Building a Skilled Teacher Workforce

Shared and Divergent Challenges in Early Care and Education and in Grades K-12

Marcy Whitebook, Ph.D.
Director, Center for the Study of Child Care Employment
Institute for Research on Labor and Employment
University of California, Berkeley

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INTRODUCTION

High-quality educational experiences for all children, regardless of age, depend on effective teachers. Yet it is a daunting challenge to ensure that all classrooms, whether in pre-kindergarten or in older grades, are staffed by teachers who are skilled at nurturing children's curiosity and fostering learning. It is also an urgently pressing challenge, given the persistent learning gap between children living in poverty and their more advantaged peers, and the poor academic performance of U.S. students on international achievement tests.[1] Not surprisingly, the preparation, ongoing development, and performance of teachers all figure prominently in the current public discourse on how to improve our nation's educational system, and these issues are the target of government policy, as well as investments by philanthropic and business leaders.

An increasing demand for teachers adds yet another level of concern. The U.S. Department of Labor forecasts, between 2012 and 2022, "replacement needs" (the percentages of estimated job openings resulting from the flow of workers out of an occupation) of 22 percent for K-12 teachers, 28.1 percent for preschool teachers, and 29.4 percent for child care workers.[2] The U.S. Department of Labor forecasts a growth rate (the percentage increase in employment demand for an occupation) during this period of 12 percent for K-12 teachers, 14 percent for child care workers and 17 percent for preschool teachers.[3] To meet the demand generated by proposed expansions of public preschool programs, approximately 100,000 additional preschool teachers with bachelor's degrees will be needed by the end of this decade.[4]

Across the K-12 and early care and education (ECE) communities, similar conversations are underway: how to recruit teachers and strengthen their initial teacher preparation, how to provide ongoing learning experiences for new and veteran educators, and how to organize school environments to ensure that all teachers can best address the needs of an increasingly diverse child population. But these conversations are also widely divergent, given that the histories of the two sectors have led to quite distinct personnel and service delivery systems.

It is essential to understand the personnel-related opportunities and challenges the early childhood education (ECE) sector faces, as well as how these differ from those encountered in grades K-12, in order to adopt an early learning strategy for the U.S. that is capable of improving educational outcomes for young children. To that end, this paper begins with the public perception of early childhood teaching, followed by a brief discussion of the history and purpose of education for children of different ages. Next, the paper describes key features of the personnel systems that have emerged from these varied roots, comparing them along several dimensions, and conclude with suggestions for promoting a skilled and stable early care and education workforce for the 21st century.

THE PUBLIC VIEW OF TEACHING IN EARLY CARE AND EDUCATION

Mounting interdisciplinary evidence underscores the significance of the first five years for children's lifelong success.[5] As a result, early learning opportunities, most notably in publicly funded preschool programs for four-year-olds, have drawn considerable attention as a key strategy in education reform, particularly for children living in poverty.[6] Yet teachers who work with children four years old or younger are typically not viewed by the public as part of our nation's teaching workforce, let alone as drivers of a better educational system. Most people imagine a teacher as someone who works in grades K-12; perhaps more importantly, much of the public is averse to the idea that pre-kindergarten teachers require levels of knowledge and skill as rigorous as those of their counterparts who teach older children.

This perception of teaching in early education as low-skilled stems in part from the developmental characteristics of young children. At its core, good teaching demands the ability to establish and sustain a nurturing, trusting relationship with each individual child in the classroom. Establishing such trust with younger children necessarily involves more caregiving functions than are required with older children. And although intentional instruction is

essential to effective teaching with young children, it is often embedded in children's play and daily routines, masking its presence to those who recognize teaching only in more didactic forms. This blend of caregiving and instruction, so critical to effective early childhood teaching,[7] can make it harder to discern the high degree of knowledge and skill involved, leading many to conclude, for example, that it is unnecessary to obtain a college degree and specialized training in order to teach young children.[8] Limited requirements for ECE teachers in many settings further reinforce the idea that teaching young children requires limited pedagogical or content knowledge, even with respect to promoting children's mathematical and literacy skills.

Research evidence suggests otherwise, repeatedly demonstrating that ECE teachers who have been educated on a par with K-12 teacher standards are more effective in promoting children's learning.[9] Further, it is well established that relationships between young children and teachers are the cornerstone of such learning. When a trusting and nurturing connection does not develop, or is disrupted—too often due to the insufficient staffing and/or high levels of turnover that are common in ECE settings—children suffer the emotional and educational consequences.[10]

A vicious cycle works to maintain a public view of teaching young children as requiring less-skilled and knowledgeable instructors than teaching older children, which in turn permits ECE teachers' low status and pay to be viewed as acceptable. Poor compensation and low status in ECE programs not only fuel harmful levels of teacher turnover, but also discourage academically successful young people from considering ECE teaching careers.[11] As shown in Figure 1 and Table 1, even the most well-paid pre-kindergarten teachers in school-sponsored settings, representing only six percent of the ECE teacher workforce,[12] earn, on average, only three-quarters of the compensation of kindergarten teachers.[13] In community-based public pre-kindergarten (pre-K) and Head Start programs, teachers with bachelor's degrees earn only slightly more than half the average income of comparably educated women, and slightly more than one-third of comparably educated men.[14] Slightly less than one-half of ECE teachers (45 percent) have earned bachelor's or higher degrees. As displayed in Table 2, ECE teachers with lower levels of educational attainment, as would be expected, earn even lower salaries than those who have completed at least four-years of college.

FIGURE 1
Mean Annual Salaries for U.S. Labor Force Participants with Bachelor's Degrees or Higher, 2012

TABLE 1
Percentage of Mean Salaries for Teachers with Bachelor's Degrees or Higher,
Compared to Men and Women in the U.S. Civilian Labor Force, 2012

Labor Force Participants	Mean Annual Salary for BA Degree or Higher, 2012	Percent of Mean Earnings of Women in the Civilian Labor Force with BA or Higher Degree	Percent of Mean Earnings of Men in the Civilian Labor Force with BA or Higher Degree
Civilian Labor Force, Men†	$88,509		
Civilian Labor Force, Women†	$56,174		
Elementary School Teacher†	$56,130	99%	63%
Kindergarten Teacher†	$53,030	94%	59%
School-Sponsored Pre-K Teacher‡	$42,848	76%	48%
Other Public Pre-K Teacher‡	$33,696	59%	38%
Head Start Teacher‡	$33,072	58%	37%
All Other ECE Teachers‡	$28,912	51%	32%

†The wages are based on 1,360,380 elementary school teachers and 157,370 kindergarten teachers. Retrieved from http://bls.gov/news.release/ocwage.htm.

‡ National Survey of Early Care and Education Project Team. (2013). Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings, Tables 17. *National Survey of Early Care and Education (NSECE).* OPRE Report #2013-38. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf.

*Annual wages calculated by multiplying the hourly mean wage by 40 hours per week, 52 weeks per year.

TABLE 2
Hourly Wages of Center-Based Teachers and Caregivers Serving Children Birth through Five Years, Not Yet in Kindergarten, by Educational Attainment

Highest Degree Received‡	Mean Hourly Wage of Center-Based Teachers and Caregivers
HS or less	$9.60
Some college, no degree	$10.50
AA degree	$12.90
Bachelor's degree or higher	$17.30
Total	**$13.10**

‡ National Survey of Early Care and Education Project Team (2013). Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings, reprinted from Appendix Table 11, p.27. *National Survey of Early Care and Education (NSECE).* OPRE Report #2013-38. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf.

PURPOSE OF EDUCATIONAL SERVICES IN K-12 AND ECE

The histories of K-12 and ECE education reflect very different assumptions about the purpose of these services, their clientele, and who is responsible for providing, funding, and governing them. These differing assumptions both drive the distinct personnel systems for teachers of younger and older children, and contribute to how we perceive their skills and roles. Public education in grades K-12 was established in order to provide free access to schooling for all children in the nation, since a well-educated populace was viewed as a public good. By the turn of the 20th century, all states offered public elementary education, albeit with significant inequities in access and quality among racial and economic groups. Over time, states and communities have organized schools similarly into districts that have local governing bodies, state and federal oversight, and well-established local, state, and national funding streams. Federal funds comprise a small portion of total K-12 financing, but federal legislation such as No Child Left Behind (NCLB) sets standards for teacher qualifications, and requires accountability and reporting from states and school districts for any federal funds they receive. While variations exist among states, key features of personnel systems, such as qualifications and work environments, are relatively uniform for K-12 teachers throughout the U.S., and rely on well-established funding streams.[15]

In contrast, center- and school-based early care and education programs originated in two separate historical traditions over the last century: some with a primary emphasis on offering custodial care for children while their parents worked (e.g., day nurseries, child care), and others with a focus on promoting early learning (e.g., nursery schools, Head Start, public Pre-K).[16] U.S. society has yet to fully embrace ECE as a public good. Early learning services funded by federal and state dollars, for example, are primarily designed to serve only children from very low-income families; for other children, access to early learning experiences are based on families' ability to purchase services in the private market. Seventy-five percent of K-12 schools are public institutions serving approximately 90 percent of school-age children, while the majority of ECE center-based services, including centers that receive public dollars, operate in private-market settings as commercial or nonprofit enterprises.[17]

Every child in the United States is entitled to attend school from kindergarten or grade 1 through grade 12. There is neither an income means test for public education, nor a waiting list for services. While the amount of funding allocated per child may vary among and within states depending on resources, the K-12 system includes dedicated federal, state, and local revenue sources that flow to each school. A child may be placed on a waiting list for a particular school or classroom, but will never be told to wait for public school services altogether. Similarly, a

school may experience budget cuts, and these may produce teacher layoffs, reduced per-child allocations, larger class sizes and even school closures, but all children are guaranteed space in a classroom in their community.

In contrast—with the exception of Military Child Care for families in the armed services, and a handful of states or cities that have written schooling for four-year-olds into law—children have no guarantee of publicly funded ECE services before they enter kindergarten or first grade. Even when children meet eligibility criteria for such public services as Early Head Start, Head Start, or subsidized child care, they may be placed on waiting lists due to inadequate funding;[18] families using subsidized services may also lose their access to subsidy due to changes in income ceilings, work requirements, co-payments or reimbursement rates.[19]

Multiple federal, state, and local funding streams exist for different ECE programs, with the majority being federal. (Overall more federal dollars are spent on children in K-12 than in ECE, but federal funding constitutes a higher proportion of overall public expenditures in ECE than does state spending).[20] Most of ECE funding streams go directly to low-income parents in the form of vouchers, with the exception of Head Start, Early Head Start, and state-funded preschool programs, which receive funding directly from federal and state sources. Early care and education funding at the federal level is not guaranteed, and must be periodically appropriated or reauthorized by Congress. Federal tax provisions, such as the Dependent Care Tax Credit, also constitute a large proportion of public support for early care and education, in the form of foregone tax revenues from families who claim the credit on their tax returns to offset a portion of their child care costs. In fiscal year 2012, the Dependent Care Tax Credit resulted in approximately 3.1 billion in foregone tax revenues; no quality standards are tied to type of services for which families may claim the credit.[21]

Each of the 50 states has its own array of variously funded and governed ECE programs. There are no structures akin to school districts for all ECE programs, and governance at the state level is typically split, with child care being the purview of departments of social services, and public preschool connected to departments of education.[22] No federal laws such as No Child Left Behind (NCLB) set uniform expectations about teacher qualifications across all public programs, nor are there uniform accountability or reporting systems. Multiple federal ECE funding and regulatory streams exist, embodying a wide variety of expectations and standards for teaching personnel.[23] These multiple funding streams and mechanisms are often cumbersome for programs to access and manage, particularly when programs braid multiple funding sources—as they are increasingly being encouraged to do.[24]

Current Teaching Personnel Systems

If one thinks of the K-12 and ECE sectors as different cities, each with its own attractions and drawbacks for visitors, K-12 would be more akin to Manhattan, with a grid-based design and a robust transportation infrastructure that are easy to understand and access, while ECE would resemble sprawling Los Angeles, which lacks a well-functioning public transit system and can be daunting to navigate.

Some view the uniformity of the K-12 system, particularly with regard to personnel compensation, tenure and qualifications, as its fundamental weakness – a substantial barrier to building an effective teacher workforce.[25] But even if the ECE system's diversity and complexity present a certain flexibility and opportunity for innovation, when compared to K-12, they also pose equally intractable problems. Many in the ECE field bemoan its lack of uniformity with respect to educational qualifications and teaching supports, persistently poor compensation, and undeveloped professional development infrastructure.

A chart accompanying this paper offers a detailed comparison of multiple dimensions of personnel systems in K-12 and ECE,[26] with distinctions drawn among publicly funded pre-kindergarten, federally funded Head Start, and private child care programs, the last of which may also receive federal or state dollars in the form of vouchers for low-income families. Highlights from the chart are presented below, and discussed in relationship to the challenges of developing and sustaining an effective, stable ECE teacher workforce in the United States. (Note: It is beyond the scope of this paper to describe personnel systems in home-based ECE services, such as licensed family child care homes and other forms of non-relative care, many of which receive public dollars to provide ECE services to low-income children. These services are important for understanding the range of ECE settings for children from birth to age five and contribute to the overall complexity of the ECE system and the diversity of its personnel systems and the ECE workforce itself).

Teacher education and certification

For the education of children age five and older, there is wide consensus across states and types of schools (public, charter, and private) that teachers should obtain at least a bachelor's degree. In public schools, teachers are also required to obtain provisional certification before they begin teaching.[27] By contrast, no such educational floor exists in the ECE field for working with children age four and younger. In the ECE sector, it is rare for teachers to be individually licensed or certified, except in public pre-K programs, where this is routinely required.[28] In most ECE settings, state licensing standards set the basic level of health and safety requirements for ECE facilities and the educational qualifications for teaching and administrative staff. Varying qualifications above what licensing requires across different types of ECE settings reflect the varying purposes of ECE programs: those that are conceived primarily as support services for working parents (e.g., child care) generally set lower teacher standards than those designed as early education (such as preschools and public pre-kindergarten programs).

