



Understanding Facilitators and Barriers to Professional Development Use Among the Early Care and Education Workforce

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Overview

Introduction

The goal of early care and education (ECE) professional development (PD) is to increase the knowledge, skills, and abilities of teachers and caregivers to improve child and family outcomes (Sheridan et al., 2009). A growing body of research suggests that factors at the individual, program, and system levels are important for determining whether an individual ECE teacher or caregiver will participate in PD activities. Federal, state, and local systems are responsible for structuring and coordinating PD efforts, often on very constrained resources. These leaders are looking for ways to maximize limited resources for PD by targeting supports where they will be most effective. It is also important for teachers and caregivers to have PD opportunities that are accessible and meaningful to them and their professional learning. This report describes the ways in which individual characteristics and factors at the program and system levels are associated with individual teachers' and caregivers' participation in PD in a nationally representative sample of ECE teachers and caregivers.

Primary research questions

1. How common is the use of PD opportunities among center-based and home-based teachers and caregivers? (*descriptive*)
2. What individual characteristics and program- or system-level factors were associated with participation in PD activities? (*multivariate*)
3. What individual characteristics and program-level factors were associated with a teacher or caregiver receiving financial support for their professional development? (*multivariate*)

Purpose

We report and discuss new analyses of the 2012 National Survey of Early Care and Education (NSECE) that explore how often, and under what conditions, center-based and home-based ECE teachers and caregivers participate in PD activities. We drew upon existing literature to inform the selection of characteristics and factors to incorporate into multivariate models, which included demographic characteristics such as race/ethnicity, language, and immigrant status.¹ Finally, we discuss implications for federal and state agencies overseeing PD systems for ECE teachers and caregivers.

Methods

The research team conducted a review of recent peer-reviewed and “gray” research literature to identify individual characteristics and program- and system-level factors that have been associated with PD participation among ECE professionals. The research team then used the NSECE (a nationally representative survey conducted in 2012) to describe teachers' and caregivers' participation in PD and to explore individual-, program-, and system-level factors (noted in the literature or identified by the research team) that may be associated with individuals' participation.

¹ We include these demographic factors because there may be systemic barriers to taking part in various types of PD for groups that have historically been marginalized in education and the workplace. We hypothesize that any differences in participation in PD based on race, ethnicity, language, or immigrant status to have roots in historical barriers to access to such opportunities.

Key findings and highlights

- **Center-based and home-based teachers and caregivers² most frequently reported participating in workshops in the past year** (88% and 80%, respectively), out of all PD opportunities. Many also participated in coaching (32%; 37%) and/or college courses (32%; 28%) in the past year. Rates of participation in these three types of PD were similar among teachers and caregivers working in center- or home-based settings.
- Among the center-based workforce, **participation in specific PD opportunities was related to several individual characteristics and program-level factors.** For instance, level of education was associated with participation in coaching (higher odds among teachers and caregivers with bachelor's degrees) and with college course enrollment (higher odds among teachers and caregivers holding associate's degrees). Teachers' or caregivers' race and ethnicity were associated with participating in workshops (lower odds for Hispanic teachers and caregivers than for non-Hispanic White teachers and caregivers) and college courses (higher odds for non-Hispanic Black teachers and caregivers than non-Hispanic White teachers and caregivers). Immigrant teachers and caregivers working in centers had lower odds of participating in coaching than U.S.-born teachers. Finally, those who received financial support such as scholarships were the most likely to report taking a college course in the past year.
- **Among the home-based workforce, financial support was a significant predictor of three of the four PD participation outcomes (workshops, college courses, and hours of PD).** Years expected to remain in the ECE field (a proxy for professional orientation and career commitment) emerged as a consistent correlate of participating in PD. Race and ethnicity of home-based teachers and caregivers were also associated with three of the four PD participation outcomes. Holding other factors constant, Hispanic and non-Hispanic Black home-based teachers and caregivers participated in more PD than their non-Hispanic White counterparts.
- Finally, **center-based teachers' and caregivers' receipt of financial support for PD was associated with one system-level factor** (working at a center with Head Start funding), one program-level factor (caring for children from birth to age 5 relative to caring for preschool-age only), and one individual characteristic of the teacher or caregiver (those holding a bachelor's degree had higher odds than those with lower levels of education; and non-Hispanic Black teachers and caregivers had lower odds than non-Hispanic White teachers and caregivers of receiving financial support for PD). **Among home-based teachers and caregivers, age and language(s) spoken influenced receipt of financial support for participation in PD activities.**

Glossary

ECE: Early Care and Education

CCDF: Child Care and Development Fund

NSECE: National Survey of Early Care and Education

PD: Professional Development

² Home-based teachers and caregivers in this report refers to those who were listed in administrative records (referred to throughout the report as "listed"), who cared for a child from birth to age 5, and who cared for at least one child with whom they did not have a prior relationship.

Background

Across several recent studies (Fuligni et al., 2009; Piasta et al., 2017; Schachter, 2015; Sheridan et al., 2009), a picture has emerged of a diverse ECE workforce with varying needs and opportunities for PD. Variations in personal characteristics and work context are likely important factors of PD experiences. Yet the literature on early childhood PD does not comprehensively document how characteristics and context are associated with whether an individual ECE teacher or caregiver will seek out or be offered a professional opportunity, their ability to engage in PD activities, and the outcomes that occur as a result of their participation. Federal, state, and local agencies are challenged to provide PD opportunities that improve the skills, competencies, and qualifications of the workforce and that accommodate teachers' and caregivers' differing needs and contexts. The PD landscape in state and local ECE systems is complex to navigate. It includes PD offerings in various modes (e.g., workshops, coaching, college courses) and levels of intensity, with different sponsorships and costs. It is important for decision makers to better understand the complex ecology of PD for ECE teachers and caregivers. Agencies and programs can better tailor PD opportunities and increase the efficiency of workforce development efforts and quality improvement resources by understanding the nuances surrounding which factors facilitate participation and which system-, program-, and individual-level factors create barriers to PD participation.³

This report describes the factors associated with participation in PD and highlights the individual-, program-, and system-level factors that may act as barriers to participating in specific PD activities (i.e., workshops, coaching, and college courses). We present findings from a scan of recent PD literature and share new multivariate findings from the 2012 National Survey of Early Care and Education (National Survey of Early Care and Education Project Team, 2012) that explore how often and under what conditions center-based and home-based ECE teachers and caregivers participate in PD activities.

Factors associated with PD participation from the literature

Individual characteristics and factors at the program and system levels are potentially important predictors of whether an individual ECE teacher or caregiver will participate in PD. At the individual level, years of experience in the field, education level, and personal beliefs are predictors of engagement. At the program level, qualification requirements and supports for PD (e.g., whether onsite options or financial assistance are offered) are likely key determinants of access. At the system level, regulations and requirements, scheduling, location, and quality of PD offerings shape the PD context for the workforce. A literature scan revealed more about individual characteristics and program- and system-level factors associated with participation in various types of PD opportunities.

Key findings from the literature

Through the literature scan, we identified factors associated with PD participation at the individual, program, and systems levels. While the peer reviewed literature on this topic was limited, non-peer reviewed reports such as state workforce survey studies provided rich information about the factors perceived to facilitate or present a barrier to an individual teacher or caregiver's participation in PD.

At the individual level, the literature revealed a variety of characteristics associated with participation and engagement in PD, some of it contradictory. For example, one study (Matsumura, 2010) found that more novice teachers were engaged in coaching activities (i.e., coaches rated these teachers as more receptive to coaching strategies), while another (Roberts, 2014) found that more (rather than

³ For this report, we distinguish factors at the system level from those at the program level to better understand the role of system-level regulations or quality standards on PD participation. We expect to see different levels and modes of PD participation based in part on funding sources of programs, as funding sources often come with quality standards or other requirements for the workforce. For example, Head Start Program Performance Standards outline requirements for coaching. Each Head Start grantee may have variations in how they carry out coaching, but all are held accountable for meeting that system-level requirement. In contrast, most programs taking part in a quality rating and improvement system (QRIS) do so voluntarily.

fewer) years of experience was associated with teachers engaging with more coaching resources. Additionally, Rusby, Jones, Crowley, et al. (2013) found that higher levels of job-related stress were related to more engagement in PD opportunities. In contrast, Roberts et al. (2014) found that engagement in PD was associated with lower levels of anxiety. While the literature does not present a clear explanation for some of these contradictory findings, it is possible that many individual-level characteristics associated with participation or engagement in PD are interrelated and influenced by factors at the program or system level.

At both the program and system levels, professional and financial supports emerged as factors positively associated with engagement in PD. For example, Wagner (2010) found that, for teaching assistants, pay and opportunities for promotions were predictors of intrinsic motivation to participate in PD. Lack of affordability was cited as a top barrier by teachers in the Clements (2013) state workforce study. System-level requirements have also been associated with PD participation in prior studies. For example, in a study of teachers participating in community college ECE courses, Huss and Keller (2013) found that Head Start teachers were motivated to take courses that were required by their employers. Across the program and system levels, affordability and PD requirements were important correlates of using PD opportunities.

