

Review of Selected Studies and Professional Standards Related to the Predictors of Quality Included in the National Survey of Early Care and Education



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Overview

Purpose of this report. The purpose of this annotated bibliography is to provide reviews of key selected studies and professional standards related to the predictors of quality (POQ) included in the National Survey of Early Care and Education (NSECE). The intent is to provide a companion piece to the NSECE methodological report *Measuring Predictors of Quality in the National Survey of Early Care and Education* (NSECE Project Team, 2015). The two reports focus on the same predictors of quality, and follow the same numbering so that readers can easily cross-reference.

Background. Predictors of quality included in the NSECE are survey measures that previous research and/or professional standards indicate to be associated with stronger observed quality. The annotated review of research provided in this report builds on earlier work of a Technical Expert Panel convened during the planning phase for the NSECE, and on a review of the literature conducted during the planning phase (Guzman, Forry, Zaslow, Kinukawa, Rivers, Witte & Weber, 2009) that informed the decisions about which constructs and specific measures to include as predictors of quality in the NSECE. The annotated review also builds on further searches of the literature on quality conducted for the companion report (NSECE Project Team, 2015) carried out to inform decisions about how best to summarize the data on predictors of quality provided by the NSECE.

Summaries of both research studies and professional standards. For each POQ included in the companion NSECE methodological report, this report provides a summary, using a consistent annotated bibliography format, of either research focusing on the POQ or of professional standards related to the POQ. The research studies included all involve relationships between specific POQs and observed measures of quality. A range of observational measures of quality are considered in the studies summarized in this report, including the environment rating scales for different age groups and settings (ECERS, ECERS-R, and ECERS-E, ITERS, FDCRS), the CLASS, the CIS, ORCE, ELLCO, CHELLO, CLEO, Assessment Profile, Child Care-HOME and several other measures.¹ Program-level predictors of quality involve summarizing quality across multiple classrooms or groups of children. Fewer studies examine program level predictors of quality in relation to observed quality in a classroom or group, most likely because there is a difference in level of analysis (program vs. particular classroom). For program level predictors of quality, we include summaries of professional standards that include the particular predictor of quality, complementing these where possible with summaries of related research studies.

Inclusion of selected studies rather than an exhaustive review. Our intent is not to be exhaustive of all key research studies or professional standards related to individual POQs, but to provide the reader with access to selected key studies or professional standards for each. The title for this annotated reflects this: *Review of Selected Studies and Professional Standards Related to the Predictors of Quality Included in the National Survey of Early Care and Education*. While there is sufficient evidence to support the inclusion of each construct discussed as a predictor of quality, not all available rigorous research studies show a positive relationship between the POQ and observed quality. This annotated bibliography

¹ See References for names and citations for observational tool.

includes important studies that do and do not show an association between POQs and observed quality to reflect the complexity of the literature.

Organization of this annotated bibliography. As in the NSECE methodological report, the POQs are organized into three major groups: those POQ that are attributes of individual teachers and caregivers, those that are attributes of classrooms or groups, and those that are attributes of programs. To facilitate cross-referencing, the annotated bibliography and methodological report follow the same sequence in discussing the POQs. In addition to separate summaries of each study or set of professional standards, at the start of each section of the annotated bibliography, a brief overview is provided for each POQ looking across the results of the selected studies or professional standards. The overview tables for each section are clearly identified with different colors.

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I. Attributes of Individuals

I. Attributes of Individuals

I. Attributes of Individuals—1. Main Reason for Working with Young Children

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate</i> analyses	Brief summary and <i>comment</i>
Center-based Early Care and Education (ECE)			
Torquati, Raikes & Huddleston-Casas (2007)	--	Not significant	In sample of center-based child care providers from 4 mid-western states, motivation for child care work was not associated with observed quality as measured using ECERS/ ITERS or with CIS. <i>Multivariate models also included compensation and workplace supports, which may have been correlated with motivation for child care work as career-related or personal calling.</i>
Home-based ECE			
Doherty, Forer, Lero, Goelman & LaGrange (2006)	Not significant	√	In sample of regulated family child care providers in Canada (both rural and urban), providers rated as highly intentional (would choose occupation again because enjoyed working with children or saw as chosen occupation) were observed to have higher scores on FDCRS in multivariate analyses taking into account education.
Fory, Iruka, Tout, Torquati et al., (2013)	--	√	Among home-based providers in Quality Interventions for Early Care and Education evaluation, intrinsic motivation for job (caregiving is more than just a way to get a paycheck) was associated with higher scores on Quality Care and Teaching Summary (based on FDCRS and ECERS-E) and CIS.
Hughes-Belding, Hegland, Stein, Sideris & Bryant (2012)	√	√	Among family child care providers participating Partners for Inclusion consultation, intrinsic motivation for job was positively correlated with two FDCRS scales (Teaching and Interaction; Provisions/Health) as well as CIS Sensitivity. In multivariate analyses, intrinsic motivation was associated with higher scores on the Provisions/Health scale only. <i>Multivariate analyses controlled for variables that were correlated with intrinsic motivation: years of experience, CDA, and perceived ability.</i>
Notes. A check mark (√) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.			

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Main Reason for Working with Young Children**

I. Attributes of Individuals—1. Main Reason for Working with Young Children: Detailed Study Descriptions

Publication information/citation	Torquati, J. C., Raikes, H., & Huddlestone-Casas (2007). Teacher education, motivation, compensation, workplace support, and links to quality of center-based child care and teachers' intention to stay in the early childhood profession. <i>Early Childhood Research Quarterly</i>, 22, 261-275.
Which POQ is considered?	Main reason for working with young children
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (infant/toddler and preschool)
Brief description of sample	The sample included 964 center-based child care providers in 4 mid-western states
Brief description of study approach	Observations were conducted around the same time that providers completed questionnaires. Teachers responded to three items regarding their motivations, from 1 (does not represent my motivation) to 5 (definitely represents my motivation): (1) “my career or profession,” (2) “a stepping stone to a related career or profession,” and (3) “a personal calling.” The three items were used as a latent factor of motivation.
Observational measure of quality used	The study used two measures in each classroom: (1) ERS (either ECERS-R or ITERS; average of the 7 subscales (2) CIS (composite of three scales: warmth, punitive, detachment)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate analyses showed that motivation for child care work was not associated with observed quality (ERS) nor with interactional quality (CIS)
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models did not control for any demographics of children. Multivariate models included other POQs, including teacher education, compensation, and workplace supports.
Any methodological concerns?	No

I. Attributes of Individuals—1. Main Reason for Working with Young Children: Detailed Study Descriptions

Publication information/citation	Doherty, G., Forer, B., Lero, D. S., Goelman, H., & LaGrange, A. (2006). Predictors of quality in family child care. <i>Early Childhood Research Quarterly, 21</i>, 296–312.
Which POQ is considered?	Main reason for working with young children
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 231 regulated family child care providers in Canada in both rural and urban homes.
Brief description of study approach	Providers received a questionnaire in the mail and returned it on the day of the observation. Intentionality was measured by asking the provider whether they would choose family child care as a career again, and if so, why. A list of possible reasons was provided. If the provider reported that she enjoyed working with children or saw it as her chosen occupation, she was rated as highly intentional.
Observational measure of quality used	The study used the composite FDCRS score.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate analyses showed that intentionality (i.e., child-centered motivation) was associated with higher scores on the FDCRS, even after all other covariates were added in a multivariate model.
Results from models without covariates	Zero-order correlations showed no association between motivation and FDCRS.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate analyses controlled for province/territory and whether a child under 18 months was present during observation, as well as other POQs: teacher intentionality, training, education, experience, use of support services, and work environment.
Any methodological concerns?	The agencies selected the homes to be included in the sample, which could bias results towards higher quality homes.

I. Attributes of Individuals—1. Main Reason for Working with Young Children: Detailed Study Descriptions

Publication information/citation	Forry, Iruka, Tout, Torquati et al., 2013. Predictors of quality and child outcomes in family child care settings. <i>Early Childhood Research Quarterly</i>, 28, 893-904.
Which POQ is considered?	Main reason for working with young children
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	347 family child care providers from the Quality Interventions for Early Care and Education (QUINCE) study. The QUINCE is a multi-state sample of family child care providers actively seeking professional development for two purposes. Most providers did not have bachelor's degrees.
Brief description of study approach	Observations of quality and teacher interviews and surveys were conducted around the same time, then again approximately 10 months later. Scores from each time are averaged to create composites.
Observational measure of quality used	Three measures were used to create two indicators of quality: (1) Quality Care and Teaching, which was the average of the Family Day Care Rating Scale (FDCRS) and the ECERS-E instructional supports scale (2) Caregiver Interaction Scale (CIS)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate analyses showed that caregivers with more intrinsic motivation for their job (i.e., caregiving is more than just a way to get a paycheck) had higher scores on both indicators of quality.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models controlled for treatment status, subsidy density, and presence of a child with special needs. Models included other POQs: teacher's financial resources, education, years of experience, professional motivation, intention to stay in the field, depression, job demands, and number of children in care.
Any methodological concerns?	No

I. Attributes of Individuals—1. Main Reason for Working with Young Children: Detailed Study Descriptions

Publication information/citation	Hughes-Belding, K., Hegland, S., Stein, A., Sideris, J., & Bryant, D. (2012). Predictors of global quality in family child care homes: Structural and belief characteristics. <i>Early Education and Development, 23</i>, 697-712.
Which POQ is considered?	Main reason for working with young children
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 257 family providers who were participating in an evaluation of a consultation program (Partners for Inclusion). Providers could not be included if they had a bachelor's degree in early childhood education or a related field.
Brief description of study approach	Providers were interviewed over the phone or at the observation. Intrinsic motivation was assessed using a subset of items from Kontos et al. (1995), e.g., "I see my current child care position as my career or profession."
Observational measure of quality used	Four measures of quality were used: (1) FDCRS: Teaching and Interaction, (2) FDCRS: Tone and Discipline, (3) FDCRS: Provisions/Health, (4) CIS: Sensitivity
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate analyses showed that intrinsic professional motivation was associated with higher scores on the FDCRS scales of Provisions/Health, but was not associated with the other three measures of quality.
Results from models without covariates	Zero-order correlations showed that intrinsic professional motivation was associated with higher scores on two FDCRS scales (Teaching and Interaction and Provisions/Health) and higher scores on the CIS Sensitivity, but not correlated with FDCRS: Tone and Discipline.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate analyses controlled for state and a number of other POQs, including child-adult ratio, professional development, education, modernity, stress, and perceived ability.
Any methodological concerns?	Providers had agreed to participate in a professional development program, so they may not be representative of the general population of child care providers.

