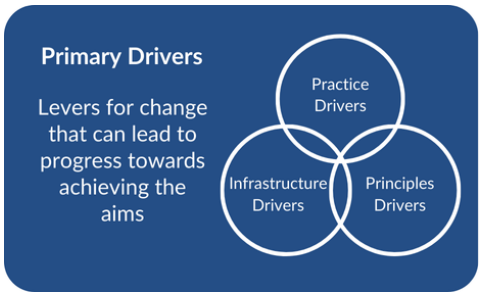
A systems change approach moves beyond fixing a single broken part. Instead of isolating one problem, systems change examines key system-level factors to understand how they contribute to improvements. By

shifting from isolated solutions to a systemic perspective, change efforts become more sustainable and impactful, leading to meaningful improvements.

The ECE Workforce Systems Change Framework

The National ECE Workforce Center developed the Change Framework with a system-level approach to guide efforts to achieve the Center's three aims to improve conditions for the ECE workforce. The Change Framework synthesizes evidence about systems change from research, policy, and practice into a set of **primary drivers** that can lead to progress toward achieving the aims. The term "driver" refers to levers for change; these are the factors or strategies that have shown to be most impactful in achieving systems change.

Figure 3. Three Interconnected Primary Driver Types



There are **three types** of primary drivers that, together, can produce systems change.

1. **Practice Drivers:** The *programmatic and policy actions* taken to achieve the aims.
2. **Infrastructure Drivers:** The *structural aspects* necessary for achieving and sustaining the aims.
3. **Principles Drivers:** The *underlying beliefs and mindsets* necessary for achieving the aims.

Impactful, sustainable systems change requires incorporating aspects of all three types of primary drivers. Figure 3 illustrates the interconnectedness of the three types of primary drivers. Focusing on only one type of driver when planning for change generally leads to less fruitful results due to how closely practices, infrastructure, and principles are connected. Figure 4 presents and defines the nine primary drivers, organized by the three types of drivers. Taken together, these nine primary drivers provide a holistic foundation for ECE workforce systems change.

Figure 4. Primary Drivers

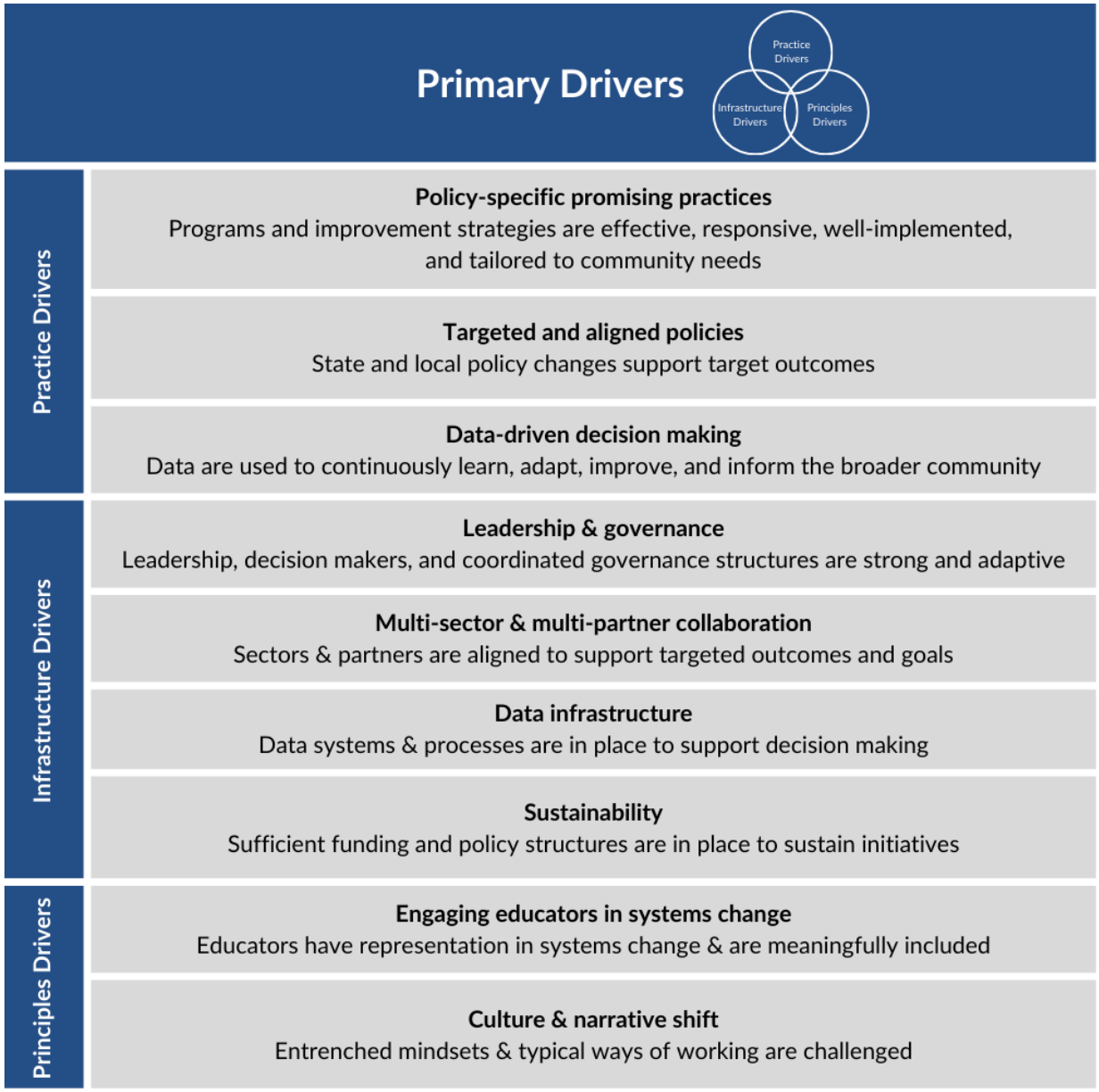


Figure 5. Secondary Drivers

The Change Framework secondary drivers are equally important as the primary drivers in systems change. **Secondary drivers** are active components of the primary drivers. They specify the necessary conditions and strategies for change (see Figure 5). Secondary drivers are the promising, innovative, and evidence-based practices and strategies that are needed to put the primary drivers in place.

The secondary drivers are unique and specific to each of the three aims. They are concrete strategies that can drive change toward the aims for compensation, career pathways, and work environments.

For example, Tables 1-3 below show the secondary drivers unique to each aim aligned with each of the primary drivers.