In summary, the literature search identified a variety of factors that were associated with participation in PD. Figure 1 provides a summary of these factors at each level. We explore these factors further in the next section using data from the NSECE 2012.

Figure 1. Summary of the literature on factors associated with PD participation by individual, program, and system level

Factors Positively Associated with PD | Factors Negatively Associated with



1. <https://bit.ly/33jZxo0>
 2. <https://bit.ly/33i5uMd>
 3. <https://bit.ly/338OnxN>
 4. <https://bit.ly/2polz4f>
 5. <https://bit.ly/2NaQD0p>

6. <https://bit.ly/34I9efH>
 7. <https://bit.ly/2WxIOEY>
 8. <https://bit.ly/2WwqSdW>
 9. <https://bit.ly/2PDzEWI>
 10. <https://bit.ly/2C2ipWj>

11. <https://bit.ly/2WwSFLI>
 12. <https://bit.ly/2POoeIz>
 13. <https://bit.ly/3248me8>
 14. <https://bit.ly/2JJZWCm>
 15. <https://bit.ly/2PEYhSm>

16. <https://bit.ly/34r3b9H>
 17. <https://bit.ly/2r2x5T7>
 18. <https://bit.ly/2C2kmSD>
 19. <https://bit.ly/2PDz2Gk>
 20. <https://bit.ly/2PFocZW>

* In some articles or reports, a teacher’s or caregiver’s years of experience was positively associated with PD participation, and in others it was negatively associated with participation in PD.

Purpose and research questions

We conducted analyses with the most comprehensive and nationally representative data source on early care and education, the National Survey of Early Care and Education 2012 (NSECE). Our analyses focused on how individual characteristics and program- and system-level factors are associated with the use of PD for center-based and listed, home-based teachers and caregivers. Specifically, we addressed the following three research questions:

1. How common is the use of PD opportunities among center-based and home-based teachers and caregivers? (*descriptive*)
2. What individual characteristics and program- and system-level factors were associated with participation in PD activities? (*multivariate*)
3. What individual characteristics and program- and system-level factors were associated with a teacher or caregiver receiving financial support for their professional development? (*multivariate*)

Guided by the extant literature, we expected an individual's child-centered beliefs, the program's financial support, and system-level requirements for PD to be positively associated with use of PD opportunities. Also based on the literature, we expected an individual's adult-centered beliefs, lack of systems to support teachers' or caregivers' time, and lack of affordability for teachers and caregivers to be negatively associated with PD opportunities. The association between teacher age and participation in PD is unclear, so our analyses seek to understand this association in light of other individual characteristics and program- and system-level factors.

Methods and Approach

Factors identified from the literature review indicated specific teacher and caregiver characteristics, program-level factors, and system-level factors associated with PD participation. We tested the associations between PD opportunities and the identified teacher and caregiver characteristics, and program- and system-level factors, using data from the nationally representative NSECE (National Survey of Early Care and Education Project Team, 2013). NSECE, conducted in 2012, surveyed members of the ECE workforce about their beliefs and attitudes, employment history, program characteristics, and participation in various types of PD activities (e.g., workshops, coaching, college courses). Because teacher and caregiver characteristics may play a role in PD participation, and because the center-based and home-based workforces differ in their characteristics, we analyzed data on both center-based and home-based child care teachers and caregivers. For this report, we included home-based teachers and caregivers who were identifiable in an administrative list (i.e., likely subject to regulations and may have required PD) and who were providing care to at least one child with whom they did not have a prior relationship.⁴ To first assess the feasibility of using NSECE data to answer questions about participation in PD, we compared the individual-, program-, and system-level factors identified in the literature scan with available data in the NSECE. Variables present in both the literature scan and NSECE are presented in Appendix A. Several variables identified in the literature did not have an equivalent variable in NSECE, and some were only available for center-based teachers and caregivers. Additionally, we examined several descriptive characteristics in NSECE, including urbanicity,⁵ ages taught, program sponsor/funding, classroom role, languages spoken, race and Hispanic ethnicity, and immigrant status. We present descriptive characteristics of both center-based and home-based teachers and caregivers in tables 1 and 2.

⁴ The NSECE survey does not ask home-based teachers and caregivers who primarily cared for children they knew the full survey of questions about professional development, so these variables were not able to be included in these analyses.

⁵ The urbanicity variable (rural, moderate-density urban, high-density urban) was derived from the distribution of the ratio of urban population to total population in each community where teachers and caregivers and families lived.

Data source: The National Survey of Early Care and Education

The [2012 National Survey of Early Care and Education \(NSECE\)](#) is a set of four integrated, nationally representative surveys that describe the early care and education (ECE) landscape in the United States (NSECE Project Team, 2016). We drew the data presented in this report from two surveys of the NSECE. The center-based workforce survey is a nationally representative sample of ECE teachers and caregivers, with one randomly selected teacher or caregiver (typically a lead teacher, teacher, assistant teacher, or aide) from a randomly selected classroom in the center. The home-based provider survey is a nationally representative sample of home-based ECE programs serving children who are not yet in kindergarten. We included only those providers who were identified on state or federal administrative lists, and those who did not exclusively serve children with whom they had a prior relationship.

We calculated the estimates presented here using the public-use versions of the two data sources, examining each separately. Our center-based analytic sample was 4,193 teachers. Our home-based analytic sample was 3,525 teachers. We conducted regression analyses to test associations between factors associated with professional development outcomes. We applied the applicable weights from each survey dataset so that our estimates would reflect the teachers working with young children under age 5 in center-based and listed, non-relationship-based-only home-based ECE programs across the United States. The weighted center-based sample was 861,060 teachers. The weighted home-based sample was 107,220 teachers.

Table 1a. Center-based sample descriptive characteristics (weighted means)

Individual Characteristics	Weighted Mean	Standard Error
Teacher/caregiver age	41	.34
Annual household income	\$47,529	1505.8

Source: Authors' analyses of NSECE 2012 workforce survey public use data.

Table 1b. Center-based sample descriptive characteristics (weighted percentages)

Individual Characteristics	Weighted %	Standard Error
Teacher/lead teacher	68%	.02
Assistant/aide teacher	32%	.02
Speaks English only	91%	.01
Speaks a language other than English	9%	.01
Non-Hispanic White	63%	.02
Non-Hispanic Black	18%	.02
Non-Hispanic Asian, AIAN, NHPI, or Other race*	5%	.01
Hispanic	14%	.01
Immigrant	12%	.01
Program-level Factors	Weighted %	Standard Error
Urban	66%	.02
Suburban	22%	.02
Rural	12%	.02
Care for infants and toddlers only	3%	.004
Care for preschoolers only	30%	.02
Care for all children birth to age 5	67%	.02

System-level Factors	Weighted %	Standard Error
Work in publicly sponsored program (Head Start, Public pre-K, or School Sponsored)	41%	.02
Work in community-based program (can still receive subsidy)	59%	.02

Note. Percentages may not total to 100% due to rounding and sampling error.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: Authors' analyses of NSECE 2012 workforce survey public use data.

Table 2a. Home-based sample descriptive characteristics (weighted means)

Individual Characteristics	Weighted Mean	Standard Error
Teacher/caregiver age	47	.62
Annual household income	\$52,215	15691.3
Weekly income	\$589	29.56

Source: Authors' analyses of NSECE 2012 workforce survey public use data.

Table 2b. Home-based sample descriptive characteristics (weighted percentages)

Individual Characteristics	Weighted %	Standard Error
Speaks English only	81%	.03
Speaks Spanish (alone or in combination with English)	16%	.02
Speaks another language (alone or in combination with English)	5%	.01
Non-Hispanic White	64%	.03
Non-Hispanic Black	14%	.02
Non-Hispanic Asian, AIAN, NHPI, or Other race*	6%	.01
Hispanic	15%	.02
Immigrant	17%	.02
Program-level Characteristics	Weighted %	Standard Error
Urban	52%	.04
Suburban	32%	.05
Rural	16%	.03
Cares for infants and toddlers only	14%	.01
Cares for preschoolers only	5%	.005
Cares for all children birth to age 5	86%	.01

Note. Percentages may not total to 100% due to rounding and sampling error.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: Authors' analyses of NSECE 2012 workforce survey public use data.

Outcome measures

The NSECE survey measured participation in three types of PD: attending a workshop, receiving coaching, and enrolling in a college course. These PD activities are important to understand because they are frequently the delivery mechanisms for information related to teaching and caregiving, and federal and state agencies invest substantial resources in these methods of PD as a means of quality improvement in ECE programs.