I. Attributes of Individuals—2. Child-Centered Beliefs (Net Traditional Attitudes from Modernity Scale)

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is positively associated with observed quality in analyses <i>without</i> covariates	POQ is positively associated with observed quality in <i>multivariate</i> analyses	Brief summary and <i>comment</i>
Center-Based ECE			
Justice, Mashburn, Hamre & Pianta (2008)	Negative association with one of two measures of observed quality (measure of Literacy Focus based on CLASS)	Negative association with one of two measures observed quality (measure of Literacy Focus based on CLASS)	In state-funded preschools implementing a language and literacy curriculum, child-centered beliefs were negatively associated with observed quality measured in terms of Literacy Focus; not associated with CLASS Language Modeling. <i>Child-centered beliefs may be associated with stimulating interactions in child-initiated activities but not intentional instruction.</i>
Pianta, Howes, Burchinal, Bryant, Clifford, Early & Barbarin (2010)	√	√	In center-based pre-kindergarten programs in multi-state pre-kindergarten study, child-centered beliefs associated with higher ECERS-R: Teaching and Interactions scores and more time in free choice/center activities. Not associated with CLASS Emotional Support, Instructional Climate, and ECERS-R: Provisions for Learning. <i>Child-centered beliefs may be related to stimulating but child-initiated activities rather than intentional instruction.</i>
Home-Based ECE			
Clarke-Stewart, Vandell, Burchinal, O’Brien & McCartney (2002)	--	√	In sample of home-based providers drawn from NICHD Study of Early Child Care, child-centered beliefs were associated with higher scores on the Observational Record of the Caregiving Environment (ORCE) and Child Care HOME
Forry, Iruka, Tout, Torquati et al. (2013)	--	√	In home-based settings in which providers were seeking professional development, child-centered beliefs associated with higher scores on the Quality Care and Teaching summary (based on FDCRS and ECERS-E) and CIS
Notes. A check mark (√) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.			

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Child-Centered Beliefs (Net Traditional Attitudes from Modernity Scale)**

I. Attributes of Individuals—2. Child-Centered Beliefs (Net Traditional Attitudes from Modernity Scale): Detailed Study Descriptions

Publication information/citation	Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. <i>Early Childhood Research Quarterly, 23</i>, 51-68.
Which POQ is considered	Net Traditional Attitudes Score (from Modernity Scale)
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (4-year-olds)
Brief description of sample	The sample included 135 teachers who were participating in the My Teaching Partner professional development program focused on implementing language and literacy curriculum. Teachers were from state-funded preschools in one state. All teachers had a bachelor's degree. Children were considered at-risk due to social and/or economic circumstances.
Brief description of study approach	Teachers responded to questionnaires measuring demographics and attitudes. Teachers videotaped themselves implementing the curriculum. Videos were scored for instructional quality.
Observational measure of quality used	Observers rated classrooms on two dimensions from the CLASS: (1) Language Modeling, and (2) Literacy Focus
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Child-centered beliefs were associated with lower-quality literacy focus. Child-centered beliefs were not associated with quality of language modeling. These findings held in both zero-order correlations as well as multivariate regression models controlling for other predictors of quality.
Results from models without covariates	Child-centered beliefs are negatively correlated with quality of literacy focus but not correlated with language modeling.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate models control for percent of children with limited English proficiency and IEP, as well as type of lesson observed. Models also include other POQs: Teacher education, teacher major, professional development, experience, self-efficacy, and number of children in care.
Any methodological concerns?	No

I. Attributes of Individuals—2. Child-Centered Beliefs (Net Traditional Attitudes from Modernity Scale): Detailed Study Descriptions

Publication information/citation	Pianta, R., Howes, C., Burchinal, M., Bryant, D. Clifford, R., Early, D. & Barbarin, O. (2010). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? <i>Applied Developmental Science</i>, 9, 144-159.
Which POQ is considered	Net Traditional Attitudes Score (from Modernity Scale)
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (pre-k)
Brief description of sample	This study draws from 238 classrooms sampled for the National Center for Early Development and Learning’s Multi-State Pre-Kindergarten Study. About half were in public schools, about half were full-day, and about half had a lead teacher with a BA/BS. Most centers served primarily 4-year-olds.
Brief description of study approach	Observations took place in fall and teachers completed surveys during the year.
Observational measure of quality used	The study included five measures of quality: (1) ECERS-R: Teaching and Interactions; (2) ECERS-R: Provisions for Learning (3) CLASS: Instructional Climate (4) CLASS: Emotional Climate (5) Emerging Academics Snapshot (nature and varieties of activity settings as an index of opportunities to learn)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate models found that child-centered beliefs were associated with higher ECERS-R: Teaching and Interactions scores and more time in free choice/center activities. Child-centered beliefs were <i>not</i> associated with any other measures of quality (CLASS: Emotional Support, CLASS: Instructional Climate, ECERS-R: Provisions for Learning)
Results from models without covariates	Child-centered beliefs were correlated with higher CLASS emotional support scores, higher ECERS-R Teaching and Interactions scores, and more time in free-choice centers
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate models controlled for state and poverty status of classroom. Models also included other POQs: whether the program was in a school, half-day vs. full-day, child-staff ratio, teacher education, teacher experience, teacher depression, and teacher wages.
Any methodological concerns?	No

I. Attributes of Individuals—2. Child-Centered Beliefs (Net Traditional Attitudes from Modernity Scale): Detailed Study Descriptions

Publication information/citation	Clarke-Stewart, K. A., Vandell, D. L., Burchinal, M., O'Brien, M., & McCartney K. (2002). Do regulable features of child-care homes affect children's development? <i>Early Childhood Research Quarterly, 17, 52-86.</i>
Which POQ is considered	Net Traditional Attitudes Score (from Modernity Scale)
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes (toddler and preschool)
Brief description of sample	The sample was drawn from the NICHD Study of Early Child Care, which was collected across 10 research sites in nine states. There were 164 homes when children were 15 months, 172 homes when children were 24 months, and 146 homes when children were 36 months, for a total of 482 homes.
Brief description of study approach	Children were observed in the child-care setting at 15 months, 24 months, and 36 months. Around the same time, caregivers completed questionnaires and were interviewed.
Observational measure of quality used	Two observational measures were used: (1) Observational Record of the Caregiving Environment (ORCE; multiple scales were assessed at different ages); (2) Child Care HOME (broad quality of caregiving environment)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Results from multivariate analyses show that more child-centered beliefs predict higher scores on the CC-HOME and ORCE.
Results from models without covariates	Not included
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate models controlled for child gender, age, ethnicity, mother's education, income, and marital status of parents. Models also included other POQs: Teacher professionalism, experience, age, and depression.
Any methodological concerns?	No

I. Attributes of Individuals—2. Child-Centered Beliefs (Net Traditional Attitudes from Modernity Scale): Detailed Study Descriptions

Publication information/citation	Forry, Iruka, Tout, Torquati et al., 2013. Predictors of quality and child outcomes in family child care settings. <i>Early Childhood Research Quarterly</i>, 28, 893-904.
Which POQ is considered?	Net Traditional Attitudes Score (from Modernity Scale)
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 347 family child care providers from the Quality Interventions for Early Care and Education (QUINCE) study. The QUINCE is a multi-state sample of family child care providers actively seeking professional development. Most providers did not have bachelor's degrees.
Brief description of study approach	Classroom observations and teacher interviews/surveys were conducted around the same time, then again approximately 10 months later. Scores from each time are averaged to create composites.
Observational measure of quality used	Three measures were used to create two indicators of quality: (1) Quality Care and Teaching, which was the average of the Family Day Care Rating Scale (FDCRS) and the ECERS-E instructional supports scale (2) Caregiver Interaction Scale (CIS)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate analyses showed that child-centered beliefs were associated with higher scores on the Quality Care and Teaching measure and the CIS.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models controlled for treatment status, subsidy density, and presence of a child with special needs. Models included other POQs: teacher's financial resources, education, years of experience, professional motivation, intention to stay in the field, depression, job demands, and number of children in care.
Any methodological concerns?	Providers were actively seeking professional development, so it could be a group that is different from the general population.

I. Attributes of Individuals—3. Participation in Workshops for PD

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate analyses</i>	Brief summary and <i>comment</i>
Center-Based ECE			
Burchinal, Cryer, Clifford & Howes (2002)	--	√	In sample of center-based ECE from Cost, Quality and Child Outcomes study, participation in workshops at center, community-based workshops, and workshops at professional meetings all found in multivariate analyses to be associated with higher quality as observed using ITERS/ECERS and CIS. <i>Note that this pattern was found in analyses controlling for participation in other forms of PD (ECE- related coursework and certification).</i>
Domitrovich, Gest, Gill, Bierman, Welsh & Jones (2009)	--	√	In a randomized control trial, Head Start teachers and assistant teachers who participated in workshops followed by in-class support on the PATH and REDI curricula had stronger scores on specific CLASS and Teaching Style Rating System measures and provided more linguistic support. <i>Note that workshops were considered in combination with in class supports, as is the case with many studies of curriculum implementation.</i>
Home-Based ECE			
Norris (2001)	√	√	In a sample of child care providers, those who had participated in workshops more continuously over their careers (rather than intermittently or not) were observed to have higher FDCRS scores. <i>Study relied on respondent report of participation in workshops over 20 year period.</i>
Ota & Austin (2013)	--	(Models examined growth)	Licensed family child care providers who received training focusing on enhanced linguistic input to children had greater increases in language input across 12 weeks on recordings of

I. Attributes of Individuals—3. Participation in Workshops for PD: Brief Overview of Results

interactions when the intervention involved either workshops alone or workshops followed up by on-site consultation. Workshops plus consultation showed stronger retention of enhanced verbal input. *Sample included only small group of family child care providers who volunteered to participate.*

Notes. A check mark (✓) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; *not significant* indicates that the association was examined but was not significant.