Table 1. Aim 1 – Competitive and Fair Compensation

	Primary Drivers	Secondary Drivers
Practice Drivers	Policy-Specific Promising Practices	• A wage scale is designed to ensure competitive compensation with K-3 based on factors such as roles, qualifications, and experiences. • A benefit model is designed to ensure parity with K-3, such as health insurance, retirement plans, loan forgiveness, and tax credits. • Early educators have access to financial relief such as child care assistance, hiring and retention bonuses, and tax credits. (an interim strategy)
	Targeted and Aligned Policies	• The wage scale is linked to educational attainment, such as qualifications, degrees, certifications, and years of experience. • Policies are designed to prevent benefit cliffs caused by wage increases. • Data-focused policies support effective data collection, data sharing and use, and individual privacy.
	Data-Driven Decision Making	• Programs and initiatives are monitored, and their progress and impact data are used to inform and refine systems change efforts. • Compensation data are shared and reviewed to assess the current state of compensation. • Data regarding financial investments specific to supporting increased compensation are collected and analyzed at all phases of implementation to ensure sustained funding.
Infrastructure Drivers	Leadership & Governance	• Leaders from state and local agencies, ECE programs, professional associations, workforce councils, labor groups, community organizations, and government bodies are actively engaged and supportive of fair compensation initiatives. • Governance structures ensure that decision makers collaborate and align actions for cross-sector compensation initiatives in the ECE sector (i.e., home-based and center-based child care, Early Head Start, Head Start). • ECE program leaders apply leadership and business management best practices to achieve competitive compensation.
	Multi-Sector & Multi-Partner Collaboration	• Cross-sector state or community coalitions/partnerships are convened to jointly plan, make decisions, implement, and evaluate compensation initiatives. • Diverse cross-sector coalitions/partnerships are in place and work together to establish and operate with shared understanding, goals, and vision to guide their efforts. • Regular meetings and financial incentives are in place to promote active engagement and collaboration among cross-sector partners for compensation initiatives.
	Data Infrastructure	• Compensation-related data exist in formats that allow researchers and stakeholders to extract meaningful insights and are accessible to key stakeholders. • Compensation-related data are collected from center-based programs, FCC, and out-of-school settings.

	Primary Drivers	Secondary Drivers
Principles Drivers	Sustainability	• Dedicated and sustainable source(s) of funding are identified and designated for compensation initiatives. • A system is in place for financing compensation initiatives that is coordinated, efficient, easy to navigate, feasible to administer, and transparent. • Formal policies, regulations, or written documents protect and sustain standards for compensation. • Formal policies, regulations, or written documents increase the flexibility of funding and enable the use of multiple funding streams for compensation initiatives. • Dedicated and sustainable source(s) of funding are designated for the purpose of building and maintaining a comprehensive, integrated data system that can inform compensation initiatives.
	Engaging Educators in Systems Change	• Educators who represent a range of backgrounds and experiences are active leaders in designing and implementing the vision and plan for change related to compensation aims. • Outreach strategies, capacity-building efforts, and information related to compensation initiatives are appropriate, available, and accessible to enable educator engagement. • Educators have substantial influence and decision-making power in shaping and guiding compensation initiatives.
	Culture & Narrative Shift	• Policy and decision makers, the public at large, and the ECE sector are aware of the importance of securing funding to enable competitive compensation and ensure a skilled stable, and valued ECE workforce. • Policy and decision makers are aware that financial relief initiatives (such as tax credits, bonuses) are an interim strategy, not a long-term solution to achieve competitive compensation.

Table 2. Aim 2 – Clear and Accessible Career Pathways

	Primary Drivers	Secondary Drivers
Practice Drivers	Policy-Specific Promising Practices	• Educator preparation and career development programs are financially accessible to ensure that early educators can graduate debt free. • Educator preparation and career development programs are tailored to address the unique needs of early educators, ensuring they create the conditions for success in higher education. • Career pathways are clearly articulated to provide comprehensive scope and sequence in education and training that facilitate credential/degree attainment. • Educator preparation and career development programs prioritize cultivating a workforce with a range of backgrounds and experiences. • Educator preparation and career development programs are grounded in high-quality, evidence-based practices, and aligned with professional standards to ensure educators acquire the knowledge, skills, and tools to support their effectiveness as educators.
	Targeted and Aligned Policies	• Policies are designed to ensure that educators who attain/hold higher credentials earn higher wages. • Baseline education and training requires all early childhood teaching staff have foundational knowledge (i.e., a Child Development Associate Credential or equivalent) and lead teachers and program leaders have a bachelor's degree with ECE specialization and individual licensure or certification, in line with what is required for teachers of older children. • When new qualifications policies are put into place, they also specify how the existing ECE workforce maintains their employment through flexible options such as credit for work experience and realistic timelines to meet new requirements. • Data-focused policies support effective data collection, data sharing and use, and individual privacy.
	Data-Driven Decision Making	• Programs and initiatives are monitored, and their progress and impact data are used to inform and refine systems change efforts. • Qualifications and educational supports data are shared and reviewed to assess the current state. • Data regarding financial investments specific to supporting qualifications and educational supports are collected and analyzed at all phases of implementation to ensure sustained funding.

	Primary Drivers	Secondary Drivers
Infrastructure Drivers	Leadership & Governance	• Leaders from state or local agencies, ECE educators, professional associations, workforce councils and labor groups, community groups, government bodies, higher education, and high school/district administrators are actively engaged and supportive of qualifications and educational support aims. • Governance structures ensure that decision makers collaborate and align actions for cross-sector qualifications and educational support initiatives in the ECE sector (i.e., home-based and center-based child care, Early Head Start, Head Start). • ECE program leaders apply leadership and business management best practices to support early educators' attainment of qualifications and career development through financial and structural supports (e.g., time off, flexible schedules).
	Multi-Sector & Multi-Partner Collaboration	• Cross-sector state or community coalitions/partnerships are convened to jointly plan, make decisions, and implement and evaluate qualifications and educational support initiatives. • Diverse cross-sector coalitions/partnerships are in place and work together to establish and operate with shared understanding, goals, and vision to guide their efforts. • Regular meetings and financial incentives are in place to promote active engagement and collaboration among cross-sector partners for qualifications and educational support initiatives.
	Data Infrastructure	• Qualifications and educational support-related data exist in formats that allow researchers and stakeholders to extract meaningful insights and are accessible to key stakeholders. • Qualifications and educational support-related data are collected from center-based programs, FCC, and out-of-school settings.
	Sustainability	• Dedicated and sustainable source(s) of funding are identified and designated for qualifications and educational supports initiatives. • A system is in place for financing qualifications and educational support initiatives that is coordinated, efficient, easy to navigate, feasible to administer, and transparent. • Formal policies, regulations, or written documents protect and sustain standards for qualifications and educational support initiatives. • Formal policies, regulations, or written documents increase the flexibility of funding and enable the use of multiple funding streams for qualifications and educational support initiatives. • Dedicated and sustainable source(s) of funding are designated for the purpose of building and maintaining a comprehensive, integrated data system that can inform qualifications and educational support initiatives.

	Primary Drivers	Secondary Drivers
Principles Drivers	Engaging Educators in Systems Change	• Educators with a range of backgrounds and experiences are active leaders in designing and implementing the vision and plan for change related to qualifications and educational support aims. • Outreach strategies, capacity-building efforts, and information related to qualifications and educational support initiatives are appropriate, available, and accessible to enable educator engagement. • Educators have substantial influence and decision-making power in shaping and guiding qualifications and educational support initiatives.
	Culture & Narrative Shift	• Policymakers and decision makers, the public at large, and the ECE sector are aware of the importance of securing funding to support qualifications requirements and educational support to ensure a skilled, stable, and valued ECE workforce. • Policymakers and decision makers are aware that high-quality ECE educator preparation and career development programs provide preparation around practices that support child development, unique from traditional K-12 preparation/training.