The NSECE survey asked about participation in slightly different ways, depending on the type of ECE teacher or caregiver; however, both center-based and home-based teachers and caregivers were asked to report PD activities in the past 12 months. For this study, we considered teachers and caregivers as “participating” in each of the PD activities if they answered yes to participating in the past year. Thus, the outcome measure for each teacher and caregiver was a binary “participated” or “did not participate.” The survey asked home-based teachers and caregivers an additional question about the number of hours of PD that was analyzed as a continuous variable. It is important to note that the survey did not ask teachers and caregivers if they were *offered* PD, but if they participated. When interpreting the findings, we try to understand the ways in which program- and system-level factors may affect whether PD was offered, though we do not have a direct measure about the types of PD that were offered.

Measuring participation in professional development

Center-based providers were asked:

“In the past 12 months, have you participated in any of the following to improve your skills or gain new skills in working with children?”

- Participated in any workshops, for example, those offered by professional associations, resource and referral networks, etc.?
- Participated in coaching, mentoring or ongoing consultation with a specialist?
- Enrolled in a course at a community college or four-year college or university relevant to your work with children under age 13?” (National Survey of Early Care and Education Project Team, 2012a)

Home-based providers were asked:

“In the past 12 months, have you participated in any of the following activities to help you maintain or improve your skills in looking after children?”

- Went to a workshop sponsored by a community agency or family child-care network?
- Had help from a home-visitor or coach?
- Took a course about caring for children at a college or university which was offered for credit?” (National Survey of Early Care and Education Project Team, 2012b)

Survey respondents answered yes or no for each type of PD activity.

In addition, home-based providers were asked how many hours of PD they averaged per week.

“We understand that caring for children in their home or yours can take time outside of the hours you spend with the children, to plan your program, buy supplies, keep records, etc. Please estimate how many hours you spend doing any of the following activities for the children you care for.

- Participating in education, training or professional meetings” (National Survey of Early Care and Education Project Team, 2012b)

Respondents could provide a number of hours per week, month, or year. Hours were converted to per week to create a standard across all respondents.

Overview of analyses in this report

The goal of the first research question was simply to describe the rates of participation in workshops, coaching, and college courses among the two types of teachers and caregivers (center-based and home-based). We used descriptive analyses to report the proportion of the workforce who participated in each PD activity in the past year.

Research question: How common is the use of PD opportunities among center-based and home-based teachers and caregivers?

Analysis: We conducted descriptive analyses of participation rates (e.g., proportion of the workforce who participate) in PD among teachers and caregivers in center-based and home-based ECE programs.

The second research question sought to better understand the factors found in the literature that teachers and caregivers perceived to facilitate or create barriers to PD participation, and to assess whether those factors varied by type of PD activity.

Research question: What individual characteristics and program- or system-level factors were associated with participation in PD activities?

Analysis: We conducted multivariate regressions predicting each PD outcome separately (workshop, coaching, college course; hours in PD for home-based only). Models for center-based and home-based teachers and caregivers were also conducted separately. Regression models included a variety of individual characteristics and factors at the program and system levels.⁶ Variables for both center-based and home-based models included:

- **Individual characteristics**

- Beliefs about children⁷
- Teacher/caregiver age
- Years of experience
- Education level
- Languages spoken
- Race and ethnicity
- Immigrant vs. U.S.-born
- Teacher/caregiver income
- Career motivation
- Teacher/caregiver distress
- Job-related stress
- *Center-based only:* Classroom position (assistant/aide or lead teacher)
- *Home-based only:* Years expected to be in the field

- **Program-level factors**

- Ages taught
- Child enrollment
- Community urban density (rural, suburban, urban)

⁶ We included all variables in the multivariate regression models simultaneously. Given that some variables were somewhat correlated to one another, the research team examined the models for multicollinearity using the variance inflation factor (VIF) measure. The VIF in each model was lower than the conventional tolerance threshold of 10, thereby ruling out any concerns that the variables were too highly correlated (i.e., collinear) and biasing the findings.

⁷ Teachers and caregivers were asked questions on a 10-item scale (Vogel, et al., 2011) to gauge their beliefs about children. The scale is composed of two sub-scales (one that reflects child-centered beliefs and one that reflects more adult-centered beliefs). The total score, which can range from 10-50, is interpreted such that a higher score represents more adult-centered beliefs. For more on this scale and its use in NSECE, please see the [Measuring Predictors of Quality in Early Care and Education Settings in the National Survey of Early Care and Education](#) technical report.

- Discussing skills with supervisor
- Received financial support for PD from employer
- Received travel or child care support for PD from employer
- *Center-based only*: Received release time for PD from employer
- *Home-based only*: Received stipend for PD
- **System-level factors**
 - *Center-based only*: Sponsored/funding (school sponsored; Head Start funded; Public pre-K funded; community-based)

Finally, in the third research question, the aim was to determine the extent to which program- and system-level factors played a role in whether teachers and caregivers received financial support for PD.

Research question: What individual characteristics and program- or system-level factors were associated with a teacher or caregiver receiving financial support for their professional development?

Analysis: We employed multivariate regression to predict a teacher’s or caregiver’s receipt of financial support. Regression models included:

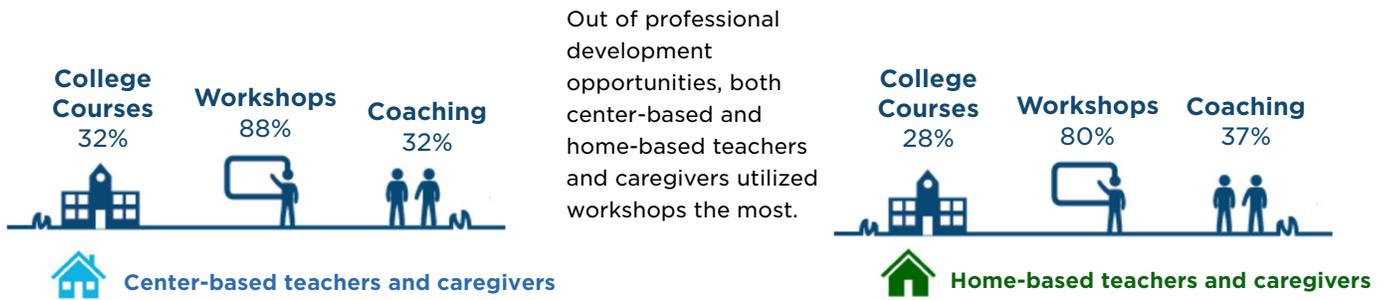
- **Individual characteristics**
 - Teacher/caregiver age
 - Education level
 - Languages spoken
 - Race and ethnicity
 - Immigrant vs. U.S.-born
 - Teacher/caregiver income
 - *Center-based only*: Classroom position (assistant/aide or lead teacher)
- **Program-level factors**
 - Ages taught
 - Community urban density (rural, suburban, urban)
- **System-level factors**
 - *Center-based only*: Sponsored/funding (school sponsored; Head Start funded; Public pre-K funded; community-based)

Findings

How common is the use of PD opportunities among center-based and home-based teachers and caregivers?

The majority (88%) of center-based teachers and caregivers reported participating in a workshop. Home-based teachers and caregivers reported similar rates (80%) of workshop participation. Fewer teachers and caregivers of both types participated in coaching or a college course. Approximately one third of center-based and home-based teachers and caregivers reported participating in coaching or taking a college course in the past year. For home-based teachers and caregivers, the average number of hours spent in PD activities in a week was 0.74, or the equivalent of about 38 hours per year. Figure 2 displays the rates of PD participation by teacher and caregiver type.

Figure 2: Professional development use by teacher and caregiver type



Source: Authors' analysis of National Survey of Early Care and Education, 2012

Note: Home-based teachers and caregivers includes listed teachers and caregivers who cared for children with no prior relationship.

What individual characteristics and program- or system-level factors were associated with participation in PD activities?

Tables 3a and 3b show a variety of attributes of the center-based workforce, including individual characteristics, program-level, and system-level factors associated with PD. On average, center-based teachers and caregivers worked in programs with an average of 14 children enrolled, with an average of five to six children per teacher/caregiver.

The majority of center-based teachers and caregivers reported more than 10 years of experience, almost half reported receiving financial support to participate in PD, approximately 40 percent reported receiving release time to participate, and few (< 20%) reported other forms of support such as travel or child care. Close to half said that they viewed early education and care as their calling or career.

Table 3a. Individual characteristics and program-level factors, center-based workforce (weighted means)

Individual Characteristics*	Weighted Mean	Range
Beliefs about children	26.36	10-45
Distress level	2.56	0-24
Job-related stressors	1.69	1-4
Program-level Factors	Weighted Mean	Range
Child enrollment number	14.22	0-73
Teacher/caregiver: child ratio	5.59	0-32

Source: Authors' analyses of NSECE 2012 workforce survey public use data.

*Note: Higher scores on individual characteristics indicate higher levels of each variables (e.g., higher score on distress means higher reported levels of distress).