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Participation in Workshops for Professional Development**

I. Attributes of Individuals—3. Participation in Workshops for PD: Detailed Study Descriptions

Publication information/citation	Burchinal, M. R., Cryer, D., Clifford, R. M., & Howes, C. (2002). Caregiver training and classroom quality in childcare centers. <i>Applied Developmental Science, 6, 2 – 11.</i>
Which POQ is considered?	Participation in Professional Development (PD) workshop
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (infant/toddler and preschool)
Brief description of sample	The sample was drawn from the Cost, Quality, and Child Outcomes in Child Care Centers Study. From each center with more than one classroom, two classrooms were observed (one infant/toddler and one preschool classroom, where possible). The final sample included 135 infant/toddler classrooms and 418 preschool classrooms.
Brief description of study approach	A data collector interviewed the center administrator. Two observers scored classrooms and gave teachers questionnaires. Workshop participation was based on the questionnaire and summarized into three variables: Attended workshops at the center, attended community-based workshops, and attended workshops at professional meetings.
Observational measure of quality used	Quality was measured with the ECERS/ITERS and the CIS. The ECERS/ITERS was used as a single scale of general early childhood quality. The CIS was used as a single score, indicating caregiver involvement.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate regression analyses showed that all types of workshops (at the center, community-based, and at professional meetings) were significantly associated with greater overall quality (ITERS/ECERS) and caregiver involvement (CIS).
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The regression included other POQs (formal education, ECE-related coursework, certification, child-adult ratio, and years of experience) and controlled for whether it was an infant classroom and proportion of children receiving subsidies as a proxy for socioeconomic status.
Any methodological concerns?	No.

I. Attributes of Individuals—3. Participation in Workshops for PD: Detailed Study Descriptions

Publication information/citation	Domitrovich, C.E., Gest, S.D., Gill, S., Bierman, K.L., Welsh, J.A., & Jones, D. (2009). Fostering high-quality teaching with an enriched curriculum and professional development support: The Head Start REDI program. <i>American Educational Research Journal</i>, 46, 567-597.
Which POQ is considered?	Participation in Professional Development (PD) workshop
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 44 teachers and 43 assistant teachers from 44 Head Start classrooms. Most (67%) of the classrooms were in small centers (1-2 classrooms), but four centers were larger (3-5 classrooms).
Brief description of study approach	Randomized control study: intervention group was trained on and delivered enhanced curriculum (i.e., REDI and Preschool PATH curriculums). Intervention group received 4 days of workshop training on theoretical and developmental models of enhanced curriculum along with weekly in-class support from REDI trainer. Control group teachers continued to conduct Head Start services “as usual.”
Observational measure of quality used	<ul style="list-style-type: none"> • Classroom Assessment Scoring System (CLASS; 9 items loading onto either the Emotional Support or Instructional Support scale) • Teaching Style Rating Scale (TSRS; 9 items loading onto 3 scales: Positive Discipline, Classroom Management, Positive Emotional Climate) • Classroom Language and Literacy Environment Observation (CLEO; 4 scores based on function of teacher’s language and 1 score based on richness/sensitivity of teacher’s language)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Teachers who participated in the intervention had significantly higher scores on TSRS Positive Emotional Climate, the CLASS Positive Climate item (but no difference on the overall Emotional Support scale), TSRS Classroom Management, the TSRS Proactive and Preventive Discipline item (but no difference on the overall Positive Discipline scale). Intervention teachers provided more linguistic support (statements, questions, decontextualized utterances, and overall

I. Attributes of Individuals—3. Participation in Workshops for PD: Detailed Study Descriptions

	richness/sensitivity of language). In addition, intervention teachers had marginally higher CLASS Instructional Support scores.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	No other POQs were included. Models controlled for cohort and setting (rural vs. urban).
Any methodological concerns?	Workshops were not studied alone but in combination with on-site coaching.

I. Attributes of Individuals—3. Participation in Workshops for PD: Detailed Study Descriptions

Publication information/citation	Norris, D. J. (2001). Quality of care offered by providers with differential patterns of workshop participation. <i>Child and Youth Care Forum</i>, 30, 111-121.
Which POQ is considered?	Participation in Professional Development (PD) workshop
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample of licensed family child care providers included 18 non-participants (had never had a workshop), 34 intermittent participants (attended workshop at some time), 18 continual participants (attended workshops throughout their career).
Brief description of study approach	Graduate students observed homes to rate the FDCRS. Providers reported the number of child care-related workshops they had completed in six different time periods: last year, 2-3 years ago, 4-5 years ago, 6-10 years ago, 11-20 years ago, more than 20 years ago. A continuous measure was created (Number of Workshops) as well as a categorical measure (non-participant, intermittent participant, continuous participant).
Observational measure of quality used	Quality was measured using the Family Day Care Rating Scale (FDCRS). The overall score as well as subscales (Learning Activities, Language/Reasoning, Basic Care, and Space/Furnishings) were used. Because of low internal consistency, the Social Development and Adult Needs subscales were dropped.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available).	Providers who continuously participated in workshops had higher FDCRS scores than either intermittent participants or non-participants. The effect was seen on Learning Activities, Basic Care, Language and Reasoning. There was no relation with Space and Furnishings.
Results from models without covariates	Number of workshops attended was significantly, positively correlated with FDCRS overall score, Learning Activities, Basic Care, and Space/Furnishings. There was a positive but not significant correlation ($r = .20$) between number of workshops and the Language/Reasoning subscale.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for	Models controlled for years of experience and one other POQs: formal education.

I. Attributes of Individuals—3. Participation in Workshops for PD: Detailed Study Descriptions

other variables or simultaneously includes other POQ? What demographic variables are included as controls?	
Any methodological concerns?	Groups were not equal: Continual participants had more formal education and had been providers for a shorter amount of time. The questionnaire relied on providers' memory of workshops across 20 years, so it could be inaccurate.

I. Attributes of Individuals—3. Participation in Workshops for PD: Detailed Study Descriptions

Publication information/citation	Ota, C. L., & Austin, A. M. B. (2013). Training and mentoring: Family child care providers' use of linguistic inputs in conversations with children. <i>Early Childhood Research Quarterly, 28, 972-983.</i>
Which POQ is considered?	Participation in Professional Development (PD) workshop
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes.
Brief description of sample	Postcards were sent to 800 listed family child care providers inviting them to participate in study involving training on verbal language in family child care homes. Follow up calls were made to 240 providers. A final sample of 48 licensed family child care providers volunteered for the study. Providers were sequentially assigned to one of three groups (as described below). Providers participated in state-sponsored training strategies or control group.
Brief description of study approach	Three groups were compared: A workshop-only group, who received a 10 hour in-service training (4 150-minute sessions over 6 weeks) focused on supporting early language development; a workshop + consultation group, who received the same workshop plus 12 weeks of on-site mentoring; and a control group. Audio recordings were collected from recorders on two children per classroom three times: pre- and immediately post-intervention, and 6 weeks post intervention to analyze linguistic input. Fifteen minutes of the time were coded.
Observational measure of quality used	Quality was based on three measures of linguistic input during child-provider conversations: (1) frequency of child turns, (2) frequency of provider linguistic inputs (informational talk, question inputs, expressive utterances, directives, teaching utterances), (3) conversational cohesiveness for the provider.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Models examined growth trajectories across the three time points. Compared to the control group, both treatments groups had steeper growth in information talk, questions, expressive utterances, and teaching utterances.

I. Attributes of Individuals—3. Participation in Workshops for PD: Detailed Study Descriptions

Results from models without covariates	None included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	No controls were included. Models accounted for baseline scores by examining change in mean scores across time.
Any methodological concerns?	Small sample size that included only the small percent of family child care providers who were interested in participating.

I. Attributes of Individuals—4. Participation in College Courses for PD

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses without covariates	POQ is associated with observed quality in multivariate analyses	Brief Summary and Comment
Center-Based ECE			
Dickinson & Caswell (2007)	√	√	Head Start teachers who received Literacy Environment Enrichment Program through a credit-bearing course had higher scores than waitlist controls on the ELLCO and the Assessment Profile, even after accounting for baseline scores. <i>Note that there was support between two intensive three day sessions for the course. Also note that supervisors were included in the course; It is not clear if effects were related to participation of supervisors.</i>
Hamre, Pianta, Burchinal, Field, LoCasale-Crouch, Howes et al., (2012)	--	√	Teachers from public school preschool programs and Head Start programs who were randomly assigned to take a college course entitled “Support of language and literacy development in preschool classrooms through effective teacher-child interactions and relationships” were observed to have higher scores on the CLASS Instructional Support and Emotional Support composites.
Both Center-Based and Home-Based ECE			
Neuman & Cunningham (2009)	--	Not significant (Models controlled for baseline scores)	In a randomized control trial, teachers from centers and family child care homes who participated in a 3 credit college course on early language did not differ from controls on observations using the ELCO and CHELLO. However those randomly assigned to receive coaching along with the college course showed higher scores than controls on observations of the classroom environment. <i>The study did not involve full crossing of college and coaching conditions, so it is not possible to say if the impacts in the coaching+college coursework group were because of coaching or because of combination of coaching and college course. This study does not rule out the possible importance of college coursework. It may be that such coursework needs to be combined with a component focused on direct implementation of practices.</i>

I. Attributes of Individuals—4. Participation in College Courses for PD: Brief Overview of Results

Note that Dickinson et al included such a component and that the Hamre et al study included a strong focus on identifying the implementation of positive practices in observations.

Notes. A check mark (✓) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; *not significant* indicates that the association was examined but was not significant.