Each of the 50 states (as well as U.S. territories) sets its own qualifications for teachers, assistant teachers, and directors in licensed early childhood programs and for regulated and non-regulated home-based child care providers. Except for Head Start and Military Child Care, which set uniform national requirements for teachers and other personnel, ECE programs are supported by federal and state funds that set widely varying expectations for pre-service and ongoing training, as well as certification. Publicly funded pre-K programs reflect this variation, with only slightly more than one-half requiring a bachelor's or higher degree for lead teachers.[29] This variation in educational requirements for teachers of young children results in great inequities for children. In different states, for example, or sometimes even within the same state, four-year-olds who are eligible to attend a publicly subsidized ECE program may be taught by a teacher with the equivalent of a master's degree, or by one with no college background at all. Even if a child is lucky enough to gain a place in one of California's two state-funded preschool programs, her lead teacher may have completed only 40 college credits, well short of a degree—or may have an education and certification similar to that of K-12 teachers. If a child is in child care center or private preschool school, her teacher may be required to complete only 12 college credits of early childhood education.

Teacher demographic characteristics

Not surprisingly, the demographic profiles of K-12 and ECE teachers mirror these contrasting educational expectations. K-12 teachers across the country share similar characteristics: all are college-educated, with nearly half having earned an advanced degree.[30] By contrast, in 2012, 45 percent of center-based teachers serving children ages three to five held a bachelor's degree or higher, 17 percent had completed an associate degree, 24 percent had completed some college, and 13 percent had completed high school or less.[31] Due to statutory requirements, Head Start and pre-K teachers are better represented among the more highly educated ECE teachers.

The ECE teaching workforce also embodies greater racial, ethnic, and linguistic diversity than does the K-12 workforce. Eighty-four percent of K-12 teachers are white,[32] while between one-third to one-half of ECE teachers are people of color.[33] However, educational stratification along the dimensions of race, ethnicity and language is common in ECE with lead teachers and directors more likely to be monolingual English speakers and white.[34] The diversity of children and families served by both K-12 schools and ECE programs has changed dramatically over the last two decades, with a significant growth of immigrant and non-English speaking families. This trend is likely to continue, and by 2050, about half of all children and adolescents under 17 in the U.S. are projected to be Hispanic (36 percent), Asian (6 percent), or multi-racial (7 percent).[35]

The increasing diversity of the child population requires changes in teacher preparation and professional development at all levels of education to ensure that teachers are knowledgeable and skilled in meeting the needs of children from a range of cultural and linguistic backgrounds. It also requires greater attention to the issues surrounding the racial/ethnic and linguistic backgrounds of the teacher workforce in both ECE and K-12 sectors. Teachers representing minority groups are invaluable in providing positive role models for all children and responding to the needs of minority children. For example, minority teachers typically hold higher expectations for minority children, and are less likely to misdiagnose them as special education students. Minority teachers often are more attuned to the challenges related to poverty, racism and immigration status that many children of color face in their communities.[36] For children younger than five, teachers who speak the home language of the young children

are a critical asset in promoting their school readiness, engaging with families, and communicating with children who are learning English as a second language.[37]

Yet the sectors face somewhat different challenges with respect to building a diverse teacher corps. In K-12, recruiting and retaining minority educators is the primary challenge.[38] In ECE maintaining the current culturally and linguistically diverse workforce, especially in light of increasing qualifications, as well as reducing stratification by race and language among lead teachers and program leaders poses a different set of challenges.[39]

Teacher Career Pathways, and Teacher Preparation and Professional Development Systems

Different standards for teacher qualifications also drive differences between K-12 and ECE in terms of career pathways, and professional preparation and development infrastructures. In K-12, "teacher preparation" refers to the pre-service education and licensure that are typically required before employment. Teacher preparation programs generally include field work and student teaching experiences, as required by policy in most states.[40] Attaining a degree is viewed as only one aspect of professional development, typically followed by induction or mentoring programs for new teachers, in addition to required, ongoing professional development. Public dollars are earmarked for induction and other forms of continuing teacher education.

Many ECE teachers do not participate in pre-service education, and their education may not commence until after they have become employed in the field. Further, many ECE work settings do not set a continuing education requirement for teachers. As a result, the ECE field typically does not refer to pre-service education, but often uses "professional development" to cover the entire spectrum of education and training available in the ECE world — from introductory training, to informal workshops or other continuing education, to college-level work for credit or a degree, depending on state requirements.

In contrast to K-12, many ECE teachers' first teaching jobs typically double as their "practice teaching," but rarely with the formal structure of supervision that this term implies.[41] In response to rising educational requirements in such programs as Head Start and publicly funded pre-K, ECE teachers are increasingly attending college or university programs to complete required credits or to earn degrees while employed. But arranging supervised practica, and completing student teaching requirements, frequently pose scheduling and compensation challenges for these students.[42] Pre-service education for ECE teachers, however, may become increasingly common as states require teachers working in publically funded pre-K programs to obtain preschool through early elementary certification prior to employment.

K-12 teachers are required to complete a course of study which covers subject matter content (such as, mathematics, literacy or science) as well as pedagogical strategies which are aligned with state certification requirements. In ECE, historically, any course of study within one of several disciplines focused on children of any age has been considered an acceptable form of teacher preparation.[43] As indicated by the ubiquitous "early childhood-related" label widely used to describe the educational backgrounds of teachers of young children, highly diverse higher education programs have been assumed to produce equivalent results. Some degrees may not include course work or student teaching with children younger than five or address pedagogical strategies. While efforts to expand accreditation of early childhood higher education programs are underway, there is not yet a widely accepted and agreed-upon standard for what constitutes a high-quality program of study for ECE practitioners.[44]

Qualifications for pedagogical and administrative leaders also vary by sector. In K-12, principals are required to have teaching experience and to earn an administrative credential and/or a master's degree focused on educational leadership.[45] Mentors and coaches are typically drawn from the teaching ranks. In ECE, qualifications for directors or administrators vary by state and program standards, ranging from no set requirements to a bachelor's degree.[46] Lack of ECE-specific education and training extends to K-12 leaders with responsibility for pre-K programs; only one state requires principals to complete coursework related to preschool age children.[47] Many fulfilling roles such as mentors or coaches are not required to have prior teaching experience or specific training.[48] Additionally, the pipeline for teacher educators with ECE-specific backgrounds is limited due to a dearth of ECE doctoral programs.[49]

ECE professional development expectations and resources vary by program type and by funding stream. Consequently, many states have no well-defined, comprehensive system to ensure ongoing professional development, or agreed-upon standards or approval systems for the training of trainers. Teachers in better-funded, school-sponsored public pre-K and Head Start programs, however, are more likely to participate in on-the-job learning opportunities that occur during their paid working hours than are their counterparts in privately operated and funded programs, who more often are expected to complete professional development or college courses during unpaid evenings or weekend hours.

Despite these differences in the professional development infrastructures of the ECE and K-12 worlds, research has found common ground between these sectors regarding the value of mentoring and other forms of professional development for working teachers. Research reviews of professional development efforts in K-12 have cautioned that many such programs are of little benefit, but that those that appear to produce benefits in teaching practices and student outcomes have at least three characteristics: substantial time commitment, preferably distributed over a period of days or weeks; programs targeted and directly linked to teachers' instructional practice (e.g., specific content knowledge or student learning); and professional development linked to the instructional goals and curriculum materials of the district or school. Specific strategies that are thought to be effective include: extended workshops; collaborative study in which teachers work together to create a lesson, teach it, and observe and critique its delivery; and mentoring.[50]

Research in ECE has yielded similar findings, noting also that ongoing learning is most effective when it includes assistance from a skilled and well-trained mentor or coach, particularly since many ECE teachers have not taken part in an induction or comprehensive practice teaching program.[51] Peer support and relationships appear to matter in professional development activities and quality improvement efforts, as does the extent to which the school or program is an environment supportive of adult learning. Both in ECE and in K-12, improvements in teaching practice are best supported when teachers share values and agreement about the problems they are trying to address; when roles and responsibilities are well-delineated for all staff; when authentic procedures and opportunities are in place for assessment and reflection; when school or program leadership are supportive of teachers' professional development; and when the teaching team is consistent and stable.[52]

Despite these commonalities, however, improvement and reform efforts in K-12 and ECE tend to focus on significantly different issues, as the following non-exhaustive list illustrates.

Teacher Qualifications

In the K-12 field, the foremost questions in this area are: Does teacher certification indicate competence? If not, what are better approaches?

In ECE, it is more common to debate the need for a college degree: Do teachers working with children younger than five years old require a four-year college degree, and does it lead to better practice? What ECE-specific content should be included in a required degree or certification program?

Higher Education

In K-12, the foremost questions are: How effective are university and college schools of education? How can they be reformed? Should they be replaced? How can greater emphasis on clinical experience be woven into teacher preparation?

In ECE, the foremost questions are: Can prospective pre-service teachers or working adults returning to school find higher education programs with appropriate ECE content? How can a focus on children younger than age five, particularly infants and toddlers, be embedded in P-3 and other teacher education programs? How can clinical experiences focusing on children younger than five be included in degree programs, and how can working students participate in such experiences? Are there sufficient practicum and student teaching placements in high quality settings with well-educated and credentialed supervising teachers? How can higher education programs address the needs of nontraditional students seeking to attain degrees? Are sufficient language supports available to students for whom English is a second language? How can degree programs for administrators, teacher educators and other roles be expanded to ensure that ECE has strong pedagogical leaders?[53]

Professional Development Infrastructure

In K-12, debate centers on such questions as: Can more in-depth and relevant professional development offerings be designed to respond to the needs of teachers? What workplace supports are necessary for adult learning? What is the impact of professional development at the classroom level and what is the appropriate metric of assessment (e.g., teacher evaluation or student outcomes)?

In ECE, the primary questions include: How can resources be secured for professional development, and specifically, how can induction and ongoing mentoring and coaching be organized and funded for all ECE teachers? Can more in-depth and relevant professional development offerings be designed to respond to the needs of teachers with varied education and experience backgrounds? What are strategies for establishing standards for training and trainers? What workplace supports are necessary to support teacher learning and improved practices, such as paid planning and professional sharing time? What metrics are appropriate to assess the impact of professional development at the program level?

Teaching Environments: Classroom Structures, Working Conditions, Compensation, and Retention

The typical K-12 teacher primarily works alone in the classroom, although an assistant teacher or paraprofessional may be present in the younger grades. In ECE, however, teaching is always a collective effort, due to the needs of young children. At least two or more teaching staff (other teachers or assistants) are generally required to be in a classroom at all times. K-12 teachers, however, work in larger organizations than the majority of ECE teachers, where approximately half of programs employ eight or fewer teaching staff.[54]

Working conditions in K-12 routinely include payment for personal leave (vacation, holidays, sick leave), and time for planning, professional development, and sharing with colleagues. Such benefits are uncommon for ECE teachers. Like standards for teacher qualifications and opportunities for professional development, working conditions for teachers of younger children vary by setting and by funding stream, with publicly funded pre-K and Head Start typically offering better benefits and support.[55]

Teachers' working conditions in Grades K-12 have largely been shaped by collective bargaining agreements; 35 states and the District of Columbia have laws guaranteeing collective bargaining rights for K-12 teachers, and teacher unions exist in all 50 states.[56] The presence of labor unions in ECE is much more limited, and varies by setting. Teachers in school-sponsored preschools and Head Start are the most likely to be members of unions,[57] but most ECE teachers are not members of unions or other professional organizations, and an organized teacher voice is absent at the majority of ECE workplaces, as well as at forums where public policy decisions are made.

The most striking difference between K-12 and ECE teacher working conditions is in levels of pay. Many ECE teachers are paid by the hour, unlike K-12 teachers, who are always salaried employees. ECE teacher pay varies dramatically within and across settings, and formal pay scales which link compensation to years of experience and professional development are uncommon. While K-12 teacher compensation is lower than many believe appropriate or necessary in order to attract and retain highly effective personnel, K-12 teaching can provide a relatively "family sustainable" income in most communities.

Many ECE teachers, on the other hand, earn wages hovering near the poverty level, and many rely on public income support (such as WIC, SNAP, housing subsidies, or Medicaid for themselves or their children) to supplement their wages. A 2012 study conducted in North Carolina reported that three-quarters of teaching staff working in a range of public, for-profit and nonprofit early care and education settings lived in families with incomes below the state median, and more than 40 percent reported accessing some form of public assistance during the past three years.[58] A 2013 Head Start assessment of programs in three states found that approximately one-quarter of 202 teaching staff said that they had accessed at least one type of public financial support in the last three years.[59] In addition, 30 percent of these Head Start teaching staff reported living with at least one child under five, 30 percent reported earnings at poverty level; 35 percent reported incomes that would qualify them for Medicaid (139 percent of poverty level); 89 percent were theoretically eligible for subsidy to help cover their own health care costs under the

Affordable Care Act; and 59 percent would be eligible for public preschool if offered to families earning 200 percent of poverty or less.[60]

Economic worry is rampant among ECE teachers. A 2013 assessment of working conditions of Head Start teaching staff and a similar 2013 assessment of approximately 2013 teaching staff in a variety of center-based ECE programs reported similar levels of economic concern.[61] Forty-seven and 48 percent of teaching staff, respectively, reported worrying about having enough food for their family, 63 and 64 percent about paying their housing costs, 71 and 63 percent about covering routine health expenses, and 74 percent about paying their monthly bills. Many ECE workers also suffer from stress and other health problems common to those living in poverty; one-quarter of ECE teachers are estimated to have no health coverage from any source.[62]

Further, many of the ECE teachers who have returned to school and obtained bachelor's degrees, as required by Head Start and some public pre-K programs, fail to garner a reasonable return on their educational investment, even if they earn more than their less-educated colleagues (See Figure 1 and Table 2). Among 53 state funded pre-K programs in the United States in 2013, 30 required bachelor's degrees for lead teachers; only half directed programs to pay teachers with degrees comparably to K-12 teachers.[63] For pre-K teachers in publicly funded programs that operate within community-based agencies, health and retirement benefits are typically less substantial than those earned by public school teachers. Approximately one-quarter (26.6 percent) of teaching staff who left Head Start programs in 2012-13 did so, according to program leaders, because they were seeking "higher compensation/benefits package in the same field (e.g., teacher left to school system)."[64]

Compensation policies lead to different turnover and retention issues in K-12 and ECE, and among different settings within ECE.