Table 3b. Individual characteristics and program-level factors, center-based workforce (weighted percentages)

Individual Characteristics	Weighted %
Fewer than 5 years of experience	19%
5 to 10 years of experience	27%
More than 10 years of experience	53%

Individual Characteristics	Weighted %
Never discussed improving skills with supervisor	7%
Rarely discussed improving skills with supervisor	13%
Sometimes discussed improving skills with supervisor	43%
Frequently discussed improving skills with supervisor	37%
Motivation for work is calling or career ⁸	45%
Program-level Factors	Weighted %
Financial support for PD	48%
Travel/child care support to participate in PD	16%
Release time to participate in PD	41%

Source: Authors' analyses of NSECE 2012 workforce survey public use data.

Tables 4a and 4b show a variety of individual characteristics of the home-based workforce. The average home-based teacher or caregiver reported caring for eight to nine children. In addition, nearly two thirds of home-based teachers and caregivers have more than 10 years of experience, and approximately half expected to be in the field for another 10 years or more. It was rare for listed home-based teachers and caregivers to report receiving financial or other assistance to participate in professional development.

Table 4a. Individual characteristics and program-level factors, home-based teachers/caregivers (weighted means)

Individual Characteristics	Weighted Mean	Range
Adult-centered beliefs	26.92	10-50
Distress level	1.98	0-24
Program-level Factors	Weighted Mean	Range
Child enrollment	8.76	0-28

Source: Authors' analyses of NSECE 2012 home-based teacher/caregiver survey public use data.

Table 4b. Individual characteristics and program-level factors, home-based teachers/caregivers (weighted percentages)

Individual Characteristics	Weighted %
Fewer than 5 years of experience	15%
5 to 10 years of experience	22%
More than 10 years of experience	63%
Expect to be in the field 0-1 more year ⁹	5%
Expect to be in the field 2-4 more years	18%
Expect to be in the field 5-9 more years	26%
Expect to be in the field 10+ more years	51%
Motivation for work is calling or career	54%
Program-level Factors	Weighted %
Financial support for PD	14%

⁸ This variable was only available in the center-based workforce survey.

⁹ Length of time expected in the field was only available in the home-based survey.

Program-level Factors	Weighted %
Travel/child care support to participate in PD	3%
Stipend to cover time to participate in PD	4%

Source: Authors' analyses of NSECE 2012 home-based teacher/caregiver survey public use data.

Center-based teacher/caregiver coaching

Several variables emerged with statistically significant associations with participation in coaching for center-based teachers and caregivers; professionals were more than twice as likely to participate in coaching if they had ever discussed improving their skills with a supervisor (odds ratio, OR 2.70-2.75) than if they never had this discussion.¹⁰ Other variables—such as being older (OR 1.02), working in a school (OR 3.56) or Head Start (OR 1.60) setting versus a community setting that does not enroll children with subsidies, and having a bachelor's degree rather than the lowest level of education (no associate's degree, no state certification or endorsement) (OR 2.26)—also emerged as significantly associated with coaching, albeit at varying effect sizes. Center-based teachers and caregivers who were immigrants rather than U.S.-born had significantly lower odds of participating in coaching (OR 0.79) (see Appendix Table 7).

Center-based teacher/caregiver workshops

Two variables were significantly associated with workshop participation among center-based teachers and caregivers. Similar to the pattern for participation in coaching, being older had a small but significant association with workshop attendance (OR 1.04). Hispanic center-based teachers and caregivers had lower odds of participating in a workshop than non-Hispanic White teachers and caregivers (OR 0.30) (see Appendix Table 8).

Center-based teacher/caregiver college courses

Six factors were significantly associated with taking a college course among the center-based workforce. Financial support from an employer increased the odds of taking a college course (OR 2.63) for center-based teachers and caregivers. Working as a lead teacher, rather than as an assistant or aide (OR 1.86), and having an associate's degree or state certification (instead of the lowest level of education) were also associated with college course enrollment (OR 1.65). Non-Hispanic Black teachers and caregivers working in centers were nearly twice as likely to be enrolled in a college course than non-Hispanic White teachers and caregivers (OR 1.76). Compared with teachers and caregivers who never discussed improving their skills with their supervisors, those who rarely had this discussion were less than half as likely to attend a college course (OR 0.40). Older teachers and caregivers were just slightly less likely to enroll in a college course (OR 0.97) (see Appendix Table 9).

Home-based teacher/caregiver coaching

Teachers and caregivers who expect to be in the field longer (10 or more years) were more likely to participate in coaching than those who plan to stay in the short term (2-4 more years, OR 0.36) or medium term (5-9 years, OR 0.33). Teacher/caregiver age (OR 0.98) and income (OR 0.99) demonstrated small associations with coaching participation among home-based teachers and caregivers (see Appendix Table 10).

Home-based teacher/caregiver workshops

While overall participation in workshops was high among home-based teachers and caregivers (approximately 80%), those who received financial support to attend were more than twice as likely to do so (OR 2.54) than those who did not receive financial support. Home-based teachers and

¹⁰ Logistic regression results included odds ratios. Odds ratios are presented where ORs < 1 indicate lower odds, while ORs > 1 indicate higher odds.

caregivers who had more than five years of experience were one and a half times as likely to have taken a workshop in the past 12 months than those who have five or fewer years of experience (OR 1.45-1.77). Non-Hispanic Black teachers and caregivers were also more than twice as likely to attend a workshop (OR 2.91) than non-Hispanic White teachers and caregivers (see Appendix Table 11).

Home-based teacher/caregiver college courses

Financial support emerged as a moderately large, significant factor in enrolling in college courses. Home-based teachers and caregivers who received financial support were more than three times as likely to enroll in a college course than those who did not receive this type of support (OR 3.47). Current educational level was also a significant predictor of taking a college course. Home-based teachers and caregivers with an associate's degree were twice as likely to have taken a course in the past year (OR 2.01) as those with the lowest level of education. Home-based teachers and caregivers expecting to work in the field for 10 or more years were more likely to enroll in a college course than those who expected to stay for 0 to 1 years more (OR 0.38). Race and immigrant status were also associated with college course enrollment. Non-Hispanic Black teachers and caregivers were more likely to enroll than non-Hispanic White teachers and caregivers (OR 2.48), and immigrants were more than twice as likely to enroll as U.S.-born respondents (OR 2.41). Those who held more adult-centered beliefs about child rearing (OR 0.94), teachers and caregivers in suburban (versus urban) areas (OR 0.47), and those who cared for preschool-aged children only (versus children from birth to age 5) (OR 0.24) were slightly less likely to enroll (see Appendix Table 12).

Home-based teacher/caregiver hours of PD per week

Several factors had small, significant associations with the number of PD hours per week among home-based teachers and caregivers. Because survey results report the number of hours on a continuous scale, these findings (β or "beta" coefficients) can be interpreted such that a one-unit change in the predictor reflects a given amount of change in hours of PD per week. For example, those who reported receiving financial assistance were reporting an average of 0.53 more hours per week of PD, equivalent to 28 more hours of PD per year (see Appendix Table 13). Receiving financial support ($\beta = .19$), level of education ($\beta = .10$; i.e., having an associate's degree versus the lowest level of education), and expecting to spend more years in the field ($\beta = .10$; 10 or more years in the field versus only 2-4 more years) were significantly associated with weekly hours of PD for home-based teachers and caregivers. Finally, holding other factors constant, Hispanic teachers and caregivers reported more hours of PD than non-Hispanic White teachers and caregivers ($\beta = .12$), and multilingual teachers and caregivers participated in more hours of PD than those who only spoke English or Spanish ($\beta = .08$).

What individual characteristics and program-or system-level factors were associated with a teacher or caregiver receiving financial support for their professional development?

Based on findings for the previous research question, receiving financial support was associated with the greatest number of PD participation outcomes, and had the largest effect on the odds of participation (OR ~2.50-3.50). Receiving financial support for PD increased the odds of participating in college courses (center-based and home-based teachers and caregivers), workshops (home-based teachers and caregivers only), and increasing the number of hours of PD (home-based teachers and caregivers only); it was not associated with coaching participation for either teacher and caregiver type.

Programs and systems structure the financial resources directed to teachers and caregivers to support PD participation. For example, the Child Care and Development Fund (CCDF) requires states to use a proportion of their funds for quality improvement, including training and PD of the ECE workforce (Administration for Children and Families, 2015). States may offer free or low-cost training or coaching for those participating in quality improvement initiatives. Some may also offer scholarships to support participation in college coursework. Head Start Program Performance Standards specify educational credentials for lead and assistant teachers and require 15 hours of annual professional development.

Programs must offer opportunities for PD and coaching (Office of Head Start, n.d.). With this context for requirements, it is important to understand how program and system processes for providing financial support are associated with the ways in which (and under what conditions) teachers and caregivers receive financial support.