Table 3. Aim 3 – Positive Working Conditions

	Primary Drivers	Secondary Drivers
Practice Drivers	Policy-Specific Promising Practices	• Educators have adequate breaks and time off, adequate coverage, and adequate professional support. • Educators work in positive work climates that promote their teaching practices and well-being. • Educators work in physical work environments/facilities which are safe, updated, healthy, and meet the needs of both adults and children.
	Targeted and Aligned Policies	• All ECE staff are aware of their rights in the workplace. Protections are in place for workers who report workplace or regulatory violations (e.g., state whistleblowing laws). • A wage scale is designed to ensure competitive compensation with K-3 based on factors such as roles, qualifications, and experiences. • A benefit model is designed to ensure parity with K-3, such as health insurance, retirement plans, loan forgiveness, and tax credits. • ECE work environment standards are addressed in other systems (e.g., QRIS, OSHA standards, licensing, housing policies). • Data-focused policies support effective data collection, data sharing and use, and individual privacy.
	Data-Driven Decision Making	• Programs and initiatives are monitored, and their progress and impact data are used to inform and refine systems change efforts. • Work environment data are shared and reviewed to assess the current state of work environments.

	Primary Drivers	Secondary Drivers
		• Data regarding financial investments specific to supporting work environments are collected and analyzed at all phases of implementation to ensure sustained funding.
Infrastructure Drivers	Leadership & Governance	• Leaders from state and local agencies, ECE programs, professional associations, workforce councils, labor groups, community organizations, and government bodies are actively engaged and supportive of work environment aims. • Governance structures ensure that decision makers collaborate and align actions for cross-sector work environment initiatives in the ECE sector (i.e., home-based and center-based child care, Early Head Start, Head Start). • ECE program leaders foster a positive, supportive workplace culture, address work environment issues, and promote educator agency.
	Multi-Sector & Multi-Partner Collaboration	• Cross-sector state or community coalitions/partnerships are convened to jointly plan, make decisions, implement, and evaluate work environment initiatives. • Diverse cross-sector coalitions/partnerships are in place and work together to establish and operate with shared understanding, goals, and vision to guide their efforts. • Regular meetings and financial incentives are in place to promote active engagement and collaboration among cross-sector partners for work environment initiatives.
	Data Infrastructure	• Work environment-related data exist in formats that allow researchers and stakeholders to extract meaningful insights and are accessible to key stakeholders. • Work environment-related data are collected from center-based programs, FCC, and out-of-school settings.
	Sustainability	• Dedicated and sustainable source(s) of funding are identified and designated for work environment initiatives. • A system is in place for financing work environment initiatives that is coordinated, efficient, easy to navigate, feasible to administer, and transparent. • Formal policies, regulations, or written documents protect and sustain standards for work environment initiatives. • Formal policies, regulations, or written documents increase the flexibility of funding and enable the use of multiple funding streams for work environment initiatives. • Dedicated and sustainable source(s) of funding are designated for the purpose of building and maintaining a comprehensive, integrated data system that can inform work environment initiatives.

	Primary Drivers	Secondary Drivers
Principles Drivers	Engaging Educators in Systems Change	• Educators with a range of backgrounds and experiences are active leaders in designing and implementing the vision and plan for change related to work environment aims. • Outreach strategies, capacity-building efforts, and information related to work environment initiatives are appropriate, available, and accessible to enable educator engagement. • Educators have substantial influence and decision-making power in shaping and guiding work environments initiatives.
	Culture & Narrative Shift	• Policymakers and decision makers, the public at large, and the ECE sector are aware of the importance of securing funding to enable competitive compensation to ensure a skilled, stable, and valued ECE workforce. • The ECE sector (e.g., licensors, state agencies regulating child care, directors, administrators) thinks in new ways about work standards and positive work environments, challenging typical ways of working to make systems educator-centered and supportive.

For more information about how these drivers were developed, see Appendix A.

Using the Change Framework to Guide Systems Change

Change leaders	People who want to take intentional coordinated action to build a stable and qualified ECE workforce
Change initiative	A coordinated and targeted effort to leverage multiple primary drivers to achieve an aim

The Change Framework is designed for use by a broad range of stakeholders working to strengthen the ECE workforce system. The Change Framework can serve as a guide for **change leaders** who want to take intentional, coordinated action to build a stable and qualified ECE workforce. This may include state-level administrators; state and community ECE agencies; researchers; local ECE program leaders and staff working in various settings, such as Head Start, FCC, community-, center-, and school-based ECE programs; or institutions of higher education (IHEs) that support workforce development through educational programs and pathways.

Using the Change Framework in States and Communities

Change leaders can use the Change Framework to identify strengths and gaps within each of the primary drivers. Change leaders can refer to the Change Framework and reflect on the following questions:

- **Reflecting on the aims:** Which aim is most relevant to or needed in your context: competitive and fair compensation, clear and accessible career pathways, or positive working conditions?
- **Reflecting on the primary drivers:** In what ways do your efforts address all three types of primary drivers: practices, infrastructure, and principles? If your efforts are focused on just one, how might thinking about the other types of drivers help you to advance progress?

- **Reflecting on the secondary drivers:** To what extent are the secondary drivers in place in your context: Not at all? Some? A lot?

This kind of assessment can help change leaders to see progress to date as well as areas that they can focus on for ongoing improvement. Change leaders can use their assessment of the drivers to decide which are most relevant, needed, and feasible given their goals, available resources, and current context. They can share their findings with other change leaders in their networks/communities and discuss how to work towards achieving the aims through **change initiatives**. By focusing on the most relevant drivers and integrating their efforts across all three driver types, change initiatives can take strategic steps to strengthen their ECE workforce systems and achieve lasting improvements.

Using the Change Framework in Research

The Change Framework can also serve as a theory of change for researchers studying systems change. Researchers can refer to the Change Framework and reflect on the following questions:

- In what ways are you accounting for these drivers when studying systems change?
- Does your research account for the interrelatedness of the three types of primary drivers: practices, infrastructure, and principles? If your research is focused on just one, how might thinking about the other types of drivers help you to investigate and advance knowledge about systems change?
- Are there opportunities to share what you are learning from your research with others involved in research and policy related to ECE systems change?

Conclusion

This brief described the Center's aims to improve ECE workforce policy. It introduced the ECE Workforce Systems Change Framework as a guide for systems change that can help change leaders to achieve the aims.

To find out more about the work of the Center, please visit our website, subscribe to our newsletter, or follow us on social media. If you would like to share feedback based on your use of the Change Framework, please contact the Center team at workforcecenter@childtrends.org.