- Turnover rates:

  K-12: Approximately 15 percent teachers leave their jobs annually. These teachers leave for a variety of reasons: 25 percent seek a different occupation; 14 percent identify pregnancy or family issues; 22 percent retire; and 25 percent identify dissatisfaction with administration or a lack of support on the job.[65] Compensation influences turnover, but the work environment plays a significant role.[66]

  ECE: Current national data on turnover in ECE by settings will not be available until late 2014 or early 2015,[67] but historically, turnover rates have hovered around 30 percent per year.[68] The 2012 North Carolina workforce study found annual turnover rates of 21 percent for full-time teachers and 14 percent for full-time assistant teachers in a sample of 737 centers.[69] Compensation is the primary driver of occupational and job turnover in ECE.[70]

- Recruitment:

  K-12: Recruitment pressures are higher among schools that are considered hard to staff (typically those in low-income, high-poverty communities, often staffed by novice teachers).[71]

  ECE: Recruitment pressures are high across all settings because of low pay. Teachers with bachelor's degrees often seek the higher pay offered in school-sponsored pre-K settings, causing them to leave Head Start and other ECE jobs. Pre-K programs that pay lower salaries than K-12 face recruitment pressure as teachers leave for kindergarten and early elementary teaching positions.[72]

- Job Protection and Dismissal:

  K-12: Teachers in unions typically have job protection once they have achieved tenure; dismissal procedures follow collective bargaining protocols. A burning question in K-12 is the degree to which teacher evaluation results can influence firing and tenure decisions.

  ECE: Except for the minority (mainly in publically funded pre-K and Head Start programs) who work under collective bargaining agreements, ECE teachers have no job protection other than those established by state and

federal law, giving administrators full authority in hiring and firing decisions. A critical concern in ECE is how to retain teachers in order to ensure adequate classroom coverage and well-functioning teaching teams. In Pre-K and Head Start programs, and in some child care programs participating in Quality Rating and Improvement Systems (QRISs), teacher assessments are being used as a measure of program quality and linked to ongoing program funding.[73]

In both K-12 and ECE, a great deal of time and money is spent on such turnover-related activities as recruitment, hiring, administrative processing, professional development, and separation planning. Estimates of the annual cost of turnover in K-12 education range from four to seven billion dollars, the latter amount reflecting not just costs to schools and districts but lost state and federal investments in teacher preparation and development.[74] At the school level, the National Commission on Teaching and America's Future estimates the average national cost per individual teacher departure and replacement in 2014 at $4,090 for rural and $9,540 for urban schools.[75] No recent calculations of turnover costs in ECE are available, but given the higher rate of turnover in settings for young children, even when accounting for likely lower administrative costs, it is safe to assume that many thousands of dollars are spent per program each year that could be better used to cover higher wages or to fund professional development opportunities. Hard-to-staff K-12 schools and lower-quality ECE programs are often the most in need of resources, but they incur the highest turnover and replacement costs due to their higher rates of teacher departure.[76]

Whether in K-12 or ECE, teachers seek work environments that have a high level of staff cohesion and collaboration, effective administration, and opportunities for teacher leadership. ECE teachers further look for work environments where sufficient numbers of staff are well trained, as a basic element of job satisfaction and the ability to engage in effective teaching practice.

CONCLUSION

What is the key to building a corps of skilled and effective teachers of young children? There is no single ingredient. Rather, four cornerstones of a sturdy early childhood personnel structure—human capital development, the professional development infrastructure, the teaching context, and system finance—call out for bold vision, creative approaches, and sustained investment. Reducing dysfunction and promoting exemplary practices across all of these foundational areas is necessary for creating a teacher workforce that can deliver on the promise of early learning programs.

Twenty-five years ago, the National Child Care Staffing Study first documented the relationship between teacher education and compensation and program quality.[77] Programs that paid lower salaries were plagued by high turnover, and children suffered the consequences. In contrast, programs paying higher salaries were able to attract and retain well-educated teachers and administrators who were specialized in early childhood development and education, and children were found more likely to thrive. Numerous studies have replicated these findings across infant, toddler and preschool classrooms.[78] Subsequent research has demonstrated that high turnover prevents programs from improving,[79] while stability among a team of well-trained teachers provides an essential ingredient for improving and sustaining better services for young children. In 2000, the National Academy of Sciences Committee on Integrating the Science of Early Childhood Development recommended investment in initiatives that "jointly improve the qualifications and increase the compensation and benefits routinely provided to children's nonparental caregivers."[80]

Human Capital Development

Despite this strong research evidence about the interplay between individual teachers and their working conditions, as these relate to teacher practice and child outcomes, the predominant quality improvement strategy adopted by the ECE field over the last quarter century has focused on human capital investment. On balance, individual professional preparation and development strategies have received the bulk of resources directed toward teacher

performance, notwithstanding a recent shift toward organizational capacity building through quality rating and improvement systems (QRISs).[81]

In many ways, it has made sense to focus on investments in individual teacher capacity, and these continue to be necessary, especially given the low level of teacher qualifications permitted in so many programs, and teachers' consequent low levels of education in some settings. Additionally, this focus on education and professional development has advanced in positive ways over the years. An initial scattershot approach—in which any training or education at all was perceived as better than nothing—is now less common. Proliferating instead in better-resourced ECE settings are evidence-based strategies, such as comprehensive courses of study, more intensive and sustained on-the-job learning experiences, and coaching and mentoring, all of which have been linked to helping individual teachers improve their classroom practice. Yet many teachers across all settings lament the lack of time and support on the job to practice or apply new teaching strategies.[82]

Professional Development Infrastructure

Increasingly, attention is also being paid to fortifying the ECE workforce development infrastructure, since its weaknesses act as barriers to developing effective teachers. With regard to higher education degree programs in early childhood education, for example, concerns center on whether these programs include content that reflects current scientific understandings of early learning; provide sufficient focus through courses and clinical experiences on teaching children younger than age five; and whether teacher educators themselves have had direct experience working with younger children, children living in poverty, and children for whom English is a second language. Almost every state lacks a preparation pipeline for pedagogical leaders in ECE—including teacher educators, mentors and coaches, and program administrators—and thus, many who are engaged in educating and training teachers are themselves in need of opportunities for professional development.[83] These areas are fertile ground for the identification of best practices that can be brought to scale. There is more to be learned, for example, about the professional pathways of teachers in pre-K and Early Head Start programs that have been shown to produce lasting gains for young children. Such knowledge could contribute greatly toward improving education and professional development opportunities, and creating cadres of effective pedagogical leaders, throughout the ECE profession.[84]

Other infrastructure issues that hinder workforce development efforts include the absence of reliable data to inform sound policy and practice. There is no ECE equivalent to the federally supported K-12 School and Staffing Survey, a series of regularly updated questionnaires which provide data on a wide range of topics such as teacher demand, teacher and principal characteristics, general conditions in schools, and teacher compensation. Because K-12 teachers are individually certified, individual teachers can be connected to children within their classrooms, but equivalent data collection is not currently possible in most ECE settings which do not require teacher certification. While efforts are underway to build state early learning workforce registries, participation in such registries thus far is almost always voluntary; as a result, they represent only a fraction of the workforce, and it will take additional financial resources and policy backing to ensure that they can provide a complete and accurate picture of who is teaching young children.[85]

Other particularly troubling aspects of the infrastructure are the concentration of public and private training dollars in only certain ECE settings or program types, and the lack of training standards and trainer approval systems in many states. Combined with the dearth in many programs of induction support for beginning teachers, or of ongoing professional development, new and veteran ECE teachers too often lack the necessary opportunities to strengthen their skills and optimize their job performance.

Teaching Contexts

It is necessary to showcase promising approaches and increase access to excellent teacher preparation experiences, but these are not the sole ingredients that will ensure effective teaching. By its nature, teaching young children is a collaborative effort that occurs in an organizational context. That context, including adult-to-adult relationships, can either promote or hinder teacher practice. Greater attention should be directed to the features of ECE workplace environments that enable teachers to apply their skills and knowledge and continue to hone them. Answers to the following questions would greatly advance our ability to strengthen organizational capacity:

1. What are the forms of teaching support, such as curriculum and child assessment frameworks, classroom materials, support services for children and families, and staffing patterns, that are essential for good practice?
2. How do programs create learning communities that ensure the participation of teaching staff in relevant individual and collaborative professional development, sharing information and practicing new approaches, and planning and implementing quality improvements?
3. What are the policies and practices that support initiative and teamwork among teaching staff, and promote their input into their work?
4. How can supervisors and program leaders best interact with staff to support their teaching practice, professional growth, and well-being?
5. What are program practices and policies that promote teaching staff economic and physical well-being and positive work relationships?[86]

Gathering teachers' perspectives on these issues is a starting point for generating new avenues and solutions that lead to enhanced performance—as has been shown in health care and other industries that have engaged practitioners themselves in strengthening organizational capacity.[87] This is particularly important in early childhood settings, where the vast majority of teachers have no organized vehicle through which to express their needs about strategies to achieve improved practice.

System Financing

The limited focus on improving teachers' work environments in early childhood settings is understandable, given the financial constraints faced by both public and private programs, and by the ECE financing structure itself. Poor compensation has been a hot potato in ECE for a quarter of a century, touched upon by many, but never seriously addressed because of the perceived lack of resources. Evidence abounds that ECE teachers who are educated and compensated on a par with their K-12 colleagues produce the strongest results for young children at risk, yet paying comparable salaries has generally been viewed as cost-prohibitive.[88] Even widely embraced and effective professional development practices—such as opportunities for teachers to engage in in-depth, multi-day training together—are often eschewed because of associated costs.

Yet maintaining the status quo carries hidden costs of its own. When educated and trained teachers leave their jobs or the occupation itself because of poor compensation or other causes, the result is a low or negative return on the public and private dollars spent on professional development. At the program level, more costs accrue from high turnover: the lost opportunity to improve and sustain higher quality; the disruptions to teaching teams, which in turn can beget more departures; and the costs of recruiting, hiring, and training replacement staff. There is also the cost to taxpayers of the various forms of public assistance that many ECE teachers use, particularly those who are parents. Finally, there are the uncalculated costs to children and families who suffer the consequences of poor quality early learning programs. In order to build a stable and skilled corps of early educators, it is critical to conduct rigorous research comparing the true cost of the current system to one that not only pays better but would also generate a better return on investment. Beyond this, it is long overdue to convene a high-level interdisciplinary work group for generating new ideas for ECE financing.

Pre-K teacher salaries that are comparable to those of K-12 teachers create a pathway to the middle class for some who choose to work with young children; they are also essential in attracting a greater number of educated and talented young people from all backgrounds, many of whom, for now, rightly view ECE jobs as a pathway to poverty. While improved salaries will aid in transforming the early learning occupation, it is also vital to shift public perception of the work in a way that will attract current and subsequent generations of college graduates to these classrooms. Exemplar pre-K programs, again, can serve as a starting point for understanding the key elements of promising recruitment and retention strategies. Focus groups conducted with college students interested in careers with children could also provide insight into how to demonstrate to the public in new and creative ways the complexity of teaching young children, as well as underscore the critical role of ECE teachers in ensuring better short- and long-term outcomes for children across the U.S.

The distinctions in how teachers are prepared, supported and rewarded in the K-12 and ECE sectors belies their interdependence. The movements underway to reform K-12 education and to expand and improve early learning

opportunities for children prior to kindergarten stem from a shared sense of urgency about low levels of academic performance and serious achievement gaps among children in the U.S. Teachers are the essential national resource for addressing these problems. The capacity of schools and programs to enhance teachers' ability to apply their knowledge and to hone their practice is critical to both reform efforts ---the success of one relies on the success of the other. ECE teachers can ease the challenges faced by their K-12 colleagues by ensuring that all children are well-prepared when they enter kindergarten. Simultaneously, elementary school teachers can build upon the learning achievements of their students who have been well-prepared by their ECE colleagues, and in so doing, promote early learning investments that prepare, support and reward their counterparts working with young children.

Comparison of Personnel Systems for K-12 and Early Childhood Teachers

	K-12	Early Care and Education (ECE)		
I. Teacher Qualifications	*Educational requirements are relatively uniform across districts and states.* *All public school teachers are required to have at least a bachelor's degree and provisional or actual certification before they begin teaching.[89]* *Typically, successful completion of approved degree or credential programs aligns directly with certification requirement.*	*Teacher qualifications vary widely, based on program types and funding requirements—from little or no education to a bachelor's or higher degree.* *Each state sets its own teacher qualifications for ECE programs, with the exception of Head Start and Military Child Care, for which teacher qualifications are set by the federal government.* *Individual teacher certification is uncommon for lead teachers, except those who work in public pre-K programs.[90] Certification is not routinely linked to successful completion of a degree in many states.* *In 2012, of the 568,000 center-based teachers and caregivers serving children 3-5 years old, 45.1 percent held a bachelor's degree or higher, 17.4 percent had completed an associate degree, 24.3 percent had completed some college, and 13.2 percent had completed high school or less.[91]*		
	• The vast majority (93 percent) of elementary and middle school teachers held at least a bachelor's degree in 2011.[92] • Among those, nearly 48 percent held a master's degree or greater.[93]	State-Funded Pre-K[94]	Head Start	All Other ECE Center-Based Programs[95]
		• 58 percent of programs require bachelor's degree for all lead teachers.[96] • 85 percent of programs require specialized pre-K training for lead teachers.[97] • 29 percent of programs	• At least 50 percent of Head Start teachers nationwide must have a bachelor's or advanced degree in Early Childhood Education, OR a bachelor's or advanced degree in any subject, and coursework equivalent to a major relating to early childhood education, along with experience teaching	State licensing qualifications for child care teachers: • 17 states require less than a high school diploma or GED. • 14 require a high school diploma or GED. • 10 require clock hours in ECE, credits, or a credential less than CDA.