Center-based teachers' and caregivers' receipt of financial support for PD

Head Start teachers and caregivers were nearly twice as likely to receive financial support for PD than teachers and caregivers working in community-based programs without any source of public funding/sponsorship (OR 1.53). Center-based teachers and caregivers with a bachelor's degree were also nearly twice as likely as teachers and caregivers with the lowest levels of education to receive financial support (OR 1.76). Teaching only preschool-age children versus all children from birth to age 5 reduced the odds of receiving financial support (OR 0.53). Non-Hispanic Black teachers and caregivers also had lower odds of receiving financial support when compared to non-Hispanic White teachers and caregivers (OR 0.54) (see Appendix Table 14).

Home-based teachers' and caregivers' receipt of financial support for PD

Program factors did not predict receipt of financial support among home-based teachers and caregivers as it did with center-based teachers and caregivers. Characteristics of the teachers and caregivers themselves emerged as significant factors for the home-based workforce. For example, speaking a language other than only English or Spanish increased the odds of receiving financial support for PD by more than three times (OR 3.25). Teacher/caregiver age also had a significant, albeit small, association with financial support for PD (OR 0.97) (see Appendix Table 15).

Summary and Implications

Questions about PD of the ECE workforce typically focus on the outcomes of PD. While it is important to understand the extent to which PD supports quality improvement among the workforce, it is also critical to understand the context for PD and the different participation patterns seen across the workforce. Using the nationally representative NSECE in this study, we found that a variety of individual characteristics and program- and system-level factors contribute to an individual teacher or caregiver's participation in PD.

Among the center-based workforce, findings indicate that several individual characteristics and program- or system-level factors were associated with participation in different PD opportunities. For instance, teachers' level of education was linked to participation in coaching (teachers and caregivers with bachelor's degrees were much more likely than those with the lowest level of education) and in college courses (teachers and caregivers with associate's degrees were more likely than those with the lowest level of education) in the past 12 months. Teachers' race and ethnicity was associated with participating in workshops (Hispanic teachers were less likely than non-Hispanic White teachers) and in college courses (non-Hispanic Black teachers were more likely than non-Hispanic White teachers). Immigrant teachers working in centers were less likely than U.S.-born respondents to participate in coaching. Finally, of all factors examined, receiving financial support for PD (such as scholarships) had the strongest link to taking a college course. In fact, teachers who received financial support for PD from their employer were twice as likely to report taking a college course over the last 12 months.

Among the home-based workforce, receiving financial support was consistently and positively associated with participation in workshops and college courses, and with more hours of PD. Teachers and caregivers with a stronger professional orientation and career commitment (as estimated by years expected in the field) engaged in more PD. Race and ethnicity was also consistently linked to PD among home-based caregivers. Holding other factors constant, Hispanic and non-Hispanic Black teachers and caregivers participated in more PD than their non-Hispanic White peers during the previous year.

Finally, program- and system-level factors, in addition to individual characteristics, arose as predictors of receiving financial support for PD, the most consistent and strongest predictor of participation in PD. Center-based teachers working in Head Start programs and those with bachelor's degrees were the most likely to receive financial support for PD participation. For home-based teachers and caregivers, age and language(s) spoken were linked to access to financial support for participation in PD, with caregivers speaking languages other than English or Spanish being most likely to receive financial support.

Limitations of the current study

There are a few notable limitations to this study. First, there is a relatively small body of literature that has examined the relationship between various individual-, program-, and system-level factors and participation in PD. Our research team used available literature from peer-reviewed sources, as well as non-peer-reviewed literature, to supplement and clarify our understanding. This area is ripe for further study and we hope that researchers will continue to pursue these research questions. Second, our study design does not allow for causal inferences about the factors associated with PD. We can document associations between certain factors and PD participation, but we cannot be certain whether these factors lead to PD participation or whether there are other, related factors that are actually driving participation. For instance, we cannot know whether higher education actually causes teachers to receive more coaching or if teachers with higher education tend to work at centers with more resources (and those resources are deployed for coaching).

Finally, NSECE did not ask certain types of home-based teachers and caregivers questions about their educational attainment and PD activities; these types included home-based teachers and caregivers who were not listed on any state or federal list or registry (e.g., licensed exempt family child care; family, friend, and neighbor care), and teachers and caregivers who did appear on lists but who cared exclusively for children with whom they had a prior relationship. More than 6 million children are served in these informal settings (e.g., family, friend, and neighbor care; licensed exempt family child care) (National Survey of Early Care and Education Project Team, 2015). It will be important for future research to look at levels of PD participation, and how characteristics of individual teachers and caregivers or other program- or system-level factors facilitate their professional development.

Implications for supporting access to PD in state and federal systems

Our findings have implications for state and federal agencies as they determine the role of PD in licensing requirements and quality improvement initiatives. In both center-based and home-based settings, teachers and caregivers receiving financial support were more likely to attend workshops and college courses, likely because there is often a cost associated with those forms of PD; this cost may mean that financial support is necessary to make them accessible. The survey did not indicate that financial support was linked to likelihood of taking part in coaching, probably because the costs of coaching often fall on the program and not on an individual teacher or caregiver. These findings point to the importance of systematic state level considerations about funding allocation and program supports, versus characteristics of individual teachers and caregivers. If states want to encourage PD in the form of workshops and college courses, making financial aid available to individuals may be necessary; however, to encourage coaching, providing aid to programs might be more appropriate. Additional research is needed to understand other features of financial support (i.e., amount and timing of support, who distributes funds, who oversees the financial support policies) for systems to ensure that resources are supportive.

Access to free or low-cost training may also create a pathway to participating in other quality improvement activities such as a Quality Rating and Improvement System (QRIS). In a study of Minnesota's QRIS (Parent Aware), more than half of nonrated programs and teachers and caregivers surveyed said that having financial support to access training would affect their decision to join the QRIS (Bultinck, Silamongkol, Lowe, et al., 2019). States or local organizations may also consider

supporting a shared services approach to allow PD resources to go farther. Shared Service Alliances, as described by Easterling and Stoney (n.d.), allow for local programs to share administrative activities to free up time and resources. Such a model could be employed by local programs to provide workshops, support classroom coaches, and encourage cross-site professional learning communities.

Notably, geography was also linked to participation in PD for home-based teachers and caregivers. Suburban teachers and caregivers had lower odds of participating in a college course. People in suburban areas may have to travel further to access college courses, and these data seem to indicate that greater distances create a barrier to participation in PD. There is a growing interest in online options for training, coaching, and college courses, which may be a solution to geographic barriers (Holmes, Signer, & MacLeod, 2010). Online opportunities may also increase access for teachers and caregivers who have other barriers to traditional PD opportunities, such as lack of transportation, lack of child care for their own children, or a nontraditional work schedule.

Finally, PD participation in—and financial support received for—PD varied by race/ethnicity, immigrant status, and language. Paschall, Madill, and Halle (in press) found that, in the same NSECE 2012 sample, approximately 35-40 percent of center-based and home-based teachers and caregivers were Hispanic or non-Hispanic Black, and 11-17 percent were immigrants. Nine to 19 percent of teachers and caregivers spoke a language other than English with children in their care. Ensuring diversity among teachers and caregivers is critical for caring for the increasingly diverse population of young children in the United States. While these patterns differed by type of PD activity and provider type, Hispanic and non-Hispanic Black teachers and caregivers generally had higher rates of PD participation than their non-Hispanic White counterparts. Despite higher levels of participation, non-Hispanic Black teachers and caregivers had significantly lower odds of receiving financial support for PD, even when controlling for factors such as program sponsorship, education level of the provider, ages taught, role in the classroom, and urbanicity (among others). State and federal systems should closely examine the structures, policies, and procedures around financial supports to PD to ensure equitable access to these resources. To the extent that receipt of financial support is tied to factors set at the program level (for instance, a center director requires a minimum tenure for financial support which could disadvantage recent immigrants), federal and state systems can provide guidance to local programs to ensure equitable access to financial support for PD.

Implications for research

In the NSECE, teachers and caregivers reported *if* their employer provided financial support, but not the amount. Future research, especially experimental studies, could focus on understanding the necessary level of financial support to reduce barriers to participating in workshops, college courses, and other types of PD not examined here. Research would benefit from more specificity in items regarding PD. For example, it was not possible for us to know when programs offered financial support based on a system-level requirement, as opposed to programs independently electing to make financial support available. Because of the relationships between system-level requirements and program-level supports for PD, research could offer more detailed information to help untangle the sources of the factors associated with PD participation.

Additionally, case studies and surveys would be useful to understand the range of factors that we were unable to address. State and local studies could address the specific initiatives and features that are most effective in supporting PD participation among the workforce. Building on this report, future studies could address issues of equity by looking in-depth at the state or local level to understand differences by race/ethnicity, language, geography, and type of care. State and local agencies could also work with researchers to conduct small pilot tests to understand which PD access strategies work for different populations. Findings from smaller local studies could help identify effective strategies and how they can be best expanded.