Acknowledgements

This brief is supported by Grant Number 90TA000004-01-00 from the Administration for Children and Families, a division of the U.S. Department of Health and Human Services. Neither the Administration for Children and Families nor any of its components operate, control, are responsible for, or necessarily endorse this brief. The opinions, findings, conclusions, and recommendations expressed are those of the author(s) and do not necessarily reflect the views of the Administration for Children and Families, including the Office of Early Childhood Development; the Office of Head Start; the Office of Child Care; and the Office of Planning, Research, and Evaluation.

The National Early Care and Education (ECE) Workforce Center is a joint research and technical assistance center that equips state and local leaders to drive change in ECE workforce policy. To learn more about the Center, please visit our website https://www.nationaleceworkforcecenter.org/.

Suggested citation: Douglass, A., Hallam, R., Lee, Y., Beatty, L., Sheffler, K., & Pic, A. (2025). *Introduction to the ECE Workforce Systems Change Framework*. National Early Care and Education Workforce Center.

Glossary

Aims: The goal/desired impact of change on ECE workforce systems and policies. Aims represent the most important challenges that need to be addressed to create good jobs for the ECE workforce

Change initiatives: A coordinated, targeted effort to leverage multiple drivers to achieve an aim.

Change Framework: A structured framework that identifies the primary and secondary drivers that can result in achieving the aims for improving conditions for the ECE workforce.

Change leaders: People who want to take intentional, coordinated action to build a stable, qualified ECE workforce.

Compensation: Financial compensation (salary, wages) and additional benefits with potential monetary value including paid time off (sick, vacation, personal), retirement plans, reduced tuition for a child at the center, and health insurance.

Cross-sector partners: Organizations influencing the ECE workforce working together across sectors to achieve mutually beneficial outcomes (e.g., private organizations, nonprofit organizations, government)

Educational supports: Programs/systems/conditions that support educators to gain credentials/training; this would include higher education, apprenticeship programs, and professional development systems.

Financial relief: Initiatives or efforts that provide additional income outside a worker's expected pay and benefits (compensation), typically based on eligibility. Financial relief programs are often one-time payments or short-term programs and may include bonuses, incentive programs, stipends, and tax credits.

Financial resources: ECE funding sources (e.g., Child Care Development Fund, Preschool Development Grant Birth through Five) and mechanisms (e.g., contracts, grants) that are or can be used to fund workforce initiatives, supports, and/or wider ECE infrastructure needed to implement workforce initiatives/supports.

Infrastructure drivers: The *structural aspects* necessary for achieving the aims.

Practice drivers: The *programmatic and policy actions* taken to achieve the aims.

Primary driver: Levers for change that can lead to progress towards achieving the aim.

Principles drivers: The *underlying beliefs* necessary for achieving the aims.

Secondary driver: Promising, innovative, and evidence-based practices and strategies needed to put the primary drivers in place.

Appendix A
How was the Change Framework developed?

1) ***Literature review:*** We first developed search parameters identifying inclusion and exclusion criteria. We employed a database search within six academic databases, each selected to encompass systems change literature broadly and within ECE. Additionally, we compiled and reviewed key resources in two categories: 1) broad systems change resources across disciplines and 2) ECE-specific resources (e.g., reports, briefs, toolkits) related to the three focus policy areas: compensation, career pathways, and work environment. Our search for key resources continued until we reached saturation (Appendix B includes a detailed list of the literature).
2) ***Identified primary drivers:*** Using insights from broad systems change resources, we identified an initial set of primary drivers. We sought to organize the primary drivers such that they were grouped, labeled, and ordered in a way that was intuitive and accessible. The systems change framework crosswalk[19] offered three key types of primary drivers for systems change (infrastructure drivers, practice drivers, and principles drivers), which we used to define and organize our primary drivers.
3) ***Compiled state and community examples for Aim 1: Competitive and Fair Compensation:*** We used ECE-specific resources to identify real-world state and community examples related to workforce compensation. These examples were mapped onto primary drivers, and if an example did not fit an existing primary driver, we considered creating a new primary driver or revising the language of an existing one.
4) ***Developed secondary drivers for Aim 1: Competitive and Fair Compensation:*** We reviewed the compiled state and community examples for each primary driver and distilled key ingredients (e.g., features, tools, strategies, approaches, core values) from those examples to identify secondary drivers for the aim.
5) ***Compiled state and community examples for Aim 2: Clear and Accessible Career Pathways and Aim 3: Positive Working Conditions:*** We repeated the process for the remaining two aims. We mapped examples that aligned with previously identified drivers for Aim 1 accordingly. We also identified drivers unique to Aim 2 and Aim 3 and added them to the framework.
6) ***Developed secondary drivers for Aim 2: Clear and Accessible Career Pathways and Aim 3: Positive Working Conditions:*** We reviewed the compiled state and community examples for each primary driver and distilled key ingredients (e.g., features, tools, strategies, approaches, core values) from those examples to identify secondary drivers for the aims.
7) ***Gathered insights from the literature review and collaboration*:** We continued to review literature and collaborated with technical assistance experts to guide the development of the drivers. The process was iterative, and we drafted several versions.
8) ***Elicited feedback:*** We shared the identified primary and secondary drivers with other Center staff for feedback. We also gathered input from external stakeholders, such as those who attended the "Wage and Salary Scales" and "Creating Partnerships and Pathways to Support Credential and Degree Attainment" Communities of Practice (CoPs) that the Center held in its first year. Their feedback was incorporated into the Change Framework to ensure it is relevant and practical for real-world application.

Appendix B
References Used to Develop the Change Framework

Aikens, N., Tallapragada, R., & Robinson, D. (2021). *Crosswalk of frameworks for understanding systems change. Mathematica and Equal Measure.*

Austin, L. J. E., Whitebook, M., & Dichter, H. (2019). *Financing early educator teacher quality: A closer look at assumptions that drive variations in estimating the cost of services*. Center for the Study of Child Care Employment, University of California, Berkeley. https://files.eric.ed.gov/fulltext/ED597191.pdf

Austin, L. J. E., Edwards, B., & Whitebrook, M. (2019). *Racial wage gaps in early education employment* [Issue Brief]. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/publications/brief/racial-wage-gaps-in-early-education-employment/

Austin, L. J. E., Whitebrook, M., Amanta, F. (2015). *Challenges and opportunities for including coursework on infants and toddlers in higher education degree programs*. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/wp-content/uploads/publications/Challenges-and-Opportunities-for-Including-Coursework-on-Infants-and-Toddlers-in-Higher-Education-Degree-Programs_0.pdf

Bennett, B., & Provost, L. (2015). *What's your theory?: Driver diagram serves as tool for building and testing theories for improvement*. Quality Progress, 48(7), 36-43. https://qi.elft.nhs.uk/resource/whats-your-theory-2/

Berman, K., Goldfarb, K., & Kamal, Z. (2021). *Strengthening early childhood inclusion: Opportunities to improve collaboration between school districts and community partners to support young children with disabilities*. Start Early: Champions for Early Learning. https://www.startearly.org/app/uploads/2021/11/Strengthening-Early-Childhood-Inclusion-Report-11.15.21.pdf