	K-12	Early Care and Education (ECE)		
		require assistant teachers to have a competency-based certification,[98] such as the Child Development Associate (CDA) credential.[99]	• preschool-age children.[100] • 66 percent of Head Start teachers working with preschoolers held at least a bachelor's degree in 2013.[101]	• 7 require a CDA credential. • 1 requires an associate degree in ECE or related field. • 1 requires a bachelor's degree in ECE or related field.[102]
II. Administrative Qualifications	*K-12 school principals are required to have an administrative credential, and/or a master's degree, and some teaching experience.[103]*	*Qualifications for directors or administrators of early childhood programs vary by state, ranging from no set requirements to a bachelor's degree.[104]* • *Eleven states have no requirements for directors.* • *Thirteen states require a CDA.* • *Five states require a CDA plus credits.* • *Nine states require clock hours, with an average of 92 hours, and a range of 30-135 hours.* • *Two states require credits, with a range of 9-12 credits.* • *Seven states require other credentials: 5 states require a director credential; 1 state requires a vocational certificate; 1 state requires a national director credential.* • *Two states require an AA degree.* • *One state requires a BA degree.* *Only one state, Illinois, requires principals of K-12 schools which operate pre-K programs to obtain certification across the span of P-12 which includes content and field experiences that integrate early childhood education.[105]*		
	In the vast majority of cases, teacher preparation refers to pre-service education and licensure necessary to begin employment. *Preparation programs, as required by policy in most states, routinely include:* *1) Focus on pedagogy and subject matter content, e.g., math, science, and reading; and* *2) Field and student teaching*	*Many ECE teachers do not participate in pre-service education.* *As a result of rising qualifications for teaching staff in Head Start, state pre-K, and quality rating and improvement systems (QRISs), many ECE teachers attend a college or university to complete required credits or earn degrees while employed.[107]* *Degree requirements set by states may or may not specify early childhood focus and such focus may or may not address subject matter content (e.g., math, literacy, science) and/or pedagogical strategies.[108]* *Since many teachers enter the workforce with little or no pre-service training or education, one's first teaching job typically doubles as "fieldwork," but rarely with the formal structure of*		

	K-12	Early Care and Education (ECE)		
III. Preparation	*experiences.[106]*	*supervision that this term implies.[109]* *Arranging supervised practica or student teaching experiences for employed teachers poses scheduling and compensation challenges.[110]*		
		State-Funded Pre-K	Head Start	All Other ECE Center-Based Programs
	• All public school teachers must be licensed or certified through traditional or alternative programs recognized by the state.[111] • Only 23 states require all charter school teachers to be licensed or certified through traditional or alternative programs; 14 states require only a certain percentage of teachers in a charter school to be licensed or certified; 4 states and D.C. leave decisions about licensure or certification to the individual charter school.[112] • Private school teachers are not typically required to be certified or licensed.	Almost all state-funded pre-K programs require certification, licensure, or endorsement; some require the same licensure for pre-K teachers as for early elementary teachers.[113]	No experience is required for teachers with an AA, BA, or higher degree in ECE. Degrees in other fields require experience, as determined by grantee.	In 41 states, no prior experience is required in order to be employed as a teacher in licensed child care programs.[114]
IV. Professional Development	*For public school teachers, pre-service preparation is typically followed by induction and ongoing professional development.*	*In ECE, "professional development" is a catchall phrase covering nearly the entire spectrum of education and training—from introductory training, to informal workshops or other continuing education, to college-level work for credit or a degree.[115]* *Many ECE settings do not have a continuing education requirement for teachers.*		
		State-Funded Pre-K	Head Start	All Other ECE Center-Based Programs
	• 27 states require some form of induction or mentoring support for new teachers.[116] • 22 states require completion of or participation in an induction program for advanced teaching certification.[117] • 17 states provide some dedicated funding for teacher induction.[118]	• Teacher in-service requirements vary by state and by program within states, representing a range of clock and credit hours. Two programs have no requirements.[120]	• Many Head Start teachers participate in mentoring and coaching programs. • Head Start provides resources for ongoing professional development of teaching staff.[121]	• Twenty-three states require fewer than 15 hours of annual training for teachers in licensed centers. • More than one-fifth of states do not require teaching staff to be trained in fire safety and other

	K-12	**Early Care and Education (ECE)**		
	• Most states require teachers to complete a specific amount of professional development every five years.[119]			health and safety skills or any pedagogical content.[122]
V. Teaching Environment	*A typical teacher primarily works alone in the classroom; an assistant teacher or paraprofessional may be present in the younger grades or to assist children with special needs.* *Working conditions, including payment for vacation, holidays, sick leave, planning, and professional sharing time, are established through collective bargaining agreements and are standard for public school teachers.* *Staff cohesion, collaboration, the availability of teacher leadership opportunities, and the quality of school leadership are identified by teachers as factors influencing the quality of the work environment.[123]*	*A typical teacher works with other teachers or assistants in the classroom, due to the greater needs of young children for individual attention. Assistant teachers are included in the required ratio of adults to children set by licensing laws determined by each state.* *Working conditions vary by sector and funding stream, with publicly funded programs typically offering better support. ECE teaching staff are typically paid by the hour. Payment for vacation, holidays, sick leave, planning, and professional sharing time is not standard for ECE teachers.[124]* *Staff stability and training, staff cohesion, collaboration, the availability of teacher leadership opportunities, and the quality of school/program leadership are identified by teachers as factors influencing the quality of the work environment.[125]*		
VI. Unionization	*35 states and the District of Columbia have laws guaranteeing collective bargaining rights for K-12 teachers, although teacher unions exist in all 50 states.[126]*	*Union presence in ECE is limited and varies by sector. Teachers in school-sponsored preschools and Head Start are the most likely to be members of unions.[127]* *Teacher membership in professional organizations is low.[128]*		
	• Union density in 2012: 48 percent of	State-Funded Pre-K	Head Start	All Other ECE Center-Based Programs

	K-12	Early Care and Education (ECE)		
	1.9 million elementary and middle school teachers were union members.[129] • Twenty states exempt charter schools from collective bargaining agreements; others allow some negotiation for individual charter schools.[130]	Preschool and kindergarten teachers (16.7 percent of 1.5 million).[131]	No current data available.	No current data available for center-based teachers. In recent years, growth in ECE union membership has been concentrated in home-based ECE settings, with 14 states allowing unions to represent home-based providers.[132]
VII. Evaluation	*States are adopting more rigorous systems, with increased reliance on student performance as a significant measure.[133]* *States may mandate a particular system, provide a model, or allow district discretion in evaluation policies.* *States vary in how they use teacher evaluation results, but increasingly they are tied to compensation, firing, layoff, and tenure decisions.[134]*	*Evaluation historically has focused on program quality, with observed teacher interactions an important component.* *Evaluation policies are set by program guidelines rather than by states. All states and territories have early learning guidelines for children ages 3 to 5, and 45 states and 4 territories for birth to 3; 49 of the 56 states and territories have developed core knowledge and competencies for early educators working with children from birth to 5;[135] 38 states and the District of Columbia have established Quality Rating and Improvement Systems (QRISs); and 11 states and territories are developing a QRIS.[136]* *Increasing emphasis on teacher performance related to child outcomes in pre-K and Head Start is complicated by issues of assessing young children, the collaborative nature of early childhood teaching, and recruitment and retention challenges.[137]*		
	• 27 states require an annual	State-Funded Pre-K	Head Start	All Other ECE Center-Based Programs

	K-12	**Early Care and Education (ECE)**		
	evaluation of all teachers.[138] • 40 states and D.C. use student achievement on standardized tests as a factor in teacher evaluation.[139] • 15 states use unannounced observations of teachers.[140]	• School-sponsored: Most pre-K teachers are evaluated similarly to K-3 teachers according to district policy, but criteria for evaluation related to student performance in "untested" grades has yet to be determined in many states. • Not school-sponsored: Varies by design of public preschool program.	• Head Start, not school-sponsored: The CLASS™ Teacher-Child Observation Instrument is used periodically in a sample of classrooms in all Head Start programs. Results are calculated for the grantee, not by classrooms, and used to determine if grantee must re-compete for funding.[141]	• Varies by state and program; typically, there are no teacher evaluations.[142]
VIII. Compensation	*Uniform pay scales are established by local public school districts.* *Employer-offered health and retirement benefits are included in pay packages provided to the vast majority of public school teachers.* *K-12 teachers typically work a 10-month year.*	*Pay varies dramatically within and across sectors, and formal pay scales are uncommon.[143]* *One-quarter of ECE teachers are estimated to have no health coverage; those covered may receive insurance through a spouse, public agency, or employer.[144]* *ECE teachers in state-funded pre-K and Head Start programs typically work a ten-month year, while teachers in most other ECE center-based programs (e.g., child care) work a twelve-month year. ECE teachers are predominantly full-time workers.[145]*		

	2012 Mean Annual Salary	State-Funded Pre-K[150]	Head Start	All Other ECE Center-Based Programs
	• Kindergarten Teachers: $53,030 (Mean hourly wage approximately $30.83, based on 40 hours per week for ten months).[146] • Elementary Teachers: $56,130 (Mean hourly wage approximately $32.63, based on 40 hours per week for ten months).[147] • Two thirds of charter schools offer pay similar to public schools; some pay higher salaries for teaching in hard-to-staff schools and subjects.[148] • On average, private school teacher pay is approximately 75 percent of	2012 Mean Hourly Wages • School-sponsored: $19.40.[151] • Not school-sponsored: $14.40.[152] • Teachers with BA degree: School-sponsored: $22.90; Not school-sponsored: $19.00.[153]	2012 Mean Hourly Wages • Not school-sponsored: $15.50.[154] • Teachers with BA degree: Not school-sponsored: $18.20.[155]	2012 Mean Hourly Wages • All private for-profit and nonprofit, although some programs may receive public subsidies (vouchers) for qualifying low-income children: $13.70.[156] • Teachers with BA degree: $17.10.[157]

K-12	Early Care and Education (ECE)		
public school teacher pay.[149]			

	K-12	Early Care and Education (ECE)		
IX. Recruitment	*Estimated replacement rates (2012-2022) for elementary school teachers are 22 percent.[158] Employment of elementary school teachers is projected to grow 12 percent from 2012 to 2022.[159]* *Estimated replacement rates (2012-2022) for elementary and secondary principals is 26.6 percent.[160] Employment of elementary and secondary principals is projected to grow 6 percent from 2012 to 2022.[161]*	*Estimated replacement rates (2012-2022) are 28.1 percent for preschool teachers and 29.4 percent for child care workers.[162] Employment is projected to grow by 17 percent for preschool teachers and 14 percent for child care workers from 2012 to 2022.[163]* *Estimated replacement rates (2010-2022) for preschool and child care administrators is 26.6 percent.[164] Employment of preschool and child care administrators is projected to grow 17 percent from 2012 to 2022.[165]*		
	• Recruitment pressures are higher among schools considered hard to staff (typically those in low-income, high-poverty communities, and often staffed by novice teachers).	State-Funded Pre-K	Head Start	All Other ECE Center-Based Programs
		• Approximately 100,000 new teachers with bachelor's degrees will be needed for proposed expansion of publicly funded Pre-K.[166] • Recruitment pressures are greater in programs that do not pay salaries comparable to those for K-12 teachers.	• Recruitment pressures are high because teachers with bachelor's degrees leave to work in school-sponsored pre-K settings, which pay higher salaries.[167]	• Higher salaries in other ECE sectors increase recruitment challenges for programs seeking teachers with AA or higher degrees.[168]
	Teachers in unions typically have job protection once they have achieved tenure; dismissal follows collective bargaining protocol. Increasingly, states are mandating consideration of	*Job turnover among ECE teachers is high, due primarily to low wages.[172]* *Dismissal is at the discretion of the program administrator, in accordance with state and federal employment law, unless collective bargaining protocol is in place.*		

	K-12	Early Care and Education (ECE)		
X. Turnover/ Retention/ Dismissal	*more stringent measures of teacher performance in awarding tenure and determining lay-offs.[169]* *Teachers leave their jobs for a variety of reasons: 24.9 percent seek a different occupation; 13.7 identify pregnancy or family issues; 22.4 percent retire; 25.1 percent identify dissatisfaction with administration or lack of support on the job; and 13.9 percent list other reasons.[170]* *Compensation influences turnover, but work environment plays a significant role.[171]*	*High rates of job turnover among ECE teachers are associated with low program quality, inability of programs to improve and sustain improvements, and negative outcomes for children.[173]* *Frequent staff changes create challenges in building cohesive classroom teaching teams that are essential in ECE.[174]* *Many teachers who leave their jobs remain in the occupation, but move to other ECE sectors that pay higher salaries.[175]*		
	• In 2008-9, 14.6 percent of elementary school teachers left teaching; 6.4 percent changed schools.[176] • In 2008-9, 22.9 percent of teachers (K-12) with 1-3 years' experience left teaching; 6.5 percent changed schools.[177]	**State-Funded Pre-K** No current data available.[178]	**Head Start** No current data available.[179]	**All Other ECE Center-Based Programs** No current data available.[180]
XI. Demographic Characteristics	*K-12 teachers are typically female, represent a range of age groups, and are predominantly white.*	*ECE teachers are almost exclusively female, represent a range of age groups, and are ethnically diverse, typically reflecting the racial/ethnic composition of the state in which they work.[181]*		
	As of 2010: • 16 percent of public school teachers were male. • 23 percent were 29 years old or younger; 26 percent were 30-39 years old; 21 percent were 40-49 years old; and 30 percent were 50 years or older.	**State-Funded Pre-K** No current data available.[183]	**Head Start** As of 2007 (most recent data available): • 98 percent were female; • More than half were 30-49 years old; • 20 percent were identified as Hispanic/Latino; data for	**All Other ECE Center-Based Programs** No current data available.[185]

	K-12	Early Care and Education (ECE)	
	• 84 percent were white; 7 percent were black; 6 percent were Hispanic; and 4 percent were of other ethnicities. [182]	other ethnicities were not available.[184]	
XII. Higher Education Infrastructure	*All states have schools of education, located in universities and colleges, which are charged with preparing teachers.[186]* *All states offer alternative pathways for teacher preparation.[187]* *All teacher preparation programs include some clinical or student teaching experience.[188]*	*Early childhood-related higher education degree programs are found in two-and-four-year colleges. The majority of departments labeled explicitly as early childhood are found in two-year institutions.[189]* *In four-year institutions, degree programs focused on young children can be found in departments of education, health and human services, social and/or behavioral sciences, professional studies, liberal arts, and agricultural sciences and technology.[190]* *Commonly, multiple programs focused on early childhood operate on the same campus, housed in separate departments with different expectations and requirements.[191]* *Not all ECE-related programs offer students a clinical or practicum experience focused on teaching.[192]*	
XIII. Professional Development Infrastructure	*Induction programs that support teachers in the first years on the jobs, as well as systems of ongoing professional development throughout teachers' careers, are widespread, and public funding is routinely earmarked for them.* *School districts, unions, institutions of higher education, and other organizations provide professional development.[193]*	*Professional development is a catchall phrase that covers the entire spectrum of training and education available in the field—from introductory training, to informal workshops, to continuing education courses for credit.* *Many settings do not have a continuing education requirement for teachers, and induction and mentoring programs are not routinely available.[194]* *Approximately 30 states have developed training and trainer approval systems to reach all practitioners who work in licensed facilities.[195]*	

This chart is an updated and expanded version of Comparison of K-12 and Early Care and Education Systems adapted from *Preparing Teachers of Young Children: The Current State of Knowledge, and a Blueprint for the Future*, Executive Summary (Whitebook, Gomby, Bellm, Sakai, & Kipnis, 2009), funded by the W. Clement and Jessie V. Stone Foundation and the Bill & Melinda Gates Foundation.