Appendix A – Literature Review and Summary Tables

Methods

We identified relevant literature concerning the factors associated with participation in PD using database searches and existing quality improvement reports. Searches for empirical studies from social science databases included relevant keywords and were limited to peer reviewed, scholarly articles published from 2007 to 2017. We also identified research citations through reviews of relevant reports published by Child Trends and federal or state agencies. We collected known sources and reviewed research and references pertaining to the research topic. These sources were classified as QRIS and evaluation reports or as state workforce studies. Detailed methods—including key search terms, databases searched, and report inclusion and exclusion criteria—can be found in Appendix C.

From this search, we identified for review 13 peer reviewed articles, 12 QRIS and evaluation reports, and 24 state workforce reports. Across these three types of sources, a total of 22 articles and reports were deemed relevant and provided information on the factors associated with PD. Notably, the literature contained very few experimental studies, most of which were descriptive studies. The lack of experimental studies limits our ability to make hypotheses about causation or the positive or negative connection between variables; however, the descriptive studies available do provide teachers’ and caregivers’ own perceptions of the factors associated with their participation in PD. The lack of experimental studies underscores the need for this study in moving the field forward in its understanding of PD for ECE teachers and caregivers.

Table A1. Individual characteristics and program- and system-level factors positively associated with PD in the literature and corresponding variable in NSECE

Variable	Level	Article	NSECE Variable: Center-Based	NSECE Variable: Home-Based
Child-centered beliefs	Individual	Roberts, 2014	Parental Modernity Scale: Progressive Beliefs Subscale	Parental Modernity Scale: Traditional Beliefs Scale
Fewer years of experience	Individual	Matsumura, 2010; Smith, 2003	Caregiver/teacher reported years of experience	Caregiver/teacher reported years of experience
Higher levels of education	Individual	Rusby, 2013; Madill, 2016	Caregiver/teacher reported education level	Caregiver/teacher reported education level
Job related stress	Individual	Rusby, 2013	Average occurrence of teacher-reported job-related stressors	<i>Not available</i>
Lower levels of anxiety	Individual	Roberts, 2014	Kessler Distress Scale	Kessler Distress Scale
More years of experience	Individual	Roberts, 2014	Caregiver/teacher reported years of experience	Caregiver/teacher reported years of experience
Openness to consultation	Individual	Domitrovich, 2009	Participation in coaching/mentoring	<i>Not available</i>

Variable	Level	Article	NSECE Variable: Center-Based	NSECE Variable: Home-Based
Readiness to change practice	Individual	Roberts, 2014	Discuss improving skills with supervisor	<i>Not available</i>
Higher child ratios	Program	Rusby, 2013	Classroom-level teacher/child ratio	<i>Not available</i>
Enrollment	Program	Rusby, 2013	Classroom-level enrollment	Enrollment in home-based care
Professional supports and benefits	Program	Wagner, 2010; IAEYC, 2014	Type of support received for PD activities (includes financial and personnel support)	Financial support for PD activities
Access to scholarships	System	Fodor, 2016	Type of support received for PD activities (includes financial and personnel support)	Financial support for PD activities
Affordability of PD opportunities	System	Rous, 2014	Type of support received for PD activities (includes financial and personnel support)	<i>Not available</i>
Professional development opportunities	System	Child Care Services Association, 2014; Fodor, 2016	Steps taken to improve or gain skills in working with children	Steps taken to improve or gain skills in working with children
Self-customization of quality improvement	System	Tonyan, 2017	Discuss improving skills with supervisor	<i>Not available</i>

Table A2. Individual characteristics and program- and system-level factors negatively associated with PD in the literature and corresponding variable in NSECE

Variable	Level	Article	NSECE Variable: Center-Based	NSECE Variable: Home-Based
Adult-centered beliefs	Individual	Downer, 2009	Parental Modernity Scale: Progressive Beliefs Scale	Parental Modernity Scale: Progressive Beliefs Scale
High levels of self-efficacy	Individual	Downer, 2009	Average occurrence of teacher-reported job-related stressors	<i>Not available</i>
Inability to get substitute/coverage for the classroom	Program	Rous, 2014	Type of support received for PD activities (includes financial and personnel support)	<i>Not available</i>

Variable	Level	Article	NSECE Variable: Center-Based	NSECE Variable: Home-Based
Lack of systems to support teacher time off	Program	MELC, 2016	Type of support received for PD activities (includes financial and personnel support)	Financial support for PD activities
Lack of affordability	System	Clements, 2013; Madill, 2016; MELC, 2016; Valorose, 2012	Type of support received for PD activities (includes financial and personnel support)	Financial support for PD activities

Table A3. Individual characteristics and program- and system-level factors positively associated with PD in the literature with no corresponding variable in NSECE

Variable	Level	Article
Belief that college provides increased knowledge of children	Individual	Deutsch, 2013
Motivation to gain knowledge	Individual	Huss-Keeler, 2013
Overall job satisfaction	Individual	Wagner, 2010
Perceived changes in children as a result of PD	Individual	Wagner, 2010
Perceived as a high-quality PD opportunity	Individual	Rous, 2014
Sense of shared leadership with program leader	Individual	Matsumura, 2010
Active participation by program leader in coaching activities	Program	Matsumura, 2009
Allow teacher choice in their work	Program	Wagner, 2010
On-site training	Program	Clements, 2013; Dunst, 2010; Clements, 2013
Opportunities for higher salary or career advancement	Program	Huss-Keeler, 2013
Professional development requirements	Program	Huss-Keeler, 2013
Program leadership acknowledging TA teacher/caregiver expertise	Program	Matsumura, 2009
Participation in RTT-ELC	System	Tonyan, 2017
Professional development requirements	System	Huss-Keeler, 2013; Valorose, 2012

Table A4. Individual characteristics and program- and system-level factors negatively associated with PD in the literature with no corresponding variable in NSECE

Variable	Level	Article
Family demands	Individual	Clements, 2013
Lack of convenience	Individual	Valorose, 2012
Lack of time	Individual	Rous, 2014; Clements, 2013
Poor fit between coach and teacher/caregiver	Individual	Tonyan, 2017
Pre-existing negative relationship with program leader	Individual	Matsumura, 2010
Proximity of training location to work or home	Individual	Rous, 2014
Lack of ethnic and linguistic diversity in training opportunities	System	Whitebook, 2008
Lack of relevant training opportunities	System	Cannon, 2016
Low/inconsistent outreach to potential participants	System	MELC, 2016
Perception that program/teacher/caregiver higher quality	System	Isner, 2011
Redundant training content	System	Cannon, 2016
Trainers not up to date on research	System	Cannon, 2016
Trainings fill up quickly	System	Cannon, 2016

Appendix B – Data Tables

Table A5. Center-based workforce professional development opportunity use, weighted

Professional development opportunity	%	SE	Lower CI	Upper CI
Coaching	32%	1%	65%	71%
Workshop	88%	1%	86%	90%
College course	32%	0.13%	30%	35%

Source: NSECE workforce survey.

Table A6. Listed, non-relationship-based professional development opportunity use, weighted

Professional development opportunity	%/Mean	SE	Lower CI	Upper CI
Coaching	37%	2 %	32%	41%
Workshop	80%	1.93%	76%	83%
College course	28%	2%	24%	31%
Number of hours in PD/week	0.74	0.04	0.66	0.81

Source: NSECE home-based provider survey.

Table A7. Predictors of receiving coaching/mentoring in the past year among center-based teachers/caregivers

Factors	b	p	OR
Adult-centered beliefs	-0.02		0.98
Distress	0.04		1.04
Enrollment	0.01		1.00
Teacher/Caregiver : child ratio	0.05		1.05
Years of Experience			
Less than 5 years	<i>Reference</i>		
5-10 years of experience	0.16		1.17
10+ years of experience	0.09		1.08
Discuss improving skills with supervisor			
Never	<i>Reference</i>		
Rarely	0.89		2.55
Sometimes	1.00	*	2.70
Frequently	1.01	*	2.75
Financial support for PD	0.32		1.38
Travel/child care support for PD	0.14		1.15
Release time support for PD	0.13		1.14
Motivation is calling or career	0.22		1.25
Job-related stress	0.56		1.76
Teacher/Caregiver age	0.02	**	1.02
Community Urban Density			
High density of urban population	<i>Reference</i>		
Moderate density of urban population	0.11		1.11
High density of rural population	-0.15		0.86

Factors	b	p	OR
Ages taught/cared for			
Infants through preschool	Reference		
Infants and toddlers only	0.71		2.03
Preschool ages only	0.25		1.28
Teacher/Caregiver income	-0.01		1.00
Classroom position			
Assistant/Aide	Reference		
Teacher/Lead teacher	0.21		1.23
Sponsor			
Community	Reference		
School sponsored	1.26	**	3.56
Head Start	0.47	*	1.60
Public pre-K	0.07		1.07
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.29		1.33
Bachelor's degree	0.81	**	2.26
Languages spoken			
English only	Reference		
Not English only	-0.05		0.95
Race and Ethnicity			
Non-Hispanic White	Reference		
Non-Hispanic Black	0.27		1.31
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	0.09		1.10
Hispanic	0.07		1.07
Immigrant	-0.24	***	0.79

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE workforce survey.