Cabaj, M. (2019). *Evaluating systems change results: An inquiry framework.* Tamarack Institute. https://www.tamarackcommunity.ca/library/paper-evaluating-systems-change-results-an-inquiry-framework

Center for the Study of Child Care Employment, National Institute for Early Education Research, Bellwether Education Partners. (2020). *Early educator preparation and compensation policies: Voices from 10 states*. Early Educator Investment Collaborative. https://earlyedcollaborative.org/assets/2020/12/EEIC_Report_VoicesFrom10States_2020.pdf

Center for the Study of Child Care Employment, Bellwether Education Partners, and National Institute for Early Education Research. (2020). *Early educator preparation landscape*. Early Educator Investment Collaborative. https://earlyedcollaborative.org/assets/2020/12/EEIC_Report_EarlyEducatorPreparationLandscape_2020.pdf

Center for the Study of Child Care Employment, National Institute for Early Education Research, and Bellwether Education Partners. (2020). *50-state early educator policy and practice research*. Early Educator Investment Collaborative. https://earlyedcollaborative.org/assets/2020/12/EEIC_Report_50StateEarlyEducatorPolicy_2020.pdf

Checkoway, A., Bumgarner, E., Collins, C., & Cocatre-Zilgien, E. (2021). *Building a stronger early chidhood system: Ongoing state efforts to improve coordination and alignment*. Abt Associates. https://www.abtassociates.com/files/insights/white-papers/2021/pdg-brief-final.pdf

Children's Learning Institute at The University of Texas Health Science Center at Houston. (2021). Texas Early Childhood Professional Development System: *State of the Texas Early Childhood Education Workforce Report*. Houston, TX. https://public.tecpds.org/about-us/state-of-the-ece-workforce-report/.

Child Care Service Association. (2023a, August 11). *Child care WAGE$*. T.E.A.C.H. Early Childhood National Center. https://www.teachecnationalcenter.org/child-care-wages/

Child Care Service Association. (2023b, September 20). *Early childhood educator apprenticeship program*. T.E.A.C.H. Early Childhood National Center. https://www.teachecnationalcenter.org/special-projects/early-childhood-educator-apprenticeship-program/

Childcare Service Association. (2023c, August 11). *T.E.A.C.H. early childhood*. T.E.A.C.H. Early Childhood National Center. https://www.teachecnationalcenter.org/teach-early-childhood/

Connors, M., Farwig, A., & Kenefick, B. (n.d.). *A New Approach to Policy: Strengthening organizational conditions to improve early childhood care and education quality*. Ounce of Prevention Fund. https://www.startearly.org/app/uploads/2020/09/PUBLICATION_Case-for-Strengthening-Organizational-Conditions-To-Improve-Early-Childhood-Care-and-Education-Quality.pdf

Council for Professional Recognition. (2021). *Child Development Associate (CDA) handbook for high school: A guide to advocacy and implementation*. https://mydigimag.rrd.com/publication/?i=690150

Dade, A. & McLean, C. (2023). *Bold on Early Educator Compensation Learning Community 2022: Lessons from state actions* [Issue Brief]. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/wp-content/uploads/2023/02/Brief-Bold-on-Early-Educator-Compensation-Learning-Community-2023.pdf

Dade, A., & McClean, C. (2023). *State actions on early educator compensation: Lessons from the Bold on Early Educator Compensation Learning Community* [Executive summary]. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/wp-content/uploads/2023/02/Executive-Summary-Table_Learning-Community-Brief-2023.pdf

Dichter, H. & LiBetti, A. (2021). *Improving child care compensation backgrounder*. The BUILD Initiative. https://buildinitiative.org/resource-library/backgrounder-on-compensation-in-child-care/

Dichter, H., Weisenfeld, G., & Morrison, H. (2021). *Early childhood finance toolkit: A curated resource to support state leaders in a mixed delivery system*. SRI International. https://acf.gov/sites/default/files/documents/ecd/Early%20Childhood%20Finance%20Toolkit.pdf

Douglass, A. (2017). *Leading for change in early care and education: Cultivating leadership from within.* New York: Teachers College Press.

Douglass, A., Halle, T., Kirby, G., & Nagle, K. (2022). *Recognizing and supporting early childhood educators and program administrators as agents of change: An exploration of distributed leadership in early care and education.* OPRE Report #2022-74. Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. https://acf.gov/sites/default/files/documents/opre/ece_distributed_leadership_apr2022.pdf

Dowsett, C., Steber, K., & Epstein, D. (2019). *Spotlight on Louisiana's Early Childhood Ancillary Certificate*. Child Trends. https://cms.childtrends.org/wp-content/uploads/2019/11/LA-EC-Ancillary-Certificate_ChildTrends_December2019.pdf

Dreier, L., Nabarro, D., & Nelson, J. (2019). *Systems leadership for sustainable development: Strategies for achieving systemic change*. Corporate Responsibility Initiative at Harvard Kennedy School. https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/Systems%20Leadership.pdf

Early Care & Education Pathways to Success (ECEPTS). Early Care & Education Pathways to Success. (2022, December 7). https://ecepts.org/

Early Childhood Systems Technical Assistance and Coordination Center. (n.d.). *Driver diagram and change package: Early childhood partnerships with maternal-child health delivery systems, including Medicaid*. James Bell Associates. https://www.jbassoc.com/wp-content/uploads/2023/05/1-ECCS-Driver-Diagram-Change-Package.pdf

Early Childhood Workforce "Data for Impact" *Convening: Exploring Partnerships, Strategies, and Opportunities to Build and Strengthen Workforce Data Use*. (2023). NORC at the University of Chicago. https://aspe.hhs.gov/sites/default/files/documents/684ffd5579e129682046e528028c8a9d/ec-workforce-data-impact-convening-brief.pdf

ECCS CoIIN Initiative. (2021). *Accelerating action and gaining traction in EC systems building initiatives: Improving systems performance measurement*. National Institute for Children's Health Quality. https://nichq.org/sites/default/files/inline-files/SystemsPerformanceMeasurement_10.25.21.pdf

Foster-Fishman, P. G., Nowell, B., & Yang, H. (2007). P*utting the system back into systems change: A framework for understanding and changing organizational and community systems*. American Journal of Community Psychology, 39(3-4), 197-215. https://doi.org/10.1007/s10464-007-9109-0

Gardner, M., Melnick, H., Meloy, B., & Barajas, J. (2019). *Promising models for preparing a diverse, high-quality early childhood workforce*. Learning Policy Institute. https://learningpolicyinstitute.org/media/391/download?inline&file=Early_Educator_Preparation_REPORT.pdf

Greenberg, E., Nelson, V., Doromal, J., Sandstrom, H., Bose, S., & Lauderback, E. (2023). *Toward pay equity: A case study of Washington, DC's wage boost for early childhood educators*. The Urban Institute. https://www.urban.org/sites/default/files/2023-06/Toward%20Pay%20Equity.pdf

Gonzalez, N., Aikens, N., & Gosciak, J. (2021). *What drives systems change: Key findings and implications from a literature review on systems change in education*. Mathematica and Equal Measure.