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Participation in College Courses for Professional Development**

I. Attributes of Individuals—4. Participation in College Courses for PD: Detailed Study Descriptions

Publication information/citation	Dickinson, D. K., & Caswell, L. (2007). Building support for language and early literacy in preschool classrooms through in-service professional development: Effects of the Literacy Environment Enrichment Program (LEEP). <i>Early Childhood Research Quality, 22</i>, 243-260.
Which POQ is considered?	Participation in Professional Development (PD) College Courses
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes.
Brief description of sample	Preschool teachers (n=30) received the Literacy Environment Enrichment Program (LEEP) intervention via a credit-bearing course. Waitlist of teachers (n=40) served as control group. Teachers were from the New England area of the US.
Brief description of study approach	Head Start teachers (and their supervisors) took a 45-hour college course over the course of a two intensive 3-day sessions (fall and winter). The course was delivered by the regional Head Start Training and Technical Assistance system. The course included lecture, videos, and small group discussions, and provided support between sessions. The content of the course was the Literacy Environment Enrichment Program (LEEP). ELLCO observations were conducted in each participant’s classroom in fall and spring to determine amount of change in literacy practices/environment.
Observational measure of quality used	Two measures were used: The Early Language and Literacy Classroom Observation (ELLCO) Toolkit was used to measure literacy quality using three components: <ol style="list-style-type: none"> (1) Classroom Observation and Teacher Interview (Subscales: Language, Literacy, and Curriculum; General Classroom Environment) (2) Literacy Environment Checklist (subscales: Books; Writing) (3) Literacy Activities Rating Scale (Book Reading; Writing) The Assessment Profile was used to measure classroom quality without focusing on literacy. Only one subscale was used: Learning Environment. This scale focused on the presence or absence of specified materials used to support learning in a given domain.
Brief summary of findings showing association between	Teachers who took the course had higher scores, relative to control teachers, on

I. Attributes of Individuals—4. Participation in College Courses for PD: Detailed Study Descriptions

<p>this POQ and observed quality (based on multivariate analyses where available)</p>	<p>spring ELLCO scores. The largest effect sizes were for literacy environment (books and writing) and the language, literacy, and curriculum subscale. More moderately positive associations were found with general classroom environment, and learning environment subscales.</p>
<p>Results from models without covariates</p>	<p>T-tests showed that spring scores on the three ELLCO scales and the Learning Environment scale were higher for teachers who took the course, compared to the control group</p>
<p>Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?</p>	<p>Models controlled for year of participation in the study, years of teaching experience, education level, minority status. Models also controlled for fall score for corresponding measure.</p>
<p>Any methodological concerns?</p>	<p>None. It is interesting to note that supervisors were also included in the course. However, because participation of supervisor was not systematically varied, it is not clear whether and to what extent the supervisor’s participation contributed to results. In some other studies, the assistant teacher is also included in an intervention--without examination of the contribution of such participation. It would be helpful in future studies to have systematic examination of PD taken alone by teachers vs. with other staff members.</p>

I. Attributes of Individuals—4. Participation in College Courses for PD: Detailed Study Descriptions

Publication information/citation	Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., LoCasale-Crouch, J., Howes, C., et al. (2012). A course on effective teacher-child interactions: Effects on teacher beliefs, knowledge, and observed practice. <i>American Educational Research Journal</i>, 49, 88-123.
Which POQ is considered?	Participation in Professional Development (PD) College Courses
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 440 teachers, half of whom were randomly assigned to take a course on teacher-child interactions; teachers were from large communities through the US, including public schools (33%) and Head Start programs (77%).
Brief description of study approach	Intervention teachers received a course titled “Support of language and literacy development in preschool classrooms through effective teacher-child interactions and relationships.” Study questions examined the extent to which there were positive changes in 1) teachers’ perception of their role as teacher, 2) knowledge of interactions, 3) ability to detect interactions on video, 4) beliefs about early language/literature skills, 5) knowledge of major language/literature domains, 6) use of their own interactions to promote literacy.
Observational measure of quality used	CLASS
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Teachers who participated in the course had significantly higher scores on the Emotional Support composite and the Instructional Support composite. Participants also had higher scores in the areas of regard for student perspectives, instructional learning formats, concept development, quality of feedback, and language modeling.
Results from models without covariates	None.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models included teacher education level, experience, and public vs. Head Start program.
Any methodological concerns?	No.

I. Attributes of Individuals—4. Participation in College Courses for PD: Detailed Study Descriptions

Publication information/citation	Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. <i>American Educational Research Journal</i>, 46, 532-566.
Which POQ is considered?	Participation in Professional Development (PD) college courses
Study focuses on center settings, home-based settings, both	Both
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	291 teachers total (one per center; 177 centers, 114 homes) in urban and low-income areas of Michigan were selected to receive one of two PD treatments, or to a control group. Teachers/caregivers had to be open to enrolling in a course at a community college, work at least 20 hours per week, care for children age 3-5, and have a letter of agreement from their center.
Brief description of study approach	Teachers at the centers/homes were randomly chosen to receive Treatment A (3 credit course in early language), Treatment B (same course with additional coaching), or Control group. Fidelity measures were instituted to ensure good implementation.
Observational measure of quality used	ELLCO, CHELLO
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	For both home-based and center-based teachers, observed quality did not improve relative to the control group when PD involved coursework alone. However, the group that received PD coursework + coaching showed improvements in the classroom environment in terms of a) quality of Book Area, b) quality of Writing Area, c) quality of the Physical Environment.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	ANCOVAs controlled for baseline ratings. No other control variables were included.
Any methodological concerns?	Control group was statistically different from treatment groups in 3 areas: 1) had previous taken more classes, 2) had higher education levels, and 3) were slightly older. Scores on the ELLCO and CHELLO were equivalent.

I. Attributes of Individuals—5. Receipt of Financial Support for PD

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate analyses</i>	Brief overview and <i>comment</i>
Center-Based ECE			
Miller & Bogatova (2009)	✓ Quality increased with participation in T.E.A.C.H. across initial years of participation (Years 1 and 3) but declined slightly between years 3 and 4.	--.	Recipients of Pennsylvania’s T.E.A.CH. early childhood scholarship to pursue an AA or CDA, who had received the scholarship for at least one year, were observed in their classrooms annually using the ECERS or ITERS (or ITERS-R) as well as CIS. Analyses examined changes in observed quality over time among recipients. ECERS scores increased significantly from Time 1 to Time 3 but decreased slightly from Time 3 to Time 4 in classrooms of teachers with preschool-age children.
Notes. A check mark (✓) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.			

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Receipt of Financial Support for Professional Development**

I. Attributes of Individuals—5. Receipt of Financial Support for PD: Detailed Study Descriptions

Publication information/citation	Miller, J. A., Bogatova, T. (2009). Quality improvements in the early care and education workforce: Outcomes and impact of the T.E.A.C.H. Early Childhood Project. <i>Evaluation and Program Planning</i>, 32, 257 – 277. .
Which POQ is considered?	Receipt of financial support for PD
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (infant/toddler and preschool)
Brief description of sample	The sample included recipients of Pennsylvania’s T.E.A.C.H early education scholarship, which provided financial support as well as a personal counselor to help child care staff obtain an associate’s degree or a CDA. This study included 157 recipients who received the scholarship for at least one year; 29 recipients still had the scholarship in the fourth year. Recipients were employed at child care centers.
Brief description of study approach	The subjects examined in this study applied to the T.E.A.C.H. scholarship and agreed to participate in a study of the effects of the scholarship. The sample included three cohorts of scholarship recipients (starting years: 1998, 1999, and 2000). They were observed in their classrooms every year to measure quality. For analyses, “Time 1” refers to the teacher’s first observation as part of her participation in T.E.A.C.H., which varied across cohorts.
Observational measure of quality used	The study measured quality using either the ECERS or the ITERS (and, for some classrooms, the ITERS-R). The CIS was also used.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Most of the recipients of the scholarship were no longer participating by year 4, so paired-sample t-tests were conducted by comparing only those subjects who participated in the paired times. Sample sizes were much smaller across time: Time 1 to Time 2: 80 subjects; Time 1 to Time 3: 41 subjects; Time 1 to Time 4: 23 subjects. The ECERS increased significantly from Time 1 to Time 3, but declined slightly from Time 3 to Time 4. When examining just Time 1 to Time 2, each subscale increased significantly except Personal Care Routines. Though our focus here is on teachers of preschool-age classrooms, we summarize also the results for teachers in infant/toddler classrooms: The ITERS increased

I. Attributes of Individuals—5. Receipt of Financial Support for PD: Detailed Study Descriptions

	significantly from Time 1 to Time 2; comparisons could not be drawn for the remaining years because some classrooms were observed using the ITERS-R. Specifically, two subscales that were included in observations at both Time 1 and Time 2 increased significantly: Space and Furnishings, and Interaction.
Results from models without covariates	Not relevant.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The comparisons included no control variables or other POQs; however, scores examined changes from initial scores on measures of quality.
Any methodological concerns?	There was no control group, so it is unclear whether any teacher might have increased in ECERS or ITERS across the initial years of the study. The sample may not be representative because it includes individuals who applied for a scholarship, and may therefore be more motivated to improve relative to the general population of child care staff. Those who remained in the study at Times 3 and 4 differed from those in the sample only at the earlier time points; for example, subjects who left after Time 1 were more dissatisfied with their career. It is possible that the declines from Time 3 to Time 4 were related to sample characteristics. The intervention included both scholarship and a personal counselor. The contribution of the scholarship alone was not examined.