Table A8. Predictors of taking a workshop in the past year among center-based teachers/caregivers

Factors	b	p	OR
Adult-centered beliefs	-0.01		1.00
Distress	0.01		1.00
Enrollment	-0.01		0.99
Teacher/Caregiver : child ratio	0.01		1.01
Years of Experience			
Less than 5 years	Reference		
5-10 years of experience	0.20		1.22
10+ years of experience	-0.02		0.97
Discuss improving skills with supervisor			
Never	Reference		
Rarely	-0.03		0.97

Factors	b	p	OR
Sometimes	0.07		1.08
Frequently	-0.21		0.81
Financial support for PD	0.53		1.70
Travel/child care support for PD	0.81		2.26
Release time support for PD	0.60		1.82
Motivation is calling or career	0.63		1.87
Job-related stress	-0.16		0.85
Teacher/Caregiver age	0.04	**	1.04
Community Urban Density			
High density of urban population	<i>Reference</i>		
Moderate density of urban population	-0.07		0.93
High density of rural population	0.57		1.77
Ages taught/cared for			
Infants through preschool	<i>Reference</i>		
Infants and toddlers only	1.41		4.10
Preschool ages only	0.52		1.68
Teacher income	-0.01		0.99
Classroom position			
Assistant/Aide	<i>Reference</i>		
Teacher/Lead teacher	-0.03		0.97
Sponsor			
Community	<i>Reference</i>		
School sponsored	-0.24		0.79
Head Start	-0.44		0.64
Public pre-K	0.56		1.75
Education			
No bachelor, AA, or certification	<i>Reference</i>		
AA or certificate; no bachelor	0.08		1.08
Bachelor's degree	0.68		1.98
Languages spoken			
English only	<i>Reference</i>		
Not English only	0.14		1.16
Race and Ethnicity			
Non-Hispanic White	<i>Reference</i>		
Non-Hispanic Black	-0.71		0.49
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	-0.01		0.99
Hispanic	-1.21	*	0.30
Immigrant	-0.42		0.66

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 workforce survey public use data.

Table A9. Predictors of taking a college course among center-based teachers/caregivers

Factors	b	p	OR
Adult-centered beliefs	-0.04		0.96
Distress	0.04		1.04
Enrollment	0.01		1.01
Teacher/Caregiver : child ratio	0.01		1.01
Years of Experience			
Less than 5 years	Reference		
5-10 years of experience	-0.05		0.95
10+ years of experience	-0.17		0.85
Discuss improving skills with supervisor			
Never	Reference		
Rarely	-0.91	*	0.40
Sometimes	-0.61		0.54
Frequently	-0.40		0.67
Financial support for PD	0.97	***	2.63
Travel/child care support for PD	-0.15		0.86
Release time support for PD	-0.18		0.83
Motivation is calling or career	-0.16		0.86
Job-related stress	-0.18		0.83
Teacher/Caregiver age	-0.03	**	0.97
Community Urban Density			
High density of urban population	Reference		
Moderate density of urban population	0.19		1.21
High density of rural population	0.24		1.28
Ages taught			
Infants through preschool	Reference		
Infants and toddlers only	0.01		1.00
Preschool ages only	0.31		1.36
Teacher/Caregiver income	-0.01		0.99
Classroom position			
Assistant/Aide	Reference		
Teacher/Lead teacher	0.62	**	1.86
Sponsor			
Community	Reference		
School sponsored	0.12		1.13
Head Start	0.40		1.49
Public pre-K	-0.04		0.96
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.50	*	1.65

Factors	b	p	OR
Bachelor's degree	0.06		1.06
Languages spoken			
English only	Reference		
Not English only	0.20		1.22
Race and Ethnicity			
Non-Hispanic White	Reference		
Non-Hispanic Black	0.57	**	1.76
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	0.16		1.17
Hispanic	0.31		1.37
Immigrant	-0.07		0.93

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 workforce survey public use data.

Table A10. Predictors of receiving coaching/mentoring in the past year by listed home-based teachers/caregivers

Factors	b	p	OR
Adult-centered beliefs	-0.03		0.97
Distress	0.09		1.09
Enrollment	0.04		1.04
Years of Experience			
Less than 5 years	Reference		
5-10 years of experience	-0.27		0.76
10+ years of experience	-0.05		0.95
Financial support for PD	0.50		1.65
Travel/child care support for PD	-0.76		0.47
Stipend support for PD	0.45		1.57
Motivation is calling or career	-0.02		0.98
Years expected in the field			
10+ years more	Reference		
0-1 years more	-0.15		0.86
2-4 years more	-1.01	**	0.36
5-9 years more	-1.11	*	0.33
Teacher/Caregiver age	-0.02	*	0.98
Community Urban Density			
High density of urban population	Reference		
Moderate density of urban population	-0.43		0.65
High density of rural population	-0.49		0.62
Ages taught/cared for			
Infants through preschool	Reference		
Infants and toddlers only	0.07		1.08
Preschool ages only	-0.21		0.81

Factors	b	p	OR
Teacher/Caregiver income	-0.01	*	0.99
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.47		1.59
Bachelor's degree	0.23		1.26
Languages spoken			
English only	Reference		
Spanish (alone and with English)	-0.23		0.80
Other language (alone or with English)	0.07		1.08
Race and Ethnicity			
Non-Hispanic white	Reference		
Non-Hispanic Black	0.58		1.79
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	0.58		1.78
Hispanic	0.64		1.89
Immigrant	-0.11		0.89

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 home-based teacher/caregiver survey public use data.

Table A11. Predictors of taking a workshop in the past year among listed home-based teachers/caregivers

Factors	b	p	OR
Traditional Beliefs	-0.05		0.95
Distress	0.01		1.00
Enrollment	0.03		1.04
Years of Experience			
Less than 5 years	Reference		
5-10 years of experience	0.57	**	1.77
10+ years of experience	0.37	*	1.45
Financial support for PD	0.93	*	2.54
Travel/child care support for PD	0.75		2.11
Stipend support for PD	-1.08		0.34
Motivation is calling or career	-0.99		0.37
Years expected in the field			
10+ years more	Reference		
0-1 years more	0.46		1.58
2-4 years more	-0.25		0.78
5-9 years more	1.34		3.82
Teacher/Caregiver age	0.03		1.03
Community Urban Density			
High density of urban population	Reference		

Factors	b	p	OR
Moderate density of urban population	0.59		1.80
High density of rural population	-0.68		0.51
Ages taught/cared for			
Infants through preschool	Reference		
Infants and toddlers only	-0.21		0.81
Preschool ages only	0.70		2.02
Teacher/Caregiver income	0.01		1.00
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.74		2.09
Bachelor's degree	-0.40		0.67
Languages spoken			
English only	Reference		
Spanish (alone and with English)	0.35		1.41
Other language (alone or with English)	-0.06		0.94
Race and Ethnicity			
Non-Hispanic White	Reference		
Non-Hispanic Black	1.07	*	2.91
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	-0.27		0.76
Hispanic	-0.43		0.65
Immigrant	-0.33		0.72

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 home-based teacher/caregiver survey public use data.

Table A12. Predictors of taking a college course in the past year among listed home-based teachers/caregivers

Factors	b	p	OR
Adult-centered beliefs	-0.06	*	0.94
Distress	-0.90		0.92
Enrollment	0.01		1.01
Years of Experience			
Less than 5 years	Reference		
5-10 years of experience	0.35		1.42
10+ years of experience	0.10		1.11
Financial support for PD	1.25	***	3.47
Travel/child care support for PD	-0.39		0.67
Stipend support for PD	0.41		1.51
Motivation is calling or career	0.31		1.37
Years expected in the field			
10+ years more	Reference		

Factors	b	p	OR
0-1 years more	-0.97	**	0.38
2-4 years more	-0.52		0.60
5-9 years more	0.30		1.35
Teacher/Caregiver age	-0.01		0.99
Community Urban Density			
High density of urban population	Reference		
Moderate density of urban population	-0.76	*	0.47
High density of rural population	0.21		1.23
Ages taught/cared for			
Infants through preschool	Reference		
Infants and toddlers only	-0.16		0.85
Preschool ages only	-1.42	**	0.24
Teacher/Caregiver income	-0.01		1.00
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.70	**	2.01
Bachelor's degree	-0.12		0.88
Languages spoken			
English only	Reference		
Spanish (alone and with English)	-0.02		0.98
Other language (alone or with English)	-0.03		0.97
Race and Ethnicity			
Non-Hispanic White	Reference		
Non-Hispanic Black	0.91	**	2.48
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	0.04		1.04
Hispanic	0.03		1.03
Immigrant	0.88	**	2.41

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 home-based teacher/caregiver survey public use data.