Hanno, E. C., McCoy, D. C., Sabol, T. J., & Gonzalez, K. E. (2021). *Early Educators' Collective Workplace Stress as a Predictor of Professional Development's Impacts on Children's Development*. https://srcd.onlinelibrary.wiley.com/doi/10.1111/cdev.13566

Harriet Dichter, Adrienne Briggs, Sherilynn Kimble, Sharon Neilson, Gail Nourse, Diane Schilder, and Deborah Stahl. (2021). *Philadelphia's Early Learning Community Speaks Out: An Action Plan for Quality Improvement*. The BUILD Initiative. https://buildinitiative.org/wp-content/uploads/2021/06/PHL-QI-Report-FINAL-2021.6.9.pdf

Hawn Nelson, A., Kemp, D., Jenkins, D., Rios Benitez, R., Berkowitz, E., Burnett, TC, Smith, K., Zanti, S., & Culhane, D. (2022). *Finding a way forward: How to create a strong legal framework for data integration*. Actionable Intelligence for Social Policy. University of Pennsylvania. https://aisp.upenn.edu/wp-content/uploads/2022/06/AISP_Finding-A-Way-Forward_Final_6.16.2022.pdf

Hoover, C., Paladino, M. J., Dworetzky, B., & Wells, N. (2018). *A framework for assessing family engagement in systems change*. Lucile Packard Foundation for Children's Health. https://www.lpfch.org/sites/default/files/field/publications/assessing_family_engagement_4.10.18.pdf

Hsueh, J., Taylor, H., Maier, M., & Roach, S. (2023). *Influences on the recruitment, retention, and advancement of the child care and early education workforce: A conceptual framework*. [Unpublished.] MDRC: Building and Sustaining the Child Care and Early Education Workforce (BASE) Project. https://www.mdrc.org/sites/default/files/41672_HHS_OPRE_BASE_Brief_Conceptual-Framework_v14_508.pdf

Kornack, C. & LiBetti, A. (2021). *Broader, deeper, fairer: Five strategies to radically expand the talent pool in early education*. The BUILD Initiative. https://buildinitiative.org/wp-content/uploads/2021/10/Broader_Deeper_Fairer.pdf

King, C., Perkins, V., Nugent, C., & Jordan, E. (2018). *2018 State of: State Early Childhood Data Systems*. The Early Childhood DATA Collaborative. https://cms.childtrends.org/wp-content/uploads/2018/09/ECDC-50-state-survey-9.25.pdf

Kwon, KA., Ford, T.G., Salvatore, A.L. et al. *Neglected Elements of a High-Quality Early Childhood Workforce: Whole Teacher Well-Being and Working Conditions*. Early Childhood Educ J 50, 157–168 (2022). https://doi.org/10.1007/s10643-020-01124-7

Lang, S. N., Jeon, L., Sproat, E. B., Brothers, B. E., & Buettner, C. K. (2020). *Social Emotional Learning for Teachers (SELF-T): A Short-term, Online Intervention to Increase Early Childhood Educators' Resilience*. Early Education and Development, 31(7), 1112–1132. https://doi.org/10.1080/10409289.2020.1749820

Lessard, L., Hallam, R., Albrecht, S., Plautz, E., & Fulgence-Belardo, K. (2022). *Shining the Light on You: An Evidence-Based Program Designed to Improve the Health and Wellbeing of Family Child Care Professionals*. Delaware Journal of Public Health, 8(3), 42–46. https://doi.org/10.32481/djph.2022.08.010

LiBetti, A. (2022). *A continued call to action: Building a comprehensive birth-to-three strategy in the District of Columbia* [Issue Brief]. The BUILD Initiative. https://buildinitiative.org/wp-content/uploads/2022/04/HUB_CTA_DC2022digital-final.pdf

LiBetti, A., & Fu, R. (2023). *Early Childhood Integrated Data Systems: A South Carolina Case Study.* https://www.newamerica.org/education-policy/edcentral/south-carolina/

Lloyd, C. M., Goldberg, J., Kane, M., Seok, D., & Vega, C. (n.d.). *Professional Development Systems to Support Home Visiting for Home-Based Child Care Providers*. Child Trends. https://cms.childtrends.org/wp-content/uploads/2019/09/FCD-PD-Brief_ChildTrends_Sept2019.pdf

Marin, A. (2022). *From dreams to practice: Strengthening systems of teaching and learning for children, families, and educators through community-based inquiry: A co-learning (evaluation) report*. Indigenous Early Learning Collaborative at the Brazelton Touchpoints Center. https://www.brazeltontouchpoints.org/wp-content/uploads/2022/10/2208_IELC_EVAL-Report_G.pdf

Mathematica and Equal Measure. (2021). *Self-assessment and place-based systems change efforts*. Mathematica and Equal Measure.

Maxwell, K., Early, D., & Miranda, B. (2022). *Considerations in conducting child care and early education facilities needs assessments.* OPRE Report #2022-230. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. https://acf.gov/opre/report/considerations-conducting-child-care-and-early-education-facilities-needs-assessments

McLean, C., Austin, L. J. E., Whitebook, M., & Olson, K. L. (2024). *Early childhood workforce index 2024*. Center for the Study of Child Care Employment, University of California Berkeley. https://cscce.berkeley.edu/workforce-index-2024/

McLean, C., Austin, L.J.E., Whitebook, M., & Olson, K.L. (2021). *Early childhood workforce index – 2020*. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/workforce-index-2020/report-pdf/

Menon, M., Huber, R., & Russell, R. (2021). *Lessons learned from the ECCS CoIIN coordinating center's evaluative*

efforts. The National Institute for Children's Health Quality and Department of Applied Research and Evaluation. https://nichq.org/wp-content/uploads/2024/09/ECCS_FinalReport_BOOK_FINAL-min-1.pdf

Nagasawa, M., & Tarrant, K. (2020). *Who Will Care for the Early Care and Education Workforce? COVID-19 and the Need to Support Early Childhood Educators' Emotional Well-being*. New York Early Childhood Professional Development Institute, CUNY. https://educate.bankstreet.edu/sc/1

Natale, R., Agosto, Y., Shearer, R. J. B., George, S. M. S., & Jent, J. (2023). *Designing a virtual mental health consultation program to support and strengthen childcare centers impacted by COVID-19: A randomized controlled trial protocol*. Contemporary clinical trials, 124, 107022. https://www.sciencedirect.com/science/article/pii/S1551714422003482?casa_token=h_E6BOp8cJ4AAAAA:Znd171CI5ktZlguKAv2p0wYv_6KMLtl6Sm3Z9t8gyUZ6zSZ_DtACCmUm7llsUWsIS4RsmwKy

National Center on Early Childhood Development, Teaching and Learning. (n.d.). *Early Childhood Education Apprenticeships: The why, what, and how - hhs.gov*. EARLY CHILDHOOD EDUCATION APPRENTICESHIPS: THE WHY, WHAT, AND HOW. https://childcareta.acf.hhs.gov/sites/default/files/new-occ/resource/files/ece_apprenticeshipbrief_0.pdf