I. Attributes of Individuals—6. Receipt of Coaching

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate</i> analyses	Brief overview and <i>comment</i>
<p>Note. The terminology used in the studies sometimes refers to coaching, sometimes consultation, and sometimes mentoring. The summaries provided below follow the terminology used in each study.</p>			
<p>Center-Based ECE</p>			
<p>Pianta, Mashburn, Downer, Hamre & Justice (2008)</p>	<p>--</p>	<p>√</p>	<p>In a randomized control trial, teachers in state-funded pre-k who received web-mediated consultation showed stronger gains in teacher sensitivity, instructional learning formats, and language modeling on the CLASS than teachers who had access to web-based materials but not consultation.</p>
<p>Wasik & Hindman (2011)</p>	<p>--</p>	<p>√</p>	<p>In a randomized control trial, Head Start lead teachers who received intensive in-class coaching on children’s language and literacy as part of the ExCELL program had higher quality classroom literacy environments (as indicated by ELLCO scores), higher quality literacy instruction (specifically, language modeling, better quality of feedback, and concept development, as indicated by CLASS), and classroom quality was stronger (specifically, more open-ended questions, more opportunities for children to use vocabulary words, more opportunities for children to use language, as indicated by ExCELL fidelity observation measure). <i>Note that the intensive coaching was accompanied by an initial summer institute as well as group training, so was not studied in isolation.</i></p>
<p>Home-Based ECE</p>			
<p>Abell, Arsiwalla, Putman & Miller (2014)</p>	<p>--</p>	<p>√ (models examined growth)</p>	<p>Family child care providers participating in the Family Child Care Partnership Program in Alabama and who allowed observations to take place showed significant increases over time on the FDCRS. The Family Child Care Partnership Program involved weekly or bi-weekly mentoring home visits to family child care homes while also encouraging providers</p>

I. Attributes of Individuals—6. Receipt of Coaching: Brief Overview of Results

			to network, participate in periodic group meetings, and participate in a two-day conference. <i>Note mentoring was considered in combination with other intervention components.</i>
Ota & Austin (2013)	--	√ (models examined growth)	Family child care providers were assigned sequentially to a workshop only group (that received 10 hour in-service training focusing on children’s supporting early language), a workshop plus consultation group (that received also 12 weeks of on-site mentoring), or a control group. Immediately following the training, the training only group and the training + mentoring group had more linguistic inputs (information talk, questions, and expressive and teaching utterances) than the control group according to audio recordings of the speech of two children per group. By six weeks post intervention, the training + mentoring group had greater growth in linguistic inputs from baseline, compared to both training only and control groups. <i>The intervention involved training as well as on-site mentoring.</i>
Both Center-Based and Home-Based ECE			
Neuman & Cunningham (2009)	--	√ (models examined growth)	In a sample of both center-based and home-based teachers/caregivers, participants in the study were randomly assigned to participate in a 3-credit college course on early language, the course with additional coaching, or a control group. While participation in the college course alone was not associated with improvements in quality, participation in the group involving coursework plus coaching resulted in improvements in the classroom environment in terms of the quality of the book area, the quality of the writing area, and the quality of the physical environment using the ELLCO and CHELLO. <i>Coaching was considered in combination with college coursework rather than evaluated alone.</i>
Notes. A check mark (√) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.			

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Receipt of Coaching**

I. Attributes of Individuals—6. Receipt of Coaching: Detailed Study Descriptions

Publication information/citation	Pianta, R.C., Mashburn, A.J., Downer, J.T., Hamre, B.K., & Justice, L. (2008). Effects of web-mediated professional development resources on teacher-child interactions in pre-kindergarten classrooms. <i>Early Childhood Research Quarterly, 23</i>, 431 – 451.
Which POQ is considered?	Coaching received
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The study was conducted within a state-funded pre-K program within a single state (state was never identified). The program was designed to target “at-risk” populations (e.g., poverty, homelessness, low parental education, limited English proficiency). Pre-kindergarten teachers were part of one of three groups: (1) 61 in the consultation group, (2) 52 pre-kindergarten teachers in the web only group, and (3) 66 served as the control group. There were no differences among teachers in the control and either intervention group in terms of years teaching experience (average of 16 years), race/ethnicity (most Caucasian), and education attained (majority had a BA). The comparison group was excluded from the present analyses, resulting in a sample of 113 teachers.
Brief description of study approach	Random assignment (at the district level) to comparison or two forms of intervention: (1) web only, that is, on-demand access to video-clip exemplars of high-quality interactions based on the CLASS, or (2) consultation group, which provides the same on-demand access and engaged in one-on-one web-mediated consultation/coaching. All teachers received “business as usual” professional development, including access to web-based version of My Teacher Partner (MTP) lesson plans in language and literacy as well as the web-version of the PATHS curriculum in social competence (but <i>not</i> exemplars of high-quality interactions based on CLASS, as in the web-only treatment group).
Observational measure of quality used	CLASS
Brief summary of findings showing association between this POQ and observed quality (based on	Overall, teachers in the consultant group showed greater gains in teacher-child interaction quality compared to the web-only group. The effect was significant only

I. Attributes of Individuals—6. Receipt of Coaching: Detailed Study Descriptions

<p>multivariate analyses where available)</p>	<p>for teacher sensitivity, instructional learning formats, and language modeling. When classroom poverty was taken into account, it was clear that the effect of the intervention on teacher sensitivity and instructional learning formats was only significant in classrooms with high poverty (100% of students classified as poor).</p>
<p>Results from models without covariates</p>	<p>None</p>
<p>Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?</p>	<p>Models controlled for teacher’s years of experience, percent of students who were poor, average student ability, and aspects of the observation (e.g., length, % activities on tape). In addition, models controlled for other POQs: teacher education, number of students.</p>
<p>Any methodological concerns?</p>	<p>None</p>

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Publication information/citation	Wasik, B.A. & Hindman, A.H. (2011). Improving vocabulary and pre-literacy skills of at-risk preschoolers through teacher professional development. <i>Journal of Educational Psychology, 10</i>, 455 – 469.
Which POQ is considered?	Coaching received
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Lead teachers from two Head Start centers were part of the intervention group. Lead teachers from a different Head Start center served as the control group. There were no significant differences between intervention and control groups in teacher education (CDA to master’s degree) or years of experience in ECE (mean of 11 years; 1- 27 years). The children served were 99% African American and 100% were eligible for reduced or free lunch.
Brief description of study approach	Randomized control study where intervention teachers received intensive, ongoing in-class coaching on children’s language and literacy using the ExCELL program. ExCELL includes: (1) 4 day “summer institute” training on goals of project, description of the training and coaching procedures; (2) 9 months of 3-4 week training cycles of in-class modeling and in-class observations; (3) group training that presents research on specific classroom practices; (4) coach and teacher review of in-class videotaping of teacher and discussion of how to integrate practices in day-to-day classroom activities.
Observational measure of quality used	Early Language and Literacy Observation (ELLCO), Class Assessment Scoring System (CLASS), and ExCELL fidelity observational tool.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Compared to the control group, teachers who participated in the intervention had higher quality classroom literacy environments (as indicated by ELLCO scores), higher quality literacy instruction (specifically, language modeling, better quality of feedback, and concept development, as indicated by CLASS), and classroom quality was stronger (specifically, more open-ended questions, more opportunities for children to use vocabulary words, more opportunities for children to use language, as

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	indicated by ExCELL fidelity observation measure).
Results from models without covariates	None
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Controlled for fall scores of the outcome measure
Any methodological concerns?	Coaching was not considered in isolation. The intervention also included initial summer institute and group training.

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Publication information/citation	Abell, E., Arsiwalla, D. D., Putnam, R. I., & Miller, E. B. (2014). Mentoring and facilitating professional engagement as quality enhancement strategies: An overview and evaluation of the Family Child Care Partnership Program. <i>Child and Youth Care Forum, 43</i>, 569-592.
Which POQ is considered?	Coaching
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Alabama. Study 1: 456 family child care providers participated in the Family Child Care Partnership (FCCP) program, but only 365 (78%) allowed observations to take place.
Brief description of study approach	The Family Child Care Partnership Program (FCCP) is a statewide mentoring intervention that provides weekly or biweekly home visits to family child care homes. Time 1 observations were conducted by the mentor within 3 months of joining the FCCP. Observations then took place quarterly. For this study, “Time 2” observations were from the most recent observation for each provider (average of 21 months between T1 and T2; range 1 - 63).
Observational measure of quality used	Global quality was measured using the Family Day Care Rating Scale (FDCRS).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Across T1 to T2, providers’ FDCRS total score increased significantly. Providers who had more months of mentoring had larger increases in quality.
Results from models without covariates	None included
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models examined growth, therefore accounting for baseline scores on the FDCRS.
Any methodological concerns?	Several concerns: There was no control group. Mentors conducted the observations, so may have been biased. Interrater reliability

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	<p>checks were not conducted.</p> <p>The program involved components other than mentoring: Mentors encouraged providers to network with other child care professionals and facilitated periodic group meetings. There was also a 2-day conference available to providers. As a result, the study did not measure the role of mentoring alone but of mentoring in combination with these other components.</p>
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I. Attributes of Individuals—6. Receipt of Coaching: Detailed Study Descriptions

Publication information/citation	Ota, C. L., & Austin, A. M. B. (2013). Training and mentoring: Family child care providers' use of linguistic inputs in conversations with children. <i>Early Childhood Research Quarterly, 28, 972-983.</i>
Which POQ is considered?	Coaching received
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes.
Brief description of sample	Postcards were sent to 800 listed family child care providers inviting them to participate in study involving training on verbal language in family child care homes. Follow up calls were made to 240 providers. A final sample of 48 licensed family child care providers volunteered for the study. Providers were sequentially assigned to one of three groups (as described below). Providers participated in state-sponsored training strategies or control group.
Brief description of study approach	Three groups were compared: A workshop-only group, who received a 10 hour in-service training (4 150-minute sessions over 6 weeks) focused on supporting early language development; a workshop + consultation group, who received the same workshop plus 12 weeks of on-site mentoring; and a control group. Audio recordings were collected from recorders on two children per classroom three times: pre- and immediately post-intervention, and 6 weeks post intervention to analyze linguistic input. Fifteen minutes of the time were coded.
Observational measure of quality used	Quality was based on three measures of linguistic input during child-provider conversations: (1) frequency of child turns, (2) frequency of provider linguistic inputs (informational talk, question inputs, expressive utterances, directives, teaching utterances), (3) conversational cohesiveness for the provider.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Models examined growth trajectories across the three time points. Compared to the control group, both treatments groups had steeper growth in information talk, questions, expressive utterances, and teaching utterances. Furthermore, the training

I. Attributes of Individuals—6. Receipt of Coaching: Detailed Study Descriptions

	+ mentoring group had steeper growth than the training only group on information talk and teaching utterances.
Results from models without covariates	None included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	None included. Models accounted for baseline scores by examining change in mean scores across time.
Any methodological concerns?	Small sample size and included only the small percent of family child care providers who were interested in participating.