Marcy Whitebook, Ph.D., is a researcher focusing on issues of employment in settings for young children, the relationship between good jobs and the quality of services available to children and families, and appropriate and accessible professional preparation for teachers.

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[2] "Replacement needs" includes separation due to retirement, as well as other reasons for departure. Estimates reflect decreases in job demand in an occupation, but not potential expansion. In most occupations, separations occur mainly among workers over age 40; occupations with relatively low entrance requirements and compensation, such as ECE, typically experience large net separations among young workers. The employment projections were based on 1,361,200 elementary teachers, 1,312,700 child care workers, and 1,993,800 elementary and middle school teachers. U.S. Bureau of Labor Statistics. *Estimating occupational replacement needs*. Retrieved from http://www.bls.gov/emp/ep_table_110.htm.

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[7] Social emotional learning in the early elementary grades is increasingly understood to be critical to academic success among older children, which may help to shift perceptions of ECE teaching. Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Chicago, IL: Collaborative for Academic, Social, and Emotional Learning. Retrieved from http://www.lpfch.org/sel/PackardES-REV.pdf; and Kendziora, K., Weissberg, R. P., Ji, P., & Dusenbury, L. A. (2011). *Strategies for social and emotional learning: Preschool and elementary grade student learning standards and assessment*. Newton, MA: National Center for Mental Health Promotion and Youth Violence Prevention, Education Development Center, Inc. Retrieved from http://static.squarespace.com/static/513f79f9e4b05ce7b70e9673/t/53063624e4b0c6a4f3335f56/1392916004591/stategies-assessment-SEL-EDC.pdf.

[8] Whitebook, M., & Ryan, S. (2011). *Degrees in context: Asking the right questions about preparing skilled and effective teachers of young children*, p.3. NIEER Policy Brief No. 22. New Brunswick, NJ: National Institution for Early Education Research.

[9] Barnett, W.S. (2003). Better teachers, better preschools: Student achievement linked to teacher qualifications. *Preschool Policy Matters, 2*. New Brunswick, NJ: National Institute for Early Education Research; Bogard, K., Traylor, F., & Takanishi, R. (2008). Teacher education and PK outcomes: Are we asking the right questions? *Early Childhood Research Quarterly 23*(1), 1-6; Campbell, F., Ramey, C., Pungello, E., Sparling, J., & Miller-Johnson, S. (2002). *Early childhood education: Young adult outcomes from the Abecedarian Project*. Chapel Hill, NC: The University of North Carolina, FPG Development Institute; Reynolds, A. (1997). *The Chicago Child-Parent Centers: A longitudinal study of extended early childhood intervention*. Madison, WI: Institute for Research on Poverty, University of Wisconsin at Madison; Gormley, W. (2008). The effects of Oklahoma's pre-K program on Hispanic children. *Social Science Quarterly 89*(4), 916-936; and Gormley, W., Gayer, T., Phillips, D., & Dawson, B. (2005). The effects of universal pre-k on cognitive development. *Developmental Psychology 41*(6), 872-844.

[10] Whitebook, M., & Sakai, L. (2004). *By a thread: How centers hold on to teachers, how teachers build lasting careers.* Kalamazoo, MI: Upjohn Institute for Employment Research; Whitebook, M., & Sakai, L. (2003). Turnover begets turnover: An examination of job and occupational instability among child care center staff. *Early Childhood Research Quarterly* 18, 273-293; and Cassidy, D. J., Lower, J. K., Kintner-Duffy, V. L., Hegde, A. V., & Shim, J. (2011). The day-to-day reality of teacher turnover in preschool classrooms: An analysis of classroom context and teacher, director, and parent perspectives. *Journal of Research in Childhood Education* 25(1), 1-23.

[11] For recent college graduates drawn to working with young children, especially those carrying thousands of dollars in student loan debt, teaching in pre-K in most states offers little or no prospect of the middle class earnings available to those who pursue jobs in the early elementary grades (K-3). The exception is that during an economic downturn, such as in recent years, new college graduates are relatively more eager to accept any form of employment. Whitebook, M. (2013). Preschool teaching at a crossroads. *Employment Research 20*(3), 4-6. Retrieved from http://research.upjohn.org/empl_research/vol20/iss3/2.

[12] National Survey of Early Care and Education Project Team (2013). Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings, *National Survey of Early Care and Education (NSECE).* OPRE Report #2013-38, Appendix Table 2, p.24. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf.

[13] Differences in pay may reflect differences in educational requirements, particularly in states which require a Master's Degree for K-12 teacher certification. Differences in tenure among teachers in K-12 and ECE may also account for the salary differential when educational qualifications are comparable. This is likely in newly established Pre-K programs, where Pre-K teachers would not have had the opportunity to accrue tenure and place higher on established salary scales unless they had transferred from higher grades. It is also the case that school-sponsored or other publically funded Pre-K programs that strive for comparability in salaries may not reward previous experience in non-school-sponsored ECE settings in which many Pre-K teachers have previously worked.

[14] Given the earning differential for men and women in the U.S. labor force, it is not surprising that the K-12 and ECE teaching workforces are both predominantly female, nor that more men work as K-12 teachers (16 percent) than as ECE teachers (less than five percent). The Demographic Profile of Teachers in the U.S. consisted of 1,076 teachers. Feistritzer, C.E. (2011). *Profile of teachers in the U.S. 2011.* Washington, D.C: National Center for Education Information. Retrieved from http://www.edweek.org/media/pot2011final-blog.pdf. Forthcoming data for the National Survey of ECE will provide information on gender, age, ethnicity, and language: Workforce (Classroom Staff) Questionnaire. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/workforce.pdf.

[15] Whitebook, M., Gomby, D., Bellm, D., Sakai, L., & Kipnis, F. (2009). *Teacher preparation and professional development in grades K-12 and in early care and education: Differences and similarities, and implications for research.* Part I of *Preparing teachers of young children: The current state of knowledge, and a blueprint for the future.* Berkeley, CA: Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California, Berkeley.

[16] Lombardi, J. (2003). *Time to care: Redesigning child care to promote education, support families, and build communities.* Philadelphia, PA: Temple University Press. The private ECE market expanded tremendously after World War II, when the federal government discontinued an educational child care system put into place during the war years that served children from families of all incomes. Whitebook, M. (2012). Caring for Rosie the Riveter's kids. *Women's Review of Books*. Retrieved from http://www.wcwonline.org/WRB-Issues/caring-for-rosie-the-riveters-kids. A very different trajectory occurred in many Western European countries after the war, when formal schooling expanded to include three- and four-year-olds, and parental leave policies were enacted along with publicly supported child care for children younger than age three. Peeters, J. (2008). *The construction of a new profession: A European perspective on professionalism in early childhood education and care.* Amsterdam: SWP Publishers.

[17] U.S. Department of Education, National Center for Education Statistics. (2013). *Digest of Education Statistics, 2012* (NCES 2014-015), Chapter 2. Retrieved from http://nces.ed.gov/fastfacts/display.asp?id=84; U.S. Department of Education, National Center for Education Statistics. (2013). *Digest of Education Statistics, 2012* (NCES 2014-015), Table 2. Retrieved from http://nces.ed.gov/programs/digest/d12/tables/dt12_002.asp; and U.S. Department of Education, National Center for Education Statistics. (2009). *The Condition of Education 2009* (NCES 2009-081), Table A-32-1. Retrieved from http://nces.ed.gov/fastfacts/display.asp?id=6.

[18] Bruner, C. (2013). *Early learning left out: Building an early-learning system to secure America's future. Federal, state and school district investments by child age. 4th Edition, 2010-2012.* Retrieved from http://www.buildinitiative.org/WhatsNew/ViewArticle/tabid/96/ArticleId/661/Early-Learning-Left-Out.aspx. The major public

programs serving young children fall short of reaching the child population they were designed to serve. For example, five percent of children from birth to age five are served by child care subsidies or vouchers, but the program is designed to serve 15-25 percent of the population. Similarly, only 42 percent of four-year olds and 15 percent of three-year olds participate in publicly financed preschool.

[19] Adams, G., & Matthews, H. (2010). *Confronting the child care eligibility maze*. Washington, DC: Urban Institute. Retrieved from http://www.urban.org/publications/412971.html.

[20] Bruner, C. (2013), op. cit. The younger the child, the fewer are the public expenditures that support their education and development. In 2011, combined federal and state per child spending on children ages 0-2 was $720.03 per year compared to $2,689.42 for children ages 3-5 and $10,299.64 for children ages 6-18.

[21] Brown, K. E. (2014). *Early learning and child care federal funds support multiple programs with similar goals*. Government Accounting Office, GAO-14-325T: Published: Feb 5, 2014. Publicly Released: Feb 5, 2014.

[22] Bennett, J. (2011). Early childhood education and care systems: Issues of tradition and governance, p.2. *Encyclopedia on early childhood development.* Retrieved from http://www.child-encyclopedia.com/documents/BennettANGxp2.pdf.

[23] Brown, K. E. (2014), op. cit. The U.S. Government Accounting Agency (GAO) identified 45 federal programs that provide or supported services related to early learning and child care.

[24] For example, the 2014 Omnibus Spending Bill passed by Congress includes approximately one-half billion dollars for the creation of Early Head Start and child care partnerships. Retrieved from http://www.edweek.org/ew/articles/2014/01/16/18budget.h33.html?tkn=STWFb6u%2Bh%2FI166oNWAt6qjtkmh5HiG4pp5KC&cmp=clp-edweek. Through changes to the Child Care Development Fund and the Race to the Top-Early Learning Challenge grants, the federal government is increasing the emphasis on school readiness in its program serving the most young children by supporting their parents' employment.

[25] Podgursky, M., & Springer, M. (2011). Teacher compensation systems in the United States K-12 public school system. *National Tax Journal, 64*(1), 165-192. Retrieved from http://web.missouri.edu/~podgurskym/articles/files/F2-Springer_01.pdf.

[26] The chart compares personnel systems for K-12 and ECE teachers along the following dimensions: 1) Teacher Qualifications; 2) Administrator Qualifications; 3) Preparation; 4) Professional Development; 5) Teaching Environment; 6) Unionization; 6) Evaluation; 7) Compensation; 8) Recruitment; 9) Turnover/Retention/Dismissal; 10) Demographic Characteristics; 11) Higher Education Infrastructure; and 12) Professional Development Infrastructure.

[27] Department for Professional Employees, AFL-CIO. (2013). *Teachers: Preschool through postsecondary*. Retrieved from http://dpeaflcio.org/professionals/professionals-in-the-workplace/teachers-and-college-professors/.

[28] About one-quarter of teachers in public and private preschool programs are required to meet individual licensing requirements. Kleiner, M. (2013). Licensing occupations: How time and regulatory attainment matter. *Upjohn Employment Research 20*(4), 4-6. Retrieved from http://research.upjohn.org/empl_research/vol20/iss4/2/.

[29] Aggregated data reported are based on 53 state-funded preschool programs. Barnett, W., Carolan, M., Squires, J., & Clarke Brown, K. (2013). *The state of preschool 2013: State preschool yearbook*, executive summary, p. 3. New Brunswick, NJ: National Institute for Early Education Research. Retrieved from http://nieer.org/sites/nieer/files/yearbook2013_executivesummary.pdf.

[30] Feistritzer, C.E. (2011). *Profile of teachers in the U.S. 2011*, pp. 15-19. Washington, D.C : National Center for Education Information. Retrieved from http://www.edweek.org/media/pot2011final-blog.pdf.

[31] The NSECE is based on over 10,000 questionnaires completed in 2012. National Survey of Early Care and Education Project Team (2013). Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings, p. 11. *National Survey of Early Care and Education (NSECE).* OPRE Report #2013-38. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf.

[32] The NCEI surveyed 2,500 randomly selected K-12 public school teachers from MDR's database of teachers. Feistritzer, C.E. (2011). *Profile of teachers in the U.S. 2011*. Washington, D.C : National Center for Education Information. Retrieved from http://www.edweek.org/media/pot2011final-blog.pdf.

[33] For example, the most recent statewide study of California's early care and education workforce found that 58 percent of family child care providers, 47 percent of center teachers, and 63 percent of center assistant teachers were people of color, compared to 26 percent of K-12 teachers and 70 percent of children birth to five years old. Whitebook, M., Sakai, L., Kipnis, F., Lee, Y., Bellm, D., Almaraz, M., & Tran, P. (2006). *California early care and education workforce study: Licensed child care centers. Statewide 2006.* pp. 18-22. Berkeley, CA: Center for the Study of Child Care Employment, and San Francisco, CA: California Child Care Resource and Referral Network. In 2012, just under half of center-based ECE teaching staff (49 percent) in North Carolina were people of color. Slightly fewer center directors (44 percent) were people of color. Almost all were women. Child Care Services Association (2012). *Working in early care and education in North Carolina.* Chapel Hill, NC: Child Care Services Association. Forthcoming data from the National Survey of Early Care and Education (NSECE) will provide information on gender, age, ethnicity, and language. Center-based Provider Questionnaire (published 11/28/11). Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/centerquestion.pdf.

[34] Whitebook, M., Kipnis, F., & Bellm, D. (2008). *Diversity and stratification in California's early care and education workforce.* Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2008/01/diversity_stratification08.pdf.

[35] Forum on Child and Family Statistics. (2013). *America's children: Key national indicators of well-being, 2013*. Retrieved from http://www.childstats.gov/americaschildren/index3.asp.

[36] Learning Points Associates. *Quality teaching in at-risk schools: Key issues*. Retrieved from http://www.tolerance.org/tdsi/sites/tolerance.org.tdsi/files/assets/general/Recruiting_Minority_Teachers.pdf; and National Partnership for Teaching in At-Risk Schools. (2005). *Qualified teachers for at-risk schools: A national imperative.* Washington, DC: National Partnership for Teaching in At-Risk Schools. Retrieved from http://www.learningpt.org/pdfs/tq/partnership.pdf.