National Conference of State Legislatures. (2019). *Addressing benefits cliffs*. National Conference of State Legislatures. https://www.ncsl.org/human-services/addressing-benefits-cliffs

Office of the State Superintendent of Education. (2017, November 17). *OSSE announces plan to give early childhood educators more time to meet new education requirements*. OSSE Announces Plan to Give Early Childhood Educators More Time to Meet New Education Requirements. https://osse.dc.gov/release/osse-announces-plan-give-early-childhood-educators-more-time-meet-new-education-requirements

Petig, A. C., Austin, L. J. E., Dean, A. (2018). *Understanding many languages: Preparing early educators to teach dual language learners*. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/wp-content/uploads/publications/Understanding-Many-Languages.pdf

Ponder, K. & Ames, G. (2021). *The nuts and bolts of building early childhood systems through state/local initiatives*. The BUILD Initiative. https://buildinitiative.org/wp-content/uploads/2021/06/NutsandBolts2021_final1.pdf

Poppe, J., Thorman, A., & Weyer, M. (2020). *Improving early childhood education systems*. Education Commission of the States. https://www.ecs.org/wp-content/uploads/Improving_Early_Childhood_Education_Systems.pdf

Roberts, A. M., Daro, A. M., & Gallagher, K. C. (2023). *Profiles of Well-Being Among Early Childhood Educators. Early Education and Development*, 34(6), 1414–1428. https://doi.org/10.1080/10409289.2023.2173463

Schaack, D. D., Le, V. N., & Stedron, J. (2020). *When Fulfillment is Not Enough: Early Childhood Teacher Occupational Burnout and Turnover Intentions from a Job Demands and Resources Perspective.* Early Education and Development, 31(7), 1011–1030. https://doi.org/10.1080/10409289.2020.1791648

Schlieber, M., Knight, J., Adejumo, T., Copeman Petig, A., Valencia López, E., & Pufall Jones, E. (2022). *Early Educator Voices: Oregon. Work Environment Conditions That Impact Early Educator Practice and Program Quality*. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/publications/report/educator-voices-

Schlieber, M., & McLean, C. (2020). *Educator Work Environments Are Children's Learning Environments: How and Why They Should Be Improved.* Center for the Study of Child Care Employment.

https://cscce.berkeley.edu/blog/educator-work-environments-are-childrens-learning-environments-how-and-why-they-should-be-improved/

Smith, S., & Lawrence, S. (2019). *Early Care and Education Teacher Well-being: Associations with Children's Experience, Outcomes, and Workplace Conditions: A Research-to-Policy Brief.* Research Connections. National Center for Children in Poverty, Mailman School of Public Health, Columbia University & Interuniversity Consortium for Political and Social Research, University of Michigan. https://www.nccp.org/wp-content/uploads/2020/05/text_1224.pdf

Federal Register. (2023). *Supporting the Head Start Workforce and Consistent Quality Programming.* A Proposed Rule by the Children and Families Administration. https://www.federalregister.gov/documents/2023/11/20/2023-25038/supporting-the-head-start-workforce-and-consistent-quality-programming

Better Kid Care. (n.d.). *Taking Steps to Healthy Success: Staff Wellness.* https://extension.psu.edu/programs/betterkidcare/lessons/tshs-staffwellness

Taylor, H. (2023). *An annotated bibliography of select literature on the child care and education workforce: A supplement to the BASE knowledge review series.* [Unpublished.] MDRC: Building and Sustaining the Child Care and Early Education Workforce (BASE) Project. https://www.mdrc.org/sites/default/files/41672_HHS_OPRE_BASE_Brief_Annotated-Bibliography_v12_508.pdf

Bowers, H.-H., Clark, C., Parra, G., Calvi, J., Bird, M. Y., Avari, P., Foged, J., & Smith, J. (2022). *Promising Findings that the Cultivating Healthy Intentional Mindful Educators' Program (CHIME) Strengthens Early Childhood Teachers' Emotional Resources: An Iterative Study*. Early Childhood Education Journal. https://link.springer.com/article/10.1007/s10643-022-01386-3

The BUILD Health Challenge. (2019). *Community approaches to systems change: A compendium of practices, reflections, and findings.* http://buildhealthchallenge.org/wp-content/uploads/2019/11/BUILD-Systems-Change-Compendium.pdf

The BUILD Initiative. (2023). *In brief: Learning from the new round of PDG B-5 Systems Building Grants* [Issue Brief]. The BUILD Initiative. https://buildinitiative.org/wp-content/uploads/2023/08/PDG-Series-Workplace-Compensation-2023.8.28.pdf

BUILD Initiative. (2023). *Workforce compensation: Learning from the new round of PDG B-5 systems building grants.* https://buildinitiative.org/wp-content/uploads/2023/08/PDG-Series-Workplace-Compensation-2023.8.28.pdf

The BUILD Initiative, Center for American Progress, Children's Funding Project, Institute on Taxation and Economic Policy, and University of Maryland College Park, Schools of Public Health and Public Policy (2019). *Funding our future: Generating state and local tax revenue for quality early care and education*. The BUILD Initiative. https://buildinitiative.org/wp-content/uploads/2021/06/Funding-Our-Future-FINAL-2019.9.24.pdf

The BUILD Initiative. (n.d.). *Preschool Development Grants Birth through Five (PDG B-5) additional resources.* The BUILD Initiative. https://buildinitiative.org/preschool-development-birth-through-five-grants/

The Early Childhood Technical Assistance Center. (2015). *A system framework for building high-quality early intervention and preschool special education programs.* ECTA Center. https://ectacenter.org/sysframe/

The National Workforce Registry Alliance. (2022). *Theory of chance: Early learning professional development registries*. The National Workforce Registry Alliance. https://www.registryalliance.org/home/01-nwra_theory-of-change-public-2/

The National Workforce Registry Alliance. (2013). *Core data elements for early childhood and school age*

registries. The National Workforce Registry Alliance. https://www.registryalliance.org/2013-core-data-elements-for-early-childhood-and-school-age-registries/

Unifying framework for the Early Childhood Education Profession. (2020). https://powertotheprofession.org/wp-content/uploads/2020/03/Power-to-Profession-Framework-03312020-web.pdf

Ventilation in Schools and Childcare Programs: How to Use CDC Building Recommendations in your Setting. (2021). Centers for Disease Control and Prevention. https://archive.cdc.gov/www_cdc_gov/coronavirus/2019-ncov/community/schools-childcare/ventilation.html

Washington State Department of Commerce. (2020). *Washington State Energy Strategy Advisory Committee: Final Report*. https://www.commerce.wa.gov/wp-content/uploads/2020/12/State-Energy-Strategy-Advisory-Committee-Report.pdf

Weisenfeld, G. G. & Hodges, K., & Copeman Petig, A. (2022). *Assistant teachers in state-funded preschool programs*. Center for the Study of Child Care Employment, University of California, Berkeley. https://nieer.org/sites/default/files/2023-08/assistant-teacher-brief_september-2022.pdf