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Publication information/citation	Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. <i>American Educational Research Journal</i>, 46, 532-566.
Which POQ is considered?	Coaching received
Study focuses on center settings, home-based settings, both	Both
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	291 teachers total (1 per center; 177 centers, 114 homes) in urban and low-income areas of Michigan were selected to receive one of two PD treatments, or to a control group. Teachers/caregivers had to be open to enrolling in a course at a community college, work at least 20 hours per week, care for children age 3-5, and have a letter of agreement from their center.
Brief description of study approach	Teachers at the centers/homes were randomly chosen to receive Treatment A (3 credit course in early language), Treatment B (same course with additional coaching), or Control group. Fidelity measures were instituted.
Observational measure of quality used	ELLCO, CHELLO
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	For both home-based and center-based teachers, observed quality did not improve relative to the control group when PD involved coursework alone. However, the group that received PD coursework + coaching showed improvements in the classroom environment in terms of a) quality of Book Area, b) quality of Writing Area, c) quality of the Physical Environment.
Results from models without covariates	None.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	ANCOVAs controlled for baseline ratings. No other control variables were included.
Any methodological concerns?	Control group was statistically different from treatment groups in 3 areas: 1) had previously taken more classes, 2) had higher education levels, and 3) were slightly older. Analyses did not control for these characteristics. Note: coaching was not studied in isolation but in combination with college coursework.

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma: Brief Overview of Results

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses without covariates	POQ is associated with observed quality in <i>multivariate analyses</i>	Brief overview and <i>comment</i>
<p>Notes. In many of the studies that consider education and observed quality, analyses do not contrast different levels of education (and more specifically whether observed quality differs when the teacher/caregiver has an associate’s degree or higher vs. less; whether the teacher/caregivers has less than a high school diploma vs. more). Instead, analyses consider whether observed quality increases as educational attainment increases. In the overview columns in the table below, wherever contrasts of specific levels of education have been conducted, they are noted. Otherwise, the summary that is provided is based on whether there is a relation between observed quality and increased formal education.</p> <p>Findings summarized here refer to completion of a college degree (associate’s, bachelor’s or graduate), not completion of any college. Focus is on teachers of preschool-age children.</p>			
<p>Center-Based ECE</p>			
<p>Burchinal, Hong, Sabol, Forestieri & Peisner-Feinberg (in preparation)</p>	<p>--</p>	<p>√ (See “Brief overview and comment” for details.)</p>	<p>This study involves a meta-analysis of data from six large studies of ECE. The study did not contrast particular levels of education, but rather considered years of education as a continuous variable or a categorical measure in which the teacher (1) had high school diploma or equivalent; (2) some college or CDA, an AA, or a BA without either a major or related coursework in ECE; or (3) the teacher had attained a BA or higher and had coursework related to ECE. Across studies, the continuous measure of education was significantly and positively associated with ECERS Total, ECERS Interaction, CLASS Instructional Support and CLASS Classroom Organization. The categorical measure of education predicted significantly higher quality on ECERS Total, ECERS Interaction, and CLASS Instructional Support. <i>Note that scores were averaged across teachers to create a center-level score in datasets where this was</i></p>

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma: Brief Overview of Results

			<i>possible.</i>
Early, Bryant, Pianta Clifford, Burchinal, Ritchie, Howes & Barbarin (2006)	--	√ (See “Brief overview and comment” for details.)	In a sample drawn from the National Center for Early Learning and Development Multi-State Study of Pre-Kindergarten, observed quality was not higher when a teacher had an associate’s or bachelor’s degree rather than no college degree. However having a graduate degree was associated with significantly higher scores on ECERS: Teaching and Interactions than having an associate’s degree. <i>Pre-kindergarten programs may have requirements for teacher education that curtail the range.</i>
Early, Maxwell, Burchinal, Alva, Bender, Bryant et al., (2007)	--	√ (See “Brief overview and comment” for details.)	Separate but parallel analyses were conducted using data from 7 studies of preschool programs. In one of the 7 studies (Early Head Start), having an associate’s degree or higher was associated with higher ECERS-R scores, and having a bachelor’s degree with higher ECERS-R scores than having an associate’s degree. In the NICHD study, having a bachelor’s degree (but not an associate’s degree) was associated with higher ORCE scores. Four studies found no association of education and observed quality and in one study there was a negative association of having a bachelor’s degree.
Phillipsen, Burchinal, Howes & Cryer (1997)	√ (See “Brief overview and comment” for details.)	√ (See “Brief overview and comment” for details.)	Using data from the Cost, Quality and Outcomes Study, for teachers in preschool-age classrooms, having at least some college was associated with higher ECERS and CIS scores when the model included only caregiver education and experience. When full set of covariates was included in the model, the only pattern that remained significant was that having a bachelor’s degree predicted higher CIS scores.
Home-Based ECE			
Burchinal, Howes & Kontos (2002)	√ (See “Brief overview and comment” for details.)	Not significant (See “Brief overview and comment” for details.)	In sample of licensed family child care homes from the Family Child Care Study and the California Licensing Study, caregiver education was positively correlated with FDCRS in zero order correlations, but showed no relation with observed quality in multivariate analyses. Education was a categorical variable in which 1=between 9 and 11 years and 7=Ph.D. or other terminal professional degree. <i>This study did not have a separate category for associate’s degree, but</i>

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma: Brief Overview of Results

			<i>considered some college.</i>
Hallam, Bargreen & Ridgley (2013)	√ (See “Brief overview and comment” for details.)	Not reported	In sample drawn from Tennessee’s Child Care Evaluation and Report Card Program, family child care providers with at least an associate’s degree or higher had higher scores on a FDCRS composite measure as well as two of the FDCRS subscales: Space and Furnishings and Learning Activities. <i>Lack of control variables in analyses means association of education and observed quality could be attributable to other variables that are confounded with education.</i>
Hughes-Belding, Hegland, Stein, Sideris & Bryant (2012)	√ (See “Brief overview and comment” for details.)	Not significant	In an evaluation of a consultation program (Partners for Inclusion), family child care providers (none of whom had a bachelor’s degree in early childhood education or a related field) had higher scores on two FDCRS scales (Tone and Discipline; Provisions and Health) when they had an associate’s degree or higher in simple correlations. However multivariate analyses with multiple controls for further individual attributes showed no association between observed quality and having an associate’s degree or higher. <i>Note that none of the participants in this study could have a bachelor’s degree or higher in early childhood or a related field, so focus of these analyses is specifically on having an associate’s degree or associate’s plus further coursework.</i>
Norris (2001)	√ (See “Brief overview and comment” for details.)	--	In a sample of family child care providers, formal education was rated on an 8 point scale (from 1= less than HS diploma to 8=graduate degree). Simple correlations showed that more education was associated with significantly higher FDCRS total scores and higher scores on the Basic Care subscale. <i>This study did not look specifically at having an associate’s degree or higher but rather considered the correlation of education and observed quality. Lack of covariates leaves open the possibility that the association of education and observed quality is attributable to other variables related to education.</i>
Both Center-Based and Home-Based ECE			
NICHD ECCRN (2000)	√ (See “Brief overview	√ (See “Brief overview	In the NICHD Study of Early Child Care, in a sample including both center-based and home-based settings, a measure of education

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma: Brief Overview of Results

and comment” for details.)

and comment” for details.)

(with 1=<HS; 6=postmasters degree) was a significant, positive predictor of ratings of positive caregiving in multivariate analyses at 24 months and 36 months, but not at 15 months. Simple correlations also showed significant correlations at 15 months. *This study did not separate out having an associate’s degree or higher but looked at increasing education and observed quality.*

Notes. A check mark (✓) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; *not significant* indicates that the association was examined but was not significant.

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Detailed Study Descriptions

Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:

Completion of Any College Degree (Associate’s Degree or Higher), and Less Than a High School Diploma

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
Detailed Study Descriptions

Publication information/citation	Burchinal, M., Hong, S. L. S., Sabol, T. J., Forestieri, N., & Peisner-Feinberg, E. (in preparation). Quality rating and improvement systems: Secondary data analyses to illustrate psychometric properties of scale development.
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The study is a meta-analysis of data from six large studies: Head Start Family and Child Care Experiences Survey (FACES) 2006 and 2009; North Carolina Pre-Kindergarten Evaluation (NC Pre-K), and Georgia Pre-Kindergarten Evaluation (GA Pre-K); and the preschool observational sample from the Early Childhood Longitudinal Survey-Birth Cohort (ECLS-B) and the National Center for Research in Early Care and Education (NCRECE) professional development study.
Brief description of study approach	This study did not explicitly examine the effect of having any college degree compared to not having a college degree. Rather, the study examined the effect of years of education and certificates/degrees. Each measure was then averaged across teachers to create a center-level score. The categorical measure was created as follows: (0) high school diploma or equivalent and the teacher had not attended a college or university, (1) the teacher had attended some college or had attained a child development associate’s degree (CDA), an associate’s degree, or bachelor’s degree without either a major or related coursework in early childhood or related fields, and (2) The teacher had attained a bachelor’s degree or higher and had coursework related to early care and education.
Observational measure of quality used	The six studies included one or both of the following measures of quality: <ul style="list-style-type: none"> • Global quality: ECERS (Overall Score and Interactions factor) • Interaction quality: CLASS (Three domain scores: Instructional Support (IS),

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
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	Emotional Support (ES), and Classroom Organization (CO).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	<p>Across the studies, the continuous measure of education was significantly and positively associated with ECERS Total Scores, ECERS Interactions, CLASS IS, and CLASS CO. There was a marginally significant effect of education on CLASS ES ($p < .10$).</p> <p>The categorical measure of education predicted significantly higher quality on ECERS Total Score, ECERS Interactions, and CLASS IS. There was no effect of education on CLASS ES and CLASS CO.</p>
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Analyses adjusted for site, treatment, and basic sample characteristics of centers, and applied sample weights where appropriate
Any methodological concerns?	All but one data set had multiple teachers per center; in these cases, teachers’ scores were averaged within centers. Though this approach is appropriate for analyses to inform QRIS, it is not the most informative analysis for examining associations between a predictor of quality and observed quality for individual teachers. The analyses assumed a linear effect of the education category, such that an increase from 0 to 1 has the same effect on education as an increase from 1 to 2. In reality, this may not be true.