[37] Garcia, E. E. (2005). *Teaching and learning in two languages: Bilingualism and schooling in the United States*. New York: Teachers College Press; and Magruder, E. S., Hayslip, W. W., Espinosa, L. M., & Matera, C. (2013). Many languages, one teacher: Supporting language and literacy development for dual language learners. *Young Children*. Retrieved from http://www.naeyc.org/yc/article/many_languages_one_teacher_magruder.

[38] Ingersoll, R. M., & May, H. (2011). The minority teacher shortage: Fact or fable? *Education Week*. Retrieved from http://www.edweek.org/ew/articles/2011/09/01/kappan_ingersoll.html; and Washington, V., & Andres, J. (2010). *Children of 2020: Creating a better tomorrow*. Washington, D.C.: Council for Professional Recognition.

[39] A number of initiatives around the country are designed to help increase racial, ethnic, and linguistic diversity among BA-educated ECE teachers by supporting their access to and success in attaining degrees. Whitebook, M., Sakai, L., Kipnis, F., Almaraz, M., Suarez, E., & Bellm, D. (2008). *Learning together: A study of six B.A. completion cohort programs in early care and education. Year I report.* Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2008/07/learning_together08.pdf; and Whitebook, M., Schaack, D., Kipnis, F., Austin, L. J. E., & Sakai, L. (2013). *From aspiration to attainment: Practices that support educational success, Los Angeles Universal Preschool's Child Development Workforce Initiative.* Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2013/11/FromAspirationtoAttainment_CSCCE2013-Full-Report1.pdf.

[40] Loeb, S., Miller, L., & Strunk, K. (2009). *The state role in teacher professional development and education throughout teachers' careers*, p. 216. Retrieved from http://www.mitpressjournals.org/doi/pdf/10.1162/edfp.2009.4.2.212.

[41] Whitebook, M., Austin, L., Ryan, S., Kipnis, F., Almaraz, M., & Sakai, L. (2012). *By default or by design? Variations in higher education programs for early care and teachers and their implications for research methodology, policy, and practice.* Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2012/01/ByDefaultOrByDesign_FullReport_2012.pdf.

[42] Kipnis, F., Whitebook, M., Almaraz, M., Sakai, L., & Austin, L. (2012). *Learning together: A study of six B.A. completion cohort programs in early care and education. Year 4 report*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley.

[43] Maxwell, K. L., Lim, C. I., & Early, D. M. (2006). *Early childhood teacher preparation programs in the United States: National report*. Chapel Hill, NC: The University of North Carolina, FPG Child Development Institute.

[44] Whitebook, M., et al. (2012), op. cit. For information on ECE Higher Education Accreditation, see two year programs at http://www.naeyc.org/ecada/ and four year and graduate programs at http://www.naeyc.org/ncate/.

[45] Whitebook, M., Gomby, D., Bellm, D., Sakai, L., & Kipnis, F. (2009). *Preparing teachers of young children: The current state of knowledge, and a blueprint for the future*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/2009/preparing-teachers-of-young-children/.

[46] Barnett, W., Carolan, M., Fitzgerald, J., & Squires, J. (2012). *The state of preschool 2012: State preschool yearbook*, Appendix C, p. 246. New Brunswick, NJ: National Institute for Early Education Research. Retrieved from http://nieer.org/publications/state-preschool-2012.

[47] The P-12 principal certification also covers the content areas of special education and English Language Learners. Retrieved from http://leadershiplinc.illinoisstate.edu/LINC-principal/. Non-mandatory training for principals and other ECE administrators is encouraged in New Jersey and other states. Rice, C., & Costanza, V. (2011). *Building early learning leaders: New Jersey's PreK-3rd leadership training, a case study*. Newark, NJ: Advocates for Children of New Jersey. Retrieved from http://fcd-us.org/sites/default/files/NJ%20PreK-3rd%20Leadership%20Training.pdf. Brown, K., Squires, J., Connors- Tadros, L., Horowitz, M. (2014). *What do we know about principal preparation, licensure requirements, and professional development for school leaders?* Retrieved from http://ceelo.org/wp-content/uploads/2014/07/ceelo_policy_report_ece_principal_prep.pdf.

[48] Isner, T., Tout, K., Zaslow, M., Soli, M., Quinn, K., Rothenburg, L., & Burkhauser, M. (2011). *Coaching in early care and education programs and quality rating and improvement systems (QRIS): Identifying promising features*. Washington, DC: Child Trends.

[49] Austin, L.J.E., Kipnis, F., Sakai, L., Whitebook, M., & Ryan, S. (2013). *The State of Early Childhood Higher Education in Rhode Island: The Rhode Island Early Childhood Higher Education Inventory*. Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley; Kipnis, F., Austin, L. J.E., Sakai, L., Whitebook, M., & Ryan, S. (2013). *The State of Early Childhood Higher Education in New Hampshire: The New Hampshire Early Childhood Higher Education Inventory*. Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley; Kipnis, F., Whitebook, M., Austin, L., & Sakai, L. (May 2013). *The State of Early Childhood Higher Education in New Jersey: The New Jersey Early Childhood Higher Education Inventory*. Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley; Whitebook, M., et al. (2012), op. cit.; and Whitebook, M., & Ryan, S. (2011), op. cit.

[50] Hill, H. C. (2007). Learning in the teaching workforce. *The Future of Children 17*(1), 111-127; Loeb S., Rouse, C., & Shorris, A. (2007). Introducing the issue: Excellence in the classroom. *The Future of Children 17*(1), 3-14; Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the U.S. and abroad*. Dallas, TX: National Staff Development Council; Whitebook et al. (2009), op. cit.; and Fullan, M. (2011). *Seminar Series 204: Choosing the wrong drivers for whole system reform*. Victoria: Centre for Strategic Education. Retrieved from http://edsource.org/wp-content/uploads/Fullan-Wrong-Drivers1.pdf.

[51] Whitebook, M., ibid.; and Isner, T., et al. (2011), op. cit.

[52] Whitebook, M., & Ryan, S. (2012). *Supportive Environmental Quality Underlying Adult Learning (SEQUAL)*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley; and Caroll, T., Fulton, K., & Duerr, H. (2010). *Team up for 21st Century teaching and learning: What research and practice reveal about professional learning*, Washington, D.C.: National Commission on Teaching and America's Future.

[53] Whitebook et al. (2012), op. cit.; Kipnis et al. (2012), op. cit.

[54] On average, U.S. elementary schools serve about 450 students. Assuming a ratio of one teacher to 25 children, at least 18 teachers would work at most schools – approximately two times the number of teaching staff in many ECE settings. Retrieved from http://nces.ed.gov/pubs2001/overview/table05.asp. Data about ECE center size was presented at the National Association for the Education of Young Children Professional Development Institute, June, 2014 by principal investigators for the *National Survey of Early Care and Education*. A published report including this information is anticipated in fall 2014.

[55] All Head Start and pre-K programs in North Carolina, for example, offer teaching staff at least partially employer paid health insurance, compared to 22 percent of small-private non-profit centers, 41 percent of faith-based private non-profits, 52 percent of multi-center for-profit organizations, and 63 percent of community-sponsored private non-profit programs. Child Care Services Association. (2013). *2012 Workforce Study: Working in early care and education in North Carolina*. Retrieved from http://www.childcareservices.org/_downloads/research/WorkforceReport2013/WorkforceReport_2013.pdf.

[56] Department for Professional Employees, AFL-CIO. (2013). *Teachers: Preschool through Postsecondary*. Retrieved from http://dpeaflcio.org/professionals/professionals-in-the-workplace/teachers-and-college-professors/.

[57] Even when ECE teachers are members of labor unions, they are not necessarily represented by one of the two major teachers' unions in K-12 (American Federation of Teachers and National Education Association). In addition to public employee unions, such as Service Employee International Union, ECE teachers may be represented by unions, such as the Teamsters. The largest professional organization in ECE, the National Association for the Education of Young Children (NAEYC), in contrast to National Education Association, does not represent teachers in collective bargaining.

Most recent union organizing in ECE focuses on home-based providers. Retrieved from http://www.nwlc.org/our-resources/reports_toolkits/getting-organized.

Forthcoming data from the *National Survey of Early Care and Education (NSECE)* will include information about union density across ECE settings. Specifically, the survey asked: Are you a member of a union (such as Service Employees International Union, American Federation of Teachers, American Federation of State, County and Municipal Employees (AFSCME) or the Teamsters)? Are you a member of a professional association focused on caring for children (such as the National Association for the Education of Young Children, the National Family Child Care Association, the National Institute on Out of School Time, a religiously identified child care organization, or a similar organization)? Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/workforce.pdf.

[58] Useable surveys were obtained from a random sample (n=631) of all directors of licensed child care programs in North Carolina. Participating directors distributed surveys to their teaching staff and useable surveys were returned by 2,525 teaching staff out of an estimated 4,780. Child Care Services Association (2012), op. cit.

[59] These data are drawn from a forthcoming report from the Center for the Study of Child Care Employment, examining workplace supports and adult well-being among Head Start teaching staff, in order to provide feedback for enhancing the technical assistance provided to programs, and to further the development of a new measure examining the adult work environment in early care and education.

[60] A forthcoming report, *Worthy Work, STILL Unlivable Wages: The National Child Care Staffing Study 25 Years Later* (Fall, 2014) from the Center for the Study of Child Care Employment report will also include an analysis of the usage of public income support programs by ECE workers nationally, and will estimate total average annual expenditures for public benefits for their families, 2007-2011, based on the U.S. Census Bureau's *Current Population Survey*. The report will focus on four public benefits programs: Health insurance (Medicaid and the Children's Health Insurance Program, or CHIP), the Federal Earned Income Tax Credit (EITC), food stamps (the Supplemental Nutrition Assistance Program, or SNAP), and basic household income assistance (Temporary Assistance for Needy families, or TANF). In addition to national data, individual state data will be presented depending on sample size.

[61] See note 59 and related text for information about the Head Start sample. Data for the single state sample were collected from center-based teaching staff working in a mix of publicly funded, private for-profit, and private nonprofit programs/centers/schools and are drawn from a forthcoming article. Data reported here are part of a larger effort to examine workplace supports and adult well-being among early childhood teaching staff, in order to provide feedback for enhancing the technical assistance provided by the state's quality rating and improvement system, and to further the development of a new measure examining the adult work environment in early care and education. Whitebook, M., Sakai, L., & Ryan, S. (2014). *Economic insecurity and early childhood teaching: The relationship between teacher worry and program economic policies, auspices and quality ratings. Center for the Study of Child Care Employment, University of California, Berkeley (Manuscript in preparation).*

[62] National Survey of Early Care and Education Project Team (2013). Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings. *National Survey of Early Care and Education (NSECE),* OPRE Report #2013-38, Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf; Whitaker, R., Becker, B., Herman, A., & Gooze, R. (2012). *The physical and mental health of Head Start staff: The Pennsylvania Head Start Staff Wellness Survey, 2012, Preventing Chronic Disease 2013,* 10:130171. Retrieved from http://dx.doi.org/10.5888/pcd10.130171; and Grining, C. L., Raver, C. C., Champion, K., Sardin, L., Metzger, M., & Jones, S. M. (2010). Understanding and improving classroom emotional climate and behavior management in the "real world": The role of Head Start teachers' psychosocial stressors. *Early Education and Development, 21, 65-94.* doi:10.1080/10409280902783509.

[63] In some states, comparability was required whether pre-K is situated in the schools or in the community, while in others only pre-K teachers working in a public school were paid comparably to K-12 teachers. Barnett, W., et al. (2013), op. cit.; and Personal communication, W. Steven Barnett, Director, National Institute for Early Education Research (NIEER),2013.

[64] Office of Head Start, Program Information Report, 2012-13. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/mr/pir.

[65] The turnover rates were based on a sample size of 56,580 private, public, and BIE school teachers. In 2007-08 it was estimated that there were 347,000 leavers. Institute of Education Sciences (IES), National Center for Education Statistics. Schools and Staffing Survey, 2008-9. Retrieved from http://nces.ed.gov/surveys/sass/.

[66] Institute of Education Sciences. (2013). *Transfer incentives for high-performing teachers: Final results from a multisite randomized experiment.* Retrieved from http://www.mathematica-mpr.com/publications/pdfs/education/tti_high_perform_teachers.pdf.

[67] Forthcoming data from the National Survey of Early Care and Education (NSECE) (scheduled to be released in late 2014 or early 2015) will provide information on turnover; and Center-based Provider Questionnaire)published 11/28/2011). Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/workforce.pdf.

[68] Porter, N. (2012). *High Turnover among Early Childhood Educators in the United States.* Retrieved from http://www.childresearch.net/projects/ecec/2012_04.html.

[69] These percentages are based on a sample of 737 centers. Percentages and other values reported by the workforce study permit extrapolation to 4,034 centers. Child Care Services Association. (2012), op. cit.

[70] Whitebook, M., & Sakai, L. (2004), op. cit.

[71] Glazerman, S., Protik, A., Teh, B., Bruch, J., & Max, J. (2013). *Transfer incentives for high-performing teachers: Final results from a multisite experiment (NCEE 2014-4003).* Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/pubs/20144003/pdf/20144003.pdf.

[72] Whitebook, M. (April 2013). Staffing a universal preschool program will be no small task. *EdSource Today.* According to Office of Head Start, Program Information Reports from 2012-2013, 26.6 percent of teachers who left their jobs for higher compensation/better benefits in the same field, e.g. teacher left for job in school system). Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/data/pir/2012-2013pdf/2012-2013_pir_form.pdf.

[73] Regenstein, E., & Romero-Jurado, R. (2014). Ounce policy conversations: A framework for rethinking state education accountability and support from birth through high school. *The Ounce.* Retrieved from http://theounce.org/national-policy/national-policy-conversations.php; LeMoine, S. (2009). *Professional Development System Policy Overview.* Washington, DC: National Association for the Education of Young Children. Retrieved from http://www.naeyc.org/files/naeyc/NAEYC_WorforcePolicyOverview_2010.pdf; and Meisels, S. (2006). *Accountability in Early Childhood: No Easy Answers.* Herr Research Center for Children and Social Policy, Erikson Institute. Retrieved from http://www.isbe.state.il.us/earlychi/pdf/meisels_accountability.pdf.