Weisenfeld, G., & Harmeyer, E. (2024). *Including family child care in state-funded pre-k systems: An update*. National Institute for Early Education Research. https://nieer.org/sites/default/files/NIEER-FCC-State-Pre-K.pdf

Whitebook, M., Austin, L. J., Ryan, S., Kipnis, F., Almaraz, M., & Sakai, L. (2012). *By default or by design? Variations in higher education programs for ECE teachers and their implications for research methodology, policy, and practice*. Center for the Study of Child Care Employment, University of California, Berkeley. https://escholarship.org/uc/item/0237g87x

Whitebook, M., Schlieber, M., Hankey, A., Austin, L. J. E., & Philipp, G. (2018). *Teachers' Voices Work Environment Conditions That Impact Teacher Practice and Program Quality*. Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California, Berkeley. https://cscce.berkeley.edu/wp-content/uploads/publications/Teachers-Voices-New-York-2018_.pdf

Wilson, D. H., Nelson, K. E., Gresh, A., Ricker, A., Littlepage, S., Krienke, L. K., & Brockie, T. N. (2023). T*he Pre-implementation Process of Adapting a Culturally Informed Stress Reduction Intervention for Native American Head Start Teachers* | Global Implementation Research and Applications. https://link.springer.com/article/10.1007/s43477-022-00070-3

Woodman, L. (2022). *Overcoming the Challenges of Family Day Home Educators: A Family Ecological Theory Approach*. In Education, 28(1a), Article 1a. https://doi.org/10.37119/ojs2022.v28i1a.649

Zhao, X., & Jeon, L. (2023). E*xamining the Associations between Teacher Job Satisfaction, Workplace Climate, and Well-Being Resources within Head Start Programs*. Early Education and Development, 35(5), 933–949. https://doi.org/10.1080/10409289.2023.2221765

References Used in This Brief

[1] Hsueh, J., Taylor, H., Maier, M., & Roach, S. (2024). *Influences on the recruitment, retention, and advancement of the child care and early education workforce* (OPRE Report 2023-191). Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. https://acf.gov/sites/default/files/documents/opre/41672_HHS_OPRE_BASE_Brief_Conceptual-Framework_v14_508.pdf

[2] Adams, G., Ewen, D., & Luetmer, G. (2021). *Supporting the Child Care and Early Education Workforce: A Menu of Policy Options for the COVID-19 Pandemic and Recovery*. Urban Institute. https://www.urban.org/sites/default/files/publication/103635/supporting-the-child-care-and-early-education-workforce.pdf

[3] McLean, C., Austin, L. J. E., Whitebook, M., & Olson, K. L. (2024). E*arly childhood workforce index 2024*. Center for the Study of Child Care Employment, University of California Berkeley. https://cscce.berkeley.edu/workforce-index-2024/

[4] McLean, C., Austin, L. J. E., Whitebook, M., & Olson, K. L. (2024). *Early childhood workforce index 2024*. Center for the Study of Child Care Employment, University of California Berkeley. https://cscce.berkeley.edu/workforce-index-2024/

[5] Hsueh, J., Taylor, H., Maier, M., & Roach, S. (2024). *Influences on the recruitment, retention, and advancement of the child care and early education workforce* (OPRE Report 2023-191). Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. https://acf.gov/opre/project/building-and-sustaining-early-care-and-education-workforce-base

[6] McLean, C., Austin, L. J. E., Powell, A., Jaggi, S., Kim, Y., Knight, J., Muñoz, S., & Schlieber, M. (2024). *Early childhood workforce index – 2024*. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/workforce-index-2024/

[7] ZERO TO THREE. (n.d.). *The case for better compensation of early educators*. ZERO TO THREE. https://www.zerotothree.org/resource/distillation/the-case-for-better-compensation-of-early-educators/

[8] McLean, C., Austin, L. J. E., Powell, A., Jaggi, S., Kim, Y., Knight, J., Muñoz, S., & Schlieber, M. (2024). *Early childhood workforce index – 2024*. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/workforce-index-2024/

[9] Lee, Y., Zeng, S., Douglass, A., Reyes, A., & Johnson, N. (2023). Racial and ethnic wage disparities among center-based early educators. *Early Childhood Education Journal*, *51*(3), 493–502. https://doi.org/10.1007/s10643-022-01317-2

[10] Albelda, R., Clayton-Matthews, A., Douglass, A., Kelleher, C. M., Zeng, S., & Nsiah-Jefferson, L. (2024). *Addressing the cliff-effect problem in Massachusetts legislation to expand affordable quality child care and early education: Policy brief #1*. Center for Women in Politics and Public Policy. University of Massachusetts Boston https://scholarworks.umb.edu/cwppp_pubs/70

[11] Lieberman, A., Bornfreund, L., Franchino, E., McCann, C., & Palmer, I. (2020). *Supporting early educator degree attainment: Takeaways from New America's working group*. New America.

https://d1y8sb8igg2f8e.cloudfront.net/documents/Supporting_Early_Educator_Degree_Attainment_LZznG7V.pdf

[12] Center for the Study of Child Care Employment, Bellwether Education Partners, & National Institute for Early Education Research. (2020). *Early educator preparation landscape. Early Educator Investment Collaborative.* https://files.eric.ed.gov/fulltext/ED614020.pdf

[13] Center for the Study of Child Care Employment, Bellwether Education Partners, & National Institute for Early Education Research. (2020). *Early educator preparation landscape. Early Educator Investment Collaborative.* https://files.eric.ed.gov/fulltext/ED614020.pdf

[14] Center for the Study of Child Care Employment, Bellwether Education Partners, & National Institute for Early Education Research. (2020). *Early educator preparation landscape. Early Educator Investment Collaborative.* https://files.eric.ed.gov/fulltext/ED614020.pdf

[15] Lieberman, A., Bornfreund, L., Franchino, E., McCann, C., & Palmer, I. (2020). *Supporting early educator degree attainment: Takeaways from New America's working group*. New America. https://d1y8sb8igg2f8e.cloudfront.net/documents/Supporting_Early_Educator_Degree_Attainment_LZznG7V.pdf

[16] Schlieber, M., Knight, J., Adejumo, T., Copeman Petig, A., Valencia López, E., & Pufall Jones, E. (2022). *Early educator voices: Oregon. Work environment conditions that impact early educator practice and program quality*. Center for the Study of Child Care Employment, University of California, Berkeley. https://cscce.berkeley.edu/publications/report/educator-voices-oregon/

[17] Smith, S., & Lawrence, S. (2019). *Early care and education teacher well-being: Associations with children's experience, outcomes, and workplace conditions: A research-to-policy brief*. Child Care and Early Education Research Connections. https://www.nccp.org/wp-content/uploads/2020/05/text_1224.pdf

[18] Arnold, R. D., & Wade, J. P. (2015). A definition of systems thinking: A systems approach. *Procedia Computer Science, 44*, 669-678. https://doi.org/10.1016/j.procs.2015.03.050

[19] Aikens, N., Tallapragada, R., & Robinson, D. (2021). *Crosswalk of frameworks for understanding systems change*. Mathematica and Equal Measure.