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
Detailed Study Descriptions

Publication information/citation	Early, D. M., Bryant, D. M., Pianta, R. C., Clifford, R. M., Burchinal, M. R., Ritchie, S., Howes, C., & Barbarin, O. (2006). Are teachers' education, major, and credentials related to classroom quality and children's academic gains in pre-kindergarten? <i>Early Childhood Research Quarterly, 21, 174-195.</i>
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (pre-kindergarten)
Brief description of sample	The sample was drawn from the National Center for Early Development and Learning's Multi-State Study of Pre-Kindergarten, which included 878 children in 237 state-funded pre-k classrooms randomly selected from six states.
Brief description of study approach	One classroom from each center was randomly selected to be observed in the fall. Teachers completed a questionnaire in the fall about their education.
Observational measure of quality used	The study used four measures of quality: (1) ECERS-R: Teaching and Interactions, (2) ECERS-R: Provisions for Learning, (3) CLASS: Emotional Climate, (4) CLASS: Instructional Climate
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Teachers with graduate degrees had significantly higher scores on ECERS: Teaching and Interactions than did caregivers with an associate’s degree. An associate's degree was not any better than having no college degree at all, nor was having just a bachelor’s degree.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Each model controls for demographic characteristics, including state, the percentage of children in classroom below 150% of the poverty line, and location (whether in a school). Models controlled for hours per week that the class met. Models also included one other POQ: teacher–child ratio.
Any methodological concerns?	No

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Detailed Study Descriptions

Publication information/citation	Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., et al. (2007). Teachers’ education, classroom quality, and young children’s academic skills: Results from seven studies of preschool programs. <i>Child Development, 78, 558-550.</i>
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Data were drawn from seven studies of preschool programs
Brief description of study approach	Data were analyzed separately for each of 7 preschool programs that had measures of teacher education and observed quality.
Observational measure of quality used	Six studies used the ECERS-R (average of all scales); one study used the ORCE
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Of the seven data sets analyzed, one study (Early Head Start) found an association between having an associate’s degree and higher ECERS-R scores. In the same study, having a bachelor’s degree was associated with higher ECERS-R than having an associate’s degree. One of the studies (NICHD) found that a bachelor’s degree (but not associate’s degree) was associated with higher ORCE scores. One study found a <i>negative effect</i> of bachelor’s degree on quality, and four studies found no effect of teacher education level.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models controlled for site/state, length of school day, teacher ethnicity, proportion of White students in class, and proportion of poor students in class. Other POQs included in the model were adult-to-child ratio and class size.
Any methodological concerns?	No

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Detailed Study Descriptions

Publication information/citation	Phillipsen, L. C., Burchinal, M. R., Howes, C., & Cryer, D. (1997). The prediction of process quality from structural features of child care. <i>Early Childhood Research Quarterly, 12</i>, 281-303.
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (infant/toddler and preschool)
Brief description of sample	The study analyzed data from 102 infant/toddler and 370 preschool classrooms collected in the Cost, Quality, and Outcomes Study. From each of 4 states, 100 programs were randomly selected. Approximately half refused to participate. Where possible, a preschool classroom and infant/toddler classroom were selected from each program. All providers had at least a high school diploma. 36% had at least a bachelor’s degree.
Brief description of study approach	The center administrator was interviewed to get information on structural characteristics. An observer rated the CIS and ERS; another observer rated the Teacher Interaction Scale (TIS) at a different time the same day. Teacher education was assessed on a teacher questionnaire at this time.
Observational measure of quality used	ECERS or ITERS was used to measure quality. A single factor labeled “early childhood quality” was found for each instrument. The Caregiver Interaction Scale (CIS) was also used to measure teacher sensitivity. The Teacher Involvement Scale (TIS) captured the proportion of time the teacher was engaged in responsive interaction with a target child.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Infant/toddler classrooms: When only caregiver education and experience were included in the model, having at least some college was associated with higher ITERS (but not CIS or TIS). The effect disappeared when other predictors were added to the model. Preschool classrooms: When only caregiver education and experience were in the model, having at least some college was associated with higher ECERS and CIS (but not TIS). One effect remained when the covariates were added: Having a bachelor’s degree predicted higher CIS.
Results from models without covariates	Having just “some college or more” was <i>not</i> correlated with quality. Having a bachelor’s degree was correlated with significantly better ECERS, CIS, and TIS in

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	preschool classrooms (but not infant/toddler classrooms).
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The full model controlled for other POQs: adult-child ratio, group size, and turnover. It also controlled for teacher experience, wages, benefits, %infant/toddler, %subsidized children, whether the center had a school-age program, administrator characteristics (education, experience, wages), the financial health of center, the state, and sector (for-profit or non-profit).
Any methodological concerns?	Models do not account for nesting of the two classrooms within center.

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Detailed Study Descriptions

Publication information/citation	Burchinal, M., Howes, C., & Kontos, S. (2002). Structural predictors of child care quality in child care homes. <i>Early Childhood Research Quarterly, 17, 87-105.</i>
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample of 208 licensed family child care homes was drawn from two large studies: the Family Child Care study (NC, TX, CA) and the California Licensing Study. Homes served primarily babies, toddlers, and/or preschoolers, with some school-age children. Families tended to be low-income.
Brief description of study approach	Homes were observed by trained observers, who conducted the quality rating and counted the number of children. Education was quantified on a scale of 0 – 7 (0 = less than a ninth-grade education; 7 = Ph.D. or other terminal professional degree).
Observational measure of quality used	The study used two measures of quality: (1) Family Day Care Rating Scale (FDCRS) (2) Caregiver Involvement Scale (CIS): Sensitivity and Detachment scales
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Caregiver education did not significantly predict any of the measures of quality when tested in a multivariate regression model.
Results from models without covariates	Education was significantly, positively correlated with FDCRS. There was not a significant correlation between education and CIS sensitivity or CIS detachment.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Regressions controlled for the study and state from which the data were drawn, caregiver experience, a number of other POQs (child-adult ratio, caregiver training, and interactions between dataset and each predictor)
Any methodological concerns?	The sample was largely low-income so it may not be generalizable to the broader population. This study does not examine thresholds of education (i.e., no test of any college degree vs. no college degree).

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
Detailed Study Descriptions

Publication information/citation	Hallam, R. A., Bargreen, K. N., & Ridgley, R. (2013). Quality in family child care settings: The relationship between provider educational experiences and global quality scores in a statewide quality rating and improvement system. <i>Journal of Research in Childhood Education, 27</i> , 393-406.
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Study includes all children in family child care homes, including preschool-age children.
Brief description of sample	Sample drawn from Tennessee's Child Care Evaluation and Report Card Program and included 1,092 family child care providers. Most providers had a high school education (42%) or some college (40%), while 10% had a 2-yr degree and 8% had a 4-yr degree.
Brief description of study approach	State-hired program assessors conducted observations. Caregivers completed questionnaires about their education, experience, and professional development.
Observational measure of quality used	The study examined the five subscales of the FDCRS as well as the composite.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Compared to those without an associate's degree, caregivers with at least an associate's degree had higher scores on the composite FDCRS measure. An associate's degree or higher was associated with higher scores on two subscales of the FDCRS: Space and Furnishings and Learning Activities.
Results from models without covariates	See results, above.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Analyses were ANOVAs with no control variables.
Any methodological concerns?	The lack of control variables or other POQs means the associations could be due to factors that are confounded with education, such as children’s poverty status or workplace supports.

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
Detailed Study Descriptions

Publication information/citation	Hughes-Belding, K., Hegland, S., Stein, A., Sideris, J., & Bryant, D. (2012). Predictors of global quality in family child care homes: Structural and belief characteristics. <i>Early Education and Development, 23</i>, 697-712.
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 257 family child care providers who were participating in an evaluation of a consultation program (Partners for Inclusion). Providers could not be included if they had a bachelor's degree in early childhood education or a related field.
Brief description of study approach	Providers were interviewed over the phone or at the observation.
Observational measure of quality used	Four measures of quality were used: (1) FDCRS: Teaching and Interaction (2) FDCRS: Tone and Discipline (3) FDCRS: Provisions/Health (4) CIS: Sensitivity
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	There were no associations between having an associate’s degree or higher and any of the measures of quality.
Results from models without covariates	Having an associate’s degree or higher was associated with higher scores on two FDCRS scales (Tone and Discipline; Provisions and Health), but not correlated with FDCRS: Teaching and Interaction or CIS: Sensitivity.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate analyses controlled for state and teacher’s perceived ability, as well as a number of POQs: child-adult ratio, professional development, education, modernity, stress, and perceived ability.
Any methodological concerns?	The study excluded family child care providers who had completed a bachelor’s degree in early childhood or a related field.

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
Detailed Study Descriptions

Publication information/citation	Norris, D. J. (2001). Quality of care offered by providers with differential patterns of workshop participation. <i>Child and Youth Care Forum</i>, 30, 111-121.
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes. (Ages of children not specified. However, the homes likely served both infant/toddler and preschool-age children.)
Brief description of sample	The sample of family child care providers was collected to examine workshop participation. Average education was 4.13 using the scale below (i.e., some college).
Brief description of study approach	Formal education was measured with an 8-point scale (1 = less than high school, 2 = some high school, 3 = high school/GED, 4 = some college, 5 = 2-year degree, 6 = 4-year degree, 7 = some graduate work, and 8 = graduate degree).
Observational measure of quality used	Quality was measured using the Family Day Care Rating Scale (FDCRS). The overall score as well as subscales (Learning Activities, Language/Reasoning, Basic Care, and Space/Furnishings) were used. Because of low internal consistency, the Social Development and Adult Needs subscales were dropped.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Zero-order correlations showed that more formal education was associated with significantly higher FDCRS total scores and significantly higher scores on the Basic Care subscale. There was no significant association between formal education and Learning Activities, Language/Reasoning, and Space/Furnishings.
Results from models without covariates	See above.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	No control variables included; this model was a simple correlation.
Any methodological concerns?	Because of the lack of control variables, it is possible that the association between education and FDCRS could be due to some other aspect of the caregiver. This article does not address the question of thresholds (i.e., does any college degree predict higher quality than lack of a degree?).