[74] Alliance for Excellent Education. (2005). *Teacher attrition: A costly loss to the nation and to the states,* Washington, DC: Alliance for Excellent Education; National Commission on Teaching and America's Future (2007). *The high cost of teacher turnover: Policy brief.* Washington, DC: National Commission on Teaching and America's Future.

[75] National Commission on Teaching and America's Future. (2007). Retrieved from http://nctaf.org/teacher-turnover-cost-calculator/. The National Commission on Teaching and America's Future turnover cost estimates were originally developed in 2007. The costs reported in this paper have been updated using the American Institute for Economic Research's Cost of Living Calculator (Retrieved from https://www.aier.org/cost-living-calculator). The 2007 cost per teacher turnover was $3600 in rural communities and $8400 in urban communities.

[76] Whitebook, M., & Sakai, L. (2004), op. cit., chapter 3.; Whitebook, M., & Ryan, S. (2011), op. cit.; and Whitebook, M., & Sakai, L. (2003). Turnover begets turnover: An examination of job and occupational instability among child care center staff. *Early Childhood Research Quarterly 18*, 273-293. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2010/07/turnoverchildcare.pdf.

[77] Howes, C., Phillips, D., & Whitebook, M. (1992). Thresholds of quality in child care centers and children's social and emotional development. *Child Development 63*, 449-460. Reprinted in *Annual Progress in Child Psychiatry and Child Development 26*; Howes, C., Whitebook, M., & Phillips, D. (1992). Teacher characteristics and effective teaching in child care: Findings from the National Child Care Staffing Study, *Child and Youth Care Forum 21*, 339-414; and Whitebook, M., Howes, C., & Phillips, D. (1989). *Who cares? Child care teachers and the quality of care in America* (Executive Summary, Final Report, and Local Reports for Atlanta, Boston, Detroit, Phoenix and Seattle). Oakland, CA: Child Care Employee Project.

[78] Ghazvini, A., & Mullis, R. L. (2002). Center-based care for young children: Examining predictors of quality. *The Journal of Genetic Psychology, 163, 112-125*; Phillips, D., Mekos, D., Scarr, S., McCartney, K., Abbott-Shim, M. (2000). Within and beyond the classroom door: assessing quality in child care centers. *Early Childhood Research Quarterly, 15, 475-496*; and Torquati, J. C., Raikes, H., & Huddleston-Casas, C. A. (2007). Teacher education, motivation, compensation, workplace support, and links to quality of center-based care and teachers' intention to stay in the early childhood profession. *Early Childhood Research Quarterly, 22, 261-275*. doi:10.1016/j.ecresq.2007.03.004.

[79] Whitebook, M. (1996). *NAEYC accreditation as an indicator of program quality: What research tells us*, pp. 31-46. Washington, DC: National Association for the Education of Young Children; Whitebook & Sakai (2004), op. cit.; and Cassidy, D. J., Lower, J. K., Kintner, V. L., Hegde, A., & Shim, J. (2011). The day to day reality of teacher turnover in preschool classrooms: An analysis of classroom context and teacher, director, and parent perspectives. *Journal of Research in Childhood Education, 25, 1-23*.

[80] National Research Council and Institute of Medicine & Board on Children, Youth, and Families. (2000). *From neighbors to neurons: The science of early childhood development* (J. P. Shonkoff & D. A. Phillips Eds.). Washington, D.C.: National Academy Press.

[81] Quality Rating and Improvement Systems (QRIS) represent a process to set program and professional development standards across ECE settings that encompass higher quality than required by state licensing. QRIS systems typically reflect state early learning standards and are used in conjunction with career lattices and ECE workforce and training registries. Thirty-eight states and the District of Columbia over the last decade and a half, and eleven states and territories are developing a QRIS. QRIS National Learning Network. (2014). *Current status of QRIS in states*. Retrieved from www.qrisnetwork.org. To date only a few states have used their QRIS to address the teaching context or to address compensation for the workforce. Austin, L. J. E., Whitebook, M., Connors, M. & Darrah, R. (2011). *Staff preparation, reward, and support: Are quality rating and improvement systems addressing all of the key ingredients necessary for change?* Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2011/12/CSCCEQRISPolicyBrief_2011.pdf.

[82] Less effective forms of professional development, notably single-topic one session workshops, remain ubiquitous. In the assessment of teaching staff in one-state conducted by the Center for the Study of Child Care Employment described in Endnote 61, almost all teaching staff reported participating in such workshops and were twice as likely to have attended one than to have met with a mentor or coach.

[83] Whitebook, M., et al. (2012), op. cit.

[84] In K-12 education, researchers have "worked backwards," asking school principals, leaders, and other teachers to identify effective teachers, and then closely examined the shared characteristics of educational programs they attended. Darling-Hammond, L. (2006). Powerful teacher education: Lessons from exemplary programs. San Francisco, CA: Jossey-Bass; and Whitebook, M., & Bellm, D. (2013). Supporting teachers as learners: A guide for mentors and coaches in early care and education. Washington, DC: American Federation of Teachers.

[85] Kipnis, F., & Whitebook, M. (2011). *Workforce information: A critical component of coordinated state early care and education data systems*, p. 6. Berkeley, CA: Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California at Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2011/04/CSCCEPolicyBrief_WorkforceInformation_March2011.pdf.

[86] Whitebook, M., & Ryan, S. (unpublished document). *Supporting environmental quality underlying adult learning (SEQUAL)*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. These questions are drawn from the *SEQUAL*, an online tool to gather teaching staff responses to these questions, which are aggregated into a profile describing a program's or school's strengths and weaknesses in each of five domains associated with adult learning: teaching supports, learning community, job crafting, program leadership, and adult well-being.

[87] Gawande, A. (2007). *Better: A surgeon's notes on performance*, p. 214. New York: Holt, Henry & Co.

[88] Barnett, S. (2004). Better teachers, better preschools: Student achievement linked to teacher qualifications. *Preschool Policy Matters*. Retrieved from http://nieer.org/resources/policybriefs/2.pdf.

[89] Terminology which indicates a teacher has obtained the required knowledge and experience to qualify her for teaching varies within and across sectors. In k-12 states use one or more terms-- certification, license, and credential-- to indicate that a teacher is qualified. In K-12, certification is typically earned after completing a bachelor's or higher degree. In ECE, license generally is

the term used to indicate that a program (center or school) meets certain standards, and is not commonly used to describe teacher qualifications. The terms certification or credentialed are more commonly used to describe ECE teachers' documented qualifications. However, as noted, such documentation is not required for most early childhood teachers and required education and experience to qualify for various certificates and credentials vary depending on program type, funding source and regulatory agency.

[90] About one-quarter of teachers in public and private preschools are required to meet individual licensing requirements. Kleiner, M. (2013). Licensing occupations: How time and regulatory attainment matter. *Upjohn Employment Research. 20*(4), 4-6. Retrieved from http://research.upjohn.org/empl_research/vol20/iss4/2/.

[91] National Survey of Early Care and Education Project Team (2013). Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings, *National Survey of Early Care and Education (NSECE).* OPRE Report #2013-38, p. 11, Figure 5. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf.

[92] There were 1,981,280 elementary and middle school teachers employed in the U.S. in 2012. Department for Professional Employees, AFL-CIO (2013). *Teachers: Preschool through Postsecondary*. Retrieved from http://dpeaflcio.org/professionals/professionals-in-the-workplace/teachers-and-college-professors/.

[93] Ibid.

[94] Aggregated data reported below and throughout the chart are based on 52 state-funded preschool programs. Barnett, W., Carolan, M., Fitzgerald, J., & Squires, J. (2012). *The state of preschool 2012: State preschool yearbook*, p. 11, Figure 2. New Brunswick, NJ: National Institute for Early Education Research. Retrieved from http://nieer.org/sites/nieer/files/yearbook2012.pdf.

[95] The category "All other ECE center-based programs" includes privately-operated child care and preschool funded by parent fees and/or Child Care Development Fund (CCDF) subsidies. These programs represent a diversity of qualifications for teaching staff.

[96] Barnett, et al. (2012), op. cit., p. 11.

[97] Ibid., p. 11.

[98] Ibid, p. 11.

[99] The Child Development Associate credential (CDA) is a competency-based national certification earned by early childhood educators, often those who work as assistant teachers. Retrieved from http://www.cdacouncil.org/.

[100] Office of Head Start. (2012). *Statutory Degree and Credentialing Requirements for Head Start Teaching Staff*. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/standards/IMs/2008/resour_ime_012_0081908.html.

[101] Office of Head Start. (2013). *Head Start Program Facts, Fiscal Year 2013*. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/mr/factsheets/docs/hs-program-fact-sheet-2013.pdf. Twenty-seven percent of Early Head Start teachers working with infants and toddlers held at least a bachelor's degree in 2013. Personal communication, Marsha Basloe, U.S Department of Health and Human Services, 2014.

[102] Child Care Aware® *Ranking of State Child Care Center Regulations and Oversight, We Can Do Better, 2013 update.* Arlington, VA: Child Care Aware. Retrieved from http://www.naccrra.org/about-child-care/state-child-care-licensing/training-requirements.

[103] Whitebook, M., Gomby, D., Bellm, D., Sakai, L., & Kipnis, F. (2009). *Preparing teachers of young children: The current state of knowledge, and a blueprint for the future.* Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/2009/preparing-teachers-of-young-children/.

[104] Barnett, et al. (2012), op. cit., appendix C, p. 246.

[105] The P-12 principal certification also covers the content areas of special education and English Language Learners. Retrieved from http://leadershiplinc.illinoisstate.edu/LINC-principal/; Non-mandatory training for principals and other ECE administrators

is encouraged in New Jersey and other states. Rice, C., & Costanza, V. (2011). *Building early learning leaders: New Jersey's PreK-3rd leadership training, a case study*. Newark, NJ: Advocates for Children of New Jersey. Retrieved from http://fcd-us.org/sites/default/files/NJ%20PreK-3rd%20Leadership%20Training.pdf. Brown, K., Squires, J., Connors-Tadros, L., Horowitz, M. (2014). *What do we know about principal preparation, licensure requirements, and professional development for school leaders?* Retrieved from http://ceelo.org/wp-content/uploads/2014/07/ceelo_policy_report_ece_principal_prep.pdf.

[106] Loeb, S., Miller, L., & Strunk, K. (2009). *The State Role in Teacher Professional Development and Education throughout Teachers' Careers*. Retrieved from http://www.mitpressjournals.org/doi/pdf/10.1162/edfp.2009.4.2.212.

[107] There is no longitudinal source of information, such as the K-12 Schools and Staffing Survey (SASS) conducted by the Institute of Education Sciences, National Center of Education Statistics, which provides comparable data for the ECE workforce as a whole or by sector. No available research examines the percentage of teaching staff who completed their preparation prior to employment, but based on qualifications, preschool teachers in school-sponsored programs are the most likely to have done so. Higher qualifications for Head Start teachers, established in the 2007 Reauthorization of Head Start, allowed many teachers to return to school to earn degrees while employed. Improving Head Start for School Readiness Act of 2007, Public Law 110-134, 42 USC 9801 *et seq*. (Dec. 12, 2007).

[108] Whitebook, M., Austin, L., Ryan, S., Kipnis, F., Almaraz, M., & Sakai, L. (2012). *By default or by design? Variations in higher education programs for early care and teachers and their implications for research methodology, policy, and practice*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2012/01/ByDefaultOrByDesign_FullReport_2012.pdf.

[109] Ibid.

[110] Whitebook, M., Sakai, L., Kipnis, F., & Almaraz, M. (2011). *Learning together: A study of six B.A. completion cohort programs in early care and education. Year III report*. Berkeley, CA: Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California, Berkeley. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2011/04/LearningTogetherYear3Report1.pdf.

[111] Exstrum, M. (2012). *Teaching in charter schools*. National Council of State Legislatures. Retrieved from http://www.ncsl.org/documents/educ/teachingincharterschools.pdf.

[112] Ibid.

[113] Ibid. Only charter preschools in one state and in Washington D.C. do not require some type of certification for pre-K teachers. Certifications in some states are different for pre-K teachers who work in school-sponsored and not school-sponsored settings.

[114] Barnett, S., Carolan, M., Fitzgerald, J., & Squires, J. (2011). *The state of preschool 2011: State preschool yearbook*, p. 239. New Brunswick, NJ: National Institute for Early Education Research. p. 239. Retrieved from http://nieer.org/sites/nieer/files/2011yearbook.pdf.

[115] Whitebook et al. (2009), op. cit., p. 4.

[116] Goldrick, L., Osta, D., Barlin, D., & Burn, J. (2012). *Review of state policies on teacher induction*, p. 6. New Teacher Center. Retrieved from http://www.newteachercenter.org/sites/default/files/ntc/main/resources/brf-ntc-policy-state-teacher-induction.pdf.

[117] Ibid., p. 6.

[118] Ibid., p. 6.

[119] Loeb et al., op. cit., p. 222.

[120] Barnett et al. (2012), op. cit., p. 195.

[121] Office of Head Start Training and Technical Assistance Center. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/tta-system.

[122] Child Care Aware of America. (2014). *Training Requirements*. Retrieved from http://www.naccrra.org/about-child-care/state-child-care-licensing/training-requirements.

[123] Tooley, M. (2013). *Is Money Enough to Keep More High-Quality Teachers in High-Need Schools?* Education News and Analysis from the New America Foundation. Retrieved from http://www.edcentral.org/is-money-enough-to-keep-more-high-quality-teachers-in-high-need-schools/#sthash.hTWyRIVF.dpuf.

[124] Whitebook et al. (2009), op. cit., p. 3.

[125] Whitebook, M., & Sakai, L. (2004). *By a thread: How centers hold on to teachers, how teachers build lasting careers.* Kalamazoo, MI: Upjohn Institute for Employment Research; Whitebook, M., & Ryan, S. (2011). Degrees in context: Asking the right questions about preparing skilled and effective teachers of young children, *NIEER Policy Brief* No 22. New Brunswick, New Jersey: National Institution for Early Education Research. Retrieved from http://www.irle.berkeley.edu/cscce/wp-content/uploads/2011/04/DegreesinContext_2011.pdf.

[126] Whitebook et al. (2009), op. cit., p. 7.