Table A13. Predictors of hours of PD per week in the past year among listed home-based teachers and caregivers

Factors	b	p	β
Adult-centered beliefs	-0.01		-0.01
Distress	-0.02		-0.05
Enrollment	-0.01		-0.05
Years of Experience			
Less than 5 years	Reference		
5-10 years of experience	0.04		0.03
10+ years of experience	0.01		0.02

Factors	b	p	β
Financial support for PD	0.53	**	0.19
Travel/child care support for PD	0.18		0.03
Stipend support for PD	0.18		0.03
Motivation is calling or career	-0.08		-0.04
Years expected in the field			
10+ years more	Reference		
0-1 years more	-0.16		-0.07
2-4 years more	-0.28	**	-0.10
5-9 years more	-0.11		-0.02
Teacher/Caregiver age	0.01		0.05
Community Urban Density			
High density of urban population	Reference		
Moderate density of urban population	-0.21		-0.10
High density of rural population	-0.19		-0.07
Ages taught/cared for			
Infants through preschool	Reference		
Infants and toddlers only	-0.24		-0.06
Preschool ages only	-0.25		-0.04
Teacher/Caregiver income	-0.01		-0.02
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.22	*	0.10
Bachelor's degree	-0.01		-0.01
Languages spoken			
English only	Reference		
Spanish (alone and with English)	-0.09		-0.03
Other language (alone or with English)	0.39	*	0.08
Race and Ethnicity			
Non-Hispanic White	Reference		
Non-Hispanic Black	0.17		0.05
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	-0.26		-0.05
Hispanic	0.42	*	0.12
Immigrant	0.16		0.05

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. R-squared = .14

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 home-based teacher/caregiver survey public use data.

Table A14. Predictors of receiving financial support for PD among center-based teachers and caregivers

Factors	b	p	OR
Teacher/Caregiver age	0.01		1.01
Community Urban Density			
High density of urban population	Reference		
Moderate density of urban population	0.29		1.34
High density of rural population	-0.20		0.82
Ages taught/cared for			
Infants through preschool	Reference		
Infants and toddlers only	0.07		1.07
Preschool ages only	-0.45	**	0.64
Teacher/Caregiver income	-0.01		1.00
Classroom position			
Assistant/Aide	Reference		
Teacher/Lead teacher	0.23		1.26
Sponsor			
Community	Reference		
School sponsored	-0.28		0.76
Head Start	0.43	*	1.53
Public pre-K	-0.07		0.93
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.32		1.37
Bachelor's degree	0.57	*	1.76
Languages spoken			
English only	Reference		
Not English only	0.10		1.11
Race and Ethnicity			
Non-Hispanic White	Reference		
Non-Hispanic Black	-0.62	**	0.54
Non-Hispanic Asian, AI/AN, NHPI, or Other race*	-0.23		0.79
Hispanic	-0.26		0.77
Immigrant	-0.43		0.65

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 home-based teacher/caregiver survey public use data.

Table A15. Predictors of receiving financial support for PD among home-based teachers/caregivers

Factors	b	p	OR
Teacher/Caregiver age	-0.03	*	0.97
Community Urban Density			
High density of urban population	Reference		
Moderate density of urban population	-0.01		0.99
High density of rural population	0.17		1.18
Ages taught/cared for			
Infants through preschool	Reference		
Infants and toddlers only	-0.37		0.69
Preschool ages only	-0.30		0.74
Teacher/Caregiver income	0.01		1.00
Education			
No bachelor, AA, or certification	Reference		
AA or certificate; no bachelor	0.34		1.41
Bachelor's degree	0.02		1.02
Languages spoken			
English only	Reference		
Spanish (alone and with English)	0.53		1.70
Other language (alone or with English)	1.18	*	3.25
Race and Ethnicity			
Non-Hispanic White	Reference		
Non-Hispanic Black	-0.25		0.78
Non-Hispanic Asian, AI/AN, NHPI, or Other race	0.40		1.49
Hispanic	0.24		1.28
Immigrant	-0.14		0.87

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

* This combined race category includes anyone self-identifying as non-Hispanic Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, Other

Source: NSECE 2012 home-based teacher/caregiver survey public use data.

Appendix C – Literature Review Methods

Key Questions

1. What are the characteristics of individual teachers and caregivers that participate professional development?
 - a. Motivations for participating (ex. financial, professionalism)
 - b. Demographic characteristics (ex. years of experience, race/ethnicity, home language, geographical location)
 - c. Attitudes, beliefs, and motivations (ex. perceptions about their practice, orientation to continuous learning, perceptions of PD teacher/caregiver)
 - d. Well-being (ex. at work, at home, depressive symptoms, social capital/connections)
 - e. Supports for QI at work (ex. paid planning time, available subs, tuition reimbursement, bonuses tied to PD)

2. What are the characteristics of programs that might facilitate participation in professional development?
 - a. Program characteristics (ex. program type, number of children served, % subsidy receipt, program philosophy, geographical location, funding sources, number of staff, participation in other initiatives)
 - b. Director demographic characteristics (ex. years of experience, race and ethnicity, home language, geographical location)
 - c. Director attitudes, beliefs, and motivations (ex. perceptions about their practice, orientation to continuous learning, perceptions of PD teacher/caregiver)
 - d. Director well-being (ex. at work, at home, depressive symptoms, social capital/connections)
 - e. Supports for QI at work (ex. paid planning time, available subs, tuition reimbursement, bonuses tied to PD)

3. What are the characteristics of ECE systems that are associated with participation and engagement?
 - a. Mandatory vs voluntary participation
 - b. Incentives (ex. merit awards, bonuses, professional opportunities, tiered reimbursement)
 - c. Dosage and duration (ex. set number of hours or visits)
 - d. Type and number PD components (ex. coaching, consultation, learning community)
 - e. Individualized/tailored (ex. extent that PD is flexible)
 - f. Delivery mode (ex. in person vs. online; one or multiple PD teacher/caregiver)
 - g. Use of formal tool? (consistent observation tool across places)
 - h. Incorporates goals relevant to program or teacher/caregiver
 - i. PD background characteristics and expected competencies

Sources of Information

We identified relevant literature concerning teachers and caregivers and program motivation to participate or opt-in to technical assistance using database searches and existing quality improvement reports. We refined searches for empirical studies from social science databases including key words also included to peer reviewed, scholarly articles published in 2007-2017. We also identified research through reviews of relevant reports published through Child Trends or similar organizations. Child Trends collected known sources and reviewed research and references pertaining to the current research topic.

Database Searches:

Topic: Teachers and caregivers and program motivation to participate in technical assistance

Databases:

- PsychINFO
- EBSCOHost
- JSTOR

Search Terms: Searches will include a combination of any of the following terms or phrases.

Subject	PD Type	Participation & Engagement
Early childhood provider/teacher	Technical assistance	Motivation
Teacher	Coaching	Motivation to change
Child Care Center	Quality Improvement	Readiness to change
Provider	Professional development	Opt-in
Preschool	Mentoring	Characteristics
Family child care		Participate/participation
Home-based child care		Volunteer
Family, friend, and neighbor care		Voluntary
Caregiver		Buy-in

Search Criteria:

- Searches for journal articles will be refined to:
 - peer reviewed articles
 - scholarly articles
 - articles published from 2007-2017

Existing Quality Improvement Reports:

We reviewed the following list of QRIS evaluation and quality improvement reports for research findings and relevant references:

- AZ TA literature review
- SCOPE literature review
- QRIS validation studies

- Wisconsin
- Massachusetts
- Oregon
- California
- Delaware
- Minnesota
- Arizona
- Colorado
- Rhode Island

Selection Criteria

Child Trends staff reviewed all studies and reports for quality and relevance on a case by case basis. We applied the following criteria when considering articles and reports for inclusion in the literature review:

- Relevance of the research topic and questions
- Peer reviewed, scholarly articles
- Non-peer reviewed articles published from reputable sources

We excluded research if:

- There was a methodological weakness or author draws conclusions not supported by the evidence
- We deemed articles irrelevant to the research topic and questions
- The study had limited external validity. For example, the study population differs greatly from that which is included in the current research questions.
- A non-credible source published the article (e.g. dissertations)
- The article was written in a language other than English.

Reviewing the Literature

We tabled each study selected for use for descriptive information. We collected data on the following variables:

- **Study characteristics:** A description of the research questions, methodology (study design and sample selection), sample type (teacher vs provider and provider type), sample n, location of study, main study findings.
- **Teacher/Caregiver characteristics:** Motivation for participation, level of engagement, demographics, perceptions, and well-being.
- **Program and director characteristics:** Motivation for participation, program characteristics, director demographics, director perceptions, and director well-being.
- **ECE systems and characteristics:** Definition of PD used in the study, PD demographics, PD model used, whether the study was conducted by a developer of the model, mandatory vs. voluntary PD, incentives offered, dosage & duration, delivery mode, and use of formal PD tools.

We assigned all articles a quality level based on study rigor, sample size, and external validity.

- Strong evidence: Experimental or quasi-experimental design, large sample size, high external validity
- Moderate evidence: Lacking one of the three criteria from the high-quality category
- Preliminary evidence: Descriptive or correlational study, low external validity

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