[127] Forthcoming data from the *National Survey of Early Care and Education (NSECE)* will include information about union density across ECE sectors. Specifically, the survey asked: Are you a member of a union (such as Service Employees International Union, American Federation of Teachers, American Federation of State, County and Municipal Employees (AFSCME) or the Teamsters)? Are you a member of a professional association focused on caring for children (such as the National Association for the Education of Young Children, the National Family Child Care Association, the National Institute on Out of School Time, a religiously identified child care organization, or a similar organization)? Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/workforce.pdf.

[128] NAEYC, the largest ECE professional organization, has approximately 80,010 members. However, many of its members do not teach children directly but hold roles such as teacher educator or director. Membership has declined in recent years. The National Association for the Education of Young Children (n.d.), NAEYC: Membership. Retrieved from http://www.naeyc.org/membership.

[129] Union density figures cannot be disaggregated for elementary and middle school teachers. Department of Professional Employees, AFL-CIO. Retrieved from http://dpeaflcio.org/professionals/professionals-in-the-workplace/teachers-and-college-professors/.

[130] Exstrum, op. cit., p. 3.

[131] Department of Professional Employees, AFL-CIO, op. cit. Union density figures cannot be disaggregated for preschool and Kindergarten teachers. Because more Kindergarten than preschool teachers are employed by public schools, Pre-K union density among preschool teachers is likely to be much lower than 16.7 percent. Preschool and Kindergarten teachers who were union members earned more than twice as much as those who were not. Several unions represent early childhood practitioners, most notably the Service Employees International Union (SEIU), the American Federation of State, County and Municipal Employees (AFSCME), the American Federation of Teachers (AFT), and the National Education Association (NEA). The NEA allows private preschool workers to seek union membership.

[132] Blank, Campbell, & Entmacher (2010). *Getting organized: Unionizing home-based child care providers,* p. 5. Washington, DC: National Women's Law Center. Retrieved from http://www.nwlc.org/our-resources/reports_toolkits/getting-organized.

[133] National Council on Teacher Quality (2013). *State of the States 2013. Connect the Dots: Using evaluations of teacher effectiveness to inform policy and practice*, p. 31. Retrieved from http://www.nctq.org/dmsView/State_of_the_States_2013_Using_Teacher_Evaluations_NCTQ_Report.

[134] Thomsen, J. (2014a). *A closer look: Teacher evaluations and reduction-in-force policies*. Denver, CO: Education Commission of the States. Retrieved from http://www.ecs.org/clearinghouse/01/12/43/11243.pdf; Thomsen, J. (2014b). *A closer look: Teacher evaluations and tenure decisions.* Denver, CO: Education Commission of the States. Retrieved from http://www.ecs.org/clearinghouse/01/12/44/11244.pdf.

[135] Personal communication, Marsha Basloe, U.S Department of Health and Human Services, 2014; and National Center on Child Care. (2014). *Professional development systems and workforce initiatives*. Retrieved from https://childcareta.acf.hhs.gov/stateterritory-professional-development-system-overviews-0.

[136] Schmit, S., Matthews, H., Smith, S., & Robbins, T. (2013). *Investing in young children: A fact sheet on early care and education participation, access, and quality*, Figure 12. New York, NY: National Center for Children in Poverty; Washington,

DC: Center for Law and Social Policy. Retrieved from http://nccp.org/publications/pdf/text_1085.pdf; and QRIS National Learning Network. (2014). *Current status of QRIS in states*. Retrieved from www.qrisnetwork.org.

[137] Regenstein, E., & Romero-Jurado, R. (2014). Ounce policy conversations: A framework for rethinking state education accountability and support from birth through high school. *The Ounce*. Retrieved from http://theounce.org/national-policy/national-policy-conversations.php; LeMoine, S. (2009). *Professional Development System Policy Overview*. Washington, DC: National Association for the Education of Young Children. Retrieved from http://www.naeyc.org/files/naeyc/NAEYC_WorforcePolicyOverview_2010.pdf; Meisels, S. (2006). *Accountability in Early Childhood: No Easy Answers*. Herr Research Center for Children and Social Policy, Erikson Institute. Retrieved from http://www.isbe.state.il.us/earlychi/pdf/meisels_accountability.pdf.

[138] National Council on Teacher Quality, op. cit., p. 1.

[139] Ibid., p. 10.

[140] Ibid., p. 14.

[141] Section 641A(c)(2)(F) of the Head Start Act (the Act) requires that the Office of Head Start (OHS) monitoring review process include the use of a "a valid and reliable research based observational instrument, implemented by qualified individuals with demonstrated reliability, that assesses classroom quality, including assessing multiple dimensions of teacher-child interactions that are linked to positive child development and later achievement." The Act also states, in Section 641(c)(1)(D), that such an instrument should be used as part of the system for designation renewal. Grantees with average CLASS™ scores below the established minimum on any of the three CLASS™ domains or receiving scores in the lowest ten percent of the grantee pool assessed in a given year are required to re-compete for funding. Office of Head Start (2013). *Use of Classroom Assessment Scoring System (CLASS™) in Head Start*, pp. 6-7. Retrieved from https://eclkc.ohs.acf.hhs.gov/hslc/hs/sr/class/use-of-class.pdf.

[142] Forthcoming data from the *National Survey of Early Care and Education (NSECE)* will include information about whether teachers receive formal review and feedback on performance at least annually. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/workforce.pdf.

[143] Only 4 states and 1 territory have a salary or wage scale for various professional roles; 37 states and 1 territory provide financial rewards for participation in professional development (e.g., a one-time salary bonus for completing training); 12 states provide sustained financial support on a periodic, predictable basis (e.g., annual wage supplement, based on the highest level of training and education achieved). U.S. Department of Health and Human Services. (2013), op. cit., p. 11.

[144] Six states and 1 territory offer or facilitate benefits (e.g., health insurance coverage, retirement) to the workforce; 34 states and 1 territory have a workforce data system (e.g., a workforce registry). U.S. Department of Health and Human Services (2013), Ibid.; National Survey of Early Care and Education Project Team (2013), op. cit.

[145] In 2012, seventy-four percent of center-based teachers were full-time workers; the median hours worked per week by ECE teachers was 39.2. National Survey of Early Care and Education Project Team. (2013). Number and characteristics of early care and education (ECE) teachers and caregivers: Initial findings, *National Survey of Early Care and Education (NSECE)*. Page 19. OPRE Report #2013-38. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/nsece_wf_brief_102913_0.pdf.

[146] Comparable data for early childhood teachers by public pre-K, Head Start, and child care are not available from the Bureau of Labor Statistics. However, comparable data are available for the more inclusive categories of child care worker ($21,230) and preschool teacher in public or private programs ($30,750). The Bureau of Labor Statistics is considering new occupational definitions to capture more accurate information about early childhood industries. The averages were based off of 157,370 kindergarten teachers and 1,360, 380 elementary teachers. Retrieved from http://www.bls.gov/news.release/ocwage.htm.

[147] See previous note.

[148] Exstrum, M. (2012), op. cit., p. 3.

[149] National Center for Education Statistics. (2007-08). *Average salaries for full-time teachers in public and private elementary and secondary schools, by selected characteristics*. Retrieved from http://nces.ed.gov/programs/digest/d09/tables/dt09_075.asp.

[150] While pay is higher for teachers in school-sponsored public pre-K, it is important to note that only six percent work in such programs nationally. National Survey of Early Care and Education Project Team. (2013), op. cit., appendix, Table 2.

[151] The NSECE is based on over 10,000 questionnaires. National Survey of Early Care and Education Project Team. (2013), op. cit., Table 16.

[152] Ibid., Table 16.

[153] Ibid., Table 19.

[154] Ibid., Table 16.

[155] Ibid., Table 19.

[156] Ibid., Table 16.

[157] Ibid., Table 19.

[158] "Replacement needs" refers to the estimated job openings resulting from the flow of workers out of an occupation. This includes separations due to retirements as well as other reasons for departure. Estimates reflect decreases in job demand in an occupation, but not potential expansion. Bureau of Labor Statistics. (2014a). *Replacement Rates*. Bureau of Labor Statistics, U.S. Department of Labor. Retrieved from http://www.bls.gov/emp/ep_table_110.htm.

[159] "Growth rate" refers to the projected increase in demand for workers during a specified period. The growth rate for overall employment in the United States is estimated at 10.8 percent for 2012 to 2022. Bureau of Labor Statistics. (2014b). *Occupational Outlook Handbook*. Bureau of Labor Statistics, U.S. Department of Labor. Retrieved from http://www.bls.gov/ooh/.

[160] Bureau of Labor Statistics. (2014a), op. cit.

[161] Bureau of Labor Statistics. (2014b), op. cit.

[162] In most occupations, separations occur mainly among workers over forty; occupations with relatively low entrance requirements and compensation (as is typical of many ECE jobs) typically have large net separations among young workers. Bureau of Labor Statistics. (2014a), op. cit.

[163] Bureau of Labor Statistics. (2014b), op. cit.

[164] Bureau of Labor Statistics. (2014a), op. cit.

[165] Bureau of Labor Statistics. (2014b), op. cit.

[166] Personal communication, Marsha Basloe, U.S Department of Health and Human Services, 2013.

[167] Whitebook, M. (2013). "Preschool teaching at a crossroads." Employment Research 20(3): 4-6. Retrieved from http://research.upjohn.org/cgi/viewcontent.cgi?article=1211&context=empl_research.

[168] Whitebook, M. (April, 2013). Staffing a Universal Preschool Program Will Be No Small Task. *EdSource Today*. Retrieved from http://edsource.org/today/2013/staffing-a-universal-preschool-program-will-be-no-small-task/30091#.UqoM5eLlevU.

[169] Thomsen, J. (2014). *Teacher performance plays growing role in employment decisions*. Denver, CO: Education Commission of the States. In June 2014, a California Superior Court judge struck down the laws that protect K-12 teachers from dismissal, arguing that California's teacher-tenure system is unconstitutional. The tenure system will remain in effect while the ruling is appealed. For example, in 2014, 16 states required the results of teacher performance evaluations in tenure decisions compared to 10 states in 2011. Fensterwald, J. (2014). Judge strikes down all 5 teacher protection laws in Vergara lawsuit. *EdSource*. Retrieved from http://edsource.org/2014/judge-strikes-down-all-5-teacher-protection-laws-in-vergara-lawsuit/63023#.U6CFk7Goq1c.

[170] In 2007-08 there were a total of 347,000 leavers. Institute of Education Sciences (IES), National Center for Education Statistics. *Schools and Staffing Survey, 2008-9: Number and percentage of public and private school teacher leavers who rated*

various factors as very important or extremely important in their decision to leave their 2007–08 base year school, by selected teacher and school characteristics in the base year: 2008–09. Retrieved from http://nces.ed.gov/surveys/sass/tables/tfs0809_027_f12n.asp.

[171] Institute of Education Sciences (2013). *Transfer Incentives for High-Performing Teachers: Final Results from a Multisite Randomized Experiment*, appendix E. Retrieved from http://www.mathematica-mpr.com/publications/pdfs/education/tti_high_perform_teachers.pdf.

[172] Ryan, S., & Whitebook, M. (2012). More than teachers: The Early Care and Education Workforce, in *Handbook of Early Childhood Education* (Pianta, R. Ed). p. 98. New York: Guilford Press.

[173] Whitebook, M., & Sakai, L. (2004), op. cit., chapter 3.

[174] Whitebook, M., & Sakai, L. (2003). Turnover begets turnover: An examination of job and occupational instability among child care center staff. *Early Childhood Research Quarterly, 18*, 273-293.

[175] Moving from one job to another in the ECE fields explains the relatively long occupational tenure for ECE teachers. National Survey of Early Care and Education Project Team (2013), op. cit. In a 2011 study of early childhood teachers in North Carolina, 81 percent of teachers identified higher pay as the most important motivator for their remaining in the field. Child Care Services Association. (2012). *Working in early care and education in North Carolina: 2011 workforce study*. Chapel Hill, NC: Child Care Services Association.

[176] Institute of Education Sciences (IES), National Center for Education Statistics. *Schools and Staffing Survey, 2008-9: Percentage distribution of private school teachers by stayer, mover, and leaver status for selected teacher and school characteristics in the base year: 1994–95, 2000–01, 2004–05, and 2008–09.* Retrieved from http://nces.ed.gov/surveys/sass/tables/tfs0809_022_cf2n.asp.

[177] Ibid.

[178] Forthcoming data from the National Survey of Early Care and Education (NSECE) (scheduled to be released in late 2014 or early 2015) will provide information on turnover; Center-based Provider Questionnaire (published 11/28/2011). Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/workforce.pdf.

[179] Ibid.

[180] Ibid.

[181] For example, the most recent statewide study of California's early care and education workforce found that 58 percent of family child care providers, 47 percent of center teachers, and 63 percent of center assistant teachers were people of color, compared to 26 percent of K-12 teachers and 70 percent of children birth to five years old. Whitebook, M., Sakai, L., Kipnis, F., Lee, Y., Bellm, D., Almaraz, M., & Tran, P. (2006). *California early care and education workforce study: Licensed child care centers. Statewide 2006.* pp. 18-22. Berkeley, CA: Center for the Study of Child Care Employment, and San Francisco, CA: California Child Care Resource and Referral Network. In 2012, just under half of center-based ECE teaching staff (49 percent) in North Carolina in 2012 were people of color. Slightly fewer center directors (44 percent) were people of color. Almost all were women. Child Care Services Association. (2012), op. cit.

[182] The NCEI surveyed 2,500 randomly selected K-12 public school teachers from MDR's database of teachers. Feistritzer, C.E. (2011). *Profile of teachers in the U.S. 2011.* Washington, D.C: National Center for Education Information. Retrieved from http://www.edweek.org/media/pot2011final-blog.pdf.

[183] Forthcoming data from the National Survey of Early Care and Education (NSECE) will provide information on gender, age, ethnicity, and language. Center-based Provider Questionnaire (published 11/28/11). Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/workforce.pdf.

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[191] Whitebook et al. (2011), op. cit., p. 4.

[192] Ibid., p. 5.

[193] Whitebook et al. (2009), op. cit.

[194] Ibid.

[195] Kipnis, F., Whitebook, M., Austin, L, & Sakai, L. (2013). *Assessing the quality of New Jersey's professional preparation and professional development system for the early learning workforce.* Table 2, p. 11. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley. Retrieved from http://ci.millville.nj.us/education/ece/njcyc/reports/quality.pdf.