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
Detailed Study Descriptions

Publication information/citation	NICHD ECCRN (2000). Characteristics and quality of child care for toddlers and preschoolers. <i>Applied Developmental Science</i>, 4(3), 116-135.
Which POQ is considered?	Completion of Any College Degree (Associate’s Degree or Higher), or Less Than a High School Diploma
Study focuses on center settings, home-based settings, both	Both
Confirm that study focuses on preschool-age children	Yes (toddler and preschool)
Brief description of sample	Participants in NICHD Study of Early Child Care were recruited in 1991 from hospitals in 9 states. Screening and enrollment took place when children were born, and follow-up analyses of families’ child care arrangements were conducted when children were 15 months (n=612), 24 months (n=630), and 36 months (n=674) of age.
Brief description of study approach	Two half-day visits were conducted to observe quality and group size in the child’s classroom at each of the three ages examined. The second visit at each age included completion of an interview and collection of a questionnaire from the caregiver. Caregiver education was classified as 1 = < HS diploma, 2 = HS/GED, 3 = some college, 4 = bachelor’s degree, 5 = some graduate work/Master’s, 6 = postmasters degree.
Observational measure of quality used	Two measures of observed quality were used: <ul style="list-style-type: none"> • Frequency of positive caregiving: The Observational Record of the Caregiving Environment (ORCE) was used to measure the frequency with which caregivers deliver positive caregiving (e.g., positive affect, positive physical contact, speak positively, ask questions). • Rating of positive caregiving: After the ORCE, observers qualitatively rated five scales (e.g., sensitivity to child’s nondistress signals, positive regard toward child).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	The continuous measure of education was a significant, positive predictor of ratings of positive caregiving at 24 months and 36 months, but not at 15 months. There was no effect of education on frequency of positive caregiving.
Results from models without covariates	The continuous measure of education was significantly, positively correlated with rating of positive caregiving at all three ages (15 months, 24 months and 36 months). The correlations with <i>frequency</i> of positive caregiving were smaller, but the article

I. Attributes of Individuals—7. Completion of Any College Degree (Associate’s Degree or Higher), and 8. Less Than a High School Diploma:
Detailed Study Descriptions

	does not state whether they were statistically significant.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate regressions controlled for study site, type of care (father/grandfather, center, in-home, child care home), and caregiver experience. Models also controlled for other POQs: teacher-child ratio, group size, caregiver beliefs, and training.
Any methodological concerns?	No concerns; however, this article does not address the question of thresholds (i.e., does any college degree predict higher quality than lack of a degree?).

I. Attributes of Individuals—9. Post-Secondary Education Major Specific to or Related to Early Care and Education

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate</i> analyses	<i>Brief overview and comment</i>
Center-Based ECE			
Early, Bryant, Pianta, Clifford, Burchinal, Ritchie, Howes & Barbarin (2006)	--	Not significant	In the National Center for Early Development and Learning Multi-State Study of Pre-Kindergarten, observed quality did not differ between teachers with a bachelor’s degree specific to early care and education or child development, and those with a bachelor’s degree in education (considered ECE-related but not ECE-specific)
Early, Maxwell Burchinal, Alva, Bender, Bryant et al. (2007)	--	Not significant	In parallel analyses conducted with data from six studies of preschool programs, teachers with bachelor’s degrees were categorized as having a degree that was specific to ECE, related to ECE, or unrelated to ECE. Multivariate analyses indicated that observed quality was not higher when teachers had ECE-specific or ECE-related majors.
Justice, Mashburn, Hamre, & Planta (2008)	Not significant	Not significant	Teachers participating in an intervention to implement a language and literacy curriculum as part of the My Teaching Partner professional development program showed no difference in observed quality (CLASS Language Modeling and Literacy Focus) according to whether they had completed an ECE-specific major, an ECE-related major (elementary education), or another major.
Home-Based ECE			
Hallam, Bargreen & Ridgley (2013)	√	--	In Tennessee’s Child Care Evaluation and Report Card Program, family child care providers who had a two year degree or more in early childhood education had higher scores on the FDCRS composite and on three of six specific subscales considered: Space and Furnishings, Learning Activities, and Language and Reasoning.
Both Center-Based and Home-Based ECE			

I. Attributes of Individuals—9. Post-Secondary Education Major Specific to or Related to Early Care and Education: Brief Overview of Results

<p>NICHD ECCRN (2000)</p>	<p>Not significant</p>	<p>✓</p>	<p>In NICHD Study of Early Child Care, considering both center- and home-based settings at 15, 24 and 36 months, teachers/caregivers with ECE or CD-focused coursework at higher levels of education (none; at HS or vocational level; at college level) had higher ratings and higher frequency of positive caregiving at 15 months, but not at 24 and 36 months. <i>Note that this study does not examine the effect of ECE-specific coursework within post-secondary education. Rather, it considers ECE-specific coursework across levels of formal education as a linear effect.</i></p>
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Notes. A check mark (✓) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; *not significant* indicates that the association was examined but was not significant.

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Post-Secondary Education Major Specific to or Related to Early Care and Education**

I. Attributes of Individuals—9. Post-Secondary Education Major Specific to or Related to Early Care and Education: Detailed Study Descriptions

Publication information/citation	Early, D. M., Bryant, D. M., Pianta, R. C., Clifford, R. M., Burchinal, M. R., Ritchie, S., Howes, C., & Barbarin, O. (2006). Are teachers' education, major, and credentials related to classroom quality and children's academic gains in pre-kindergarten? <i>Early Childhood Research Quarterly, 21</i>, 174-195.
Which POQ is considered?	ECE-related major in post-secondary education
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample was drawn from the National Center for Early Development and Learning's Multi-State Study of Pre-Kindergarten and included 237 publicly-funded pre-k classrooms randomly selected from six states. Only those with a bachelor's degree in ECE/CD (n = 75) or education (n = 55) were included in the analyses presented here.
Brief description of study approach	One classroom from each center was randomly selected to be observed in the fall. Teachers completed a questionnaire in the fall about their education.
Observational measure of quality used	The study used four measures of quality: (1) ECERS-R: Teaching and Interactions (2) ECERS-R: Provisions for Learning (3) CLASS: Emotional Climate (4) CLASS: Instructional Climate
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Observed quality did not differ for teachers with a bachelor's degree in ECE/CD and teachers with a bachelor's degree in education (considered an ECE-related field).
Results from models without covariates	Correlations are not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Each model controls for state, the percentage of children in classroom below 150% of the poverty line, location (whether the program was in a school), hours per week the class meets, and one other POQ: teacher-child ratio.
Any methodological concerns?	This sample was also included in the Early et al., 2007 article. This study includes additional observational measures of quality (CLASS).

I. Attributes of Individuals—9. Post-Secondary Education Major Specific to or Related to Early Care and Education: Detailed Study Descriptions

Publication information/citation	Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., et al. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. <i>Child Development, 78, 558-550.</i>
Which POQ is considered?	ECE-related major in post-secondary education
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Data were drawn from six studies of preschool programs. The number of bachelor's level teachers in each study's sample ranged from 38 (PCER) to 340 (NCEDL).
Brief description of study approach	Data were analyzed separately for each of 6 preschool programs that had measures of teacher education and observed quality. For these analyses, bachelor's-level teachers were categorized as having an ECE-specific bachelor's degree, an ECE-related bachelor's degree, or a bachelor's degree that was unrelated to ECE.
Observational measure of quality used	Five studies used the ECERS-R (average of all items); One study used the ORCE
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate analyses showed that having an ECE-specific or ECE-related major was not associated with higher quality, compared to a bachelor's degree in a different major.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models controlled for site/state, length of school day, teacher ethnicity, proportion of White students in class, and proportion of poor students in class. Other POQs included in the model were adult-to-child ratio and class size.
Any methodological concerns?	No

I. Attributes of Individuals—9. Post-Secondary Education Major Specific to or Related to Early Care and Education: Detailed Study Descriptions

Publication information/citation	Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. <i>Early Childhood Research Quarterly, 23, 51-68.</i>
Which POQ is considered?	ECE-specific major in post-secondary education
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 135 teachers who were participating in the My Teaching Partner professional development program focused on implementing language and literacy curriculum. Teachers were from state-funded preschools in one mid-Atlantic state. Children were labeled at-risk due to social and/or economic circumstances. All teachers had at least bachelor's degree.
Brief description of study approach	Teachers responded to questionnaires measuring demographics, modernity scale, and self-efficacy. They videotaped themselves implementing the curriculum. Videos were scored for fidelity of implementation as well as instructional quality.
Observational measure of quality used	Observers rated classrooms on two dimensions from the CLASS (1) Language Modeling (2) Literacy Focus
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Caregivers with a major in ECE were no different from those with majors in Elementary Education or an unrelated field on either measure of quality.
Results from models without covariates	A major in ECE (versus not having a major in ECE) was not significantly correlated with either measure of quality.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate models control for percent of children with limited English proficiency and IEP, as well as type of lesson observed, teacher experience, and teacher self-efficacy. Models also include other POQs: Teacher advanced degree, teacher's child-centered beliefs, professional development, and number of children.
Any methodological concerns?	No

I. Attributes of Individuals—9. Post-Secondary Education Major Specific to or Related to Early Care and Education: Detailed Study Descriptions

Publication information/citation	Hallam, R. A., Bargreen, K. N., & Ridgley, R. (2013). Quality in family child care settings: The relationship between provider educational experiences and global quality scores in a statewide quality rating and improvement system. <i>Journal of Research in Childhood Education, 27</i> , 393-406.
Which POQ is considered?	ECE-specific major in post-secondary education
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes. (Study includes all children in family child care homes, which includes preschool-age children.)
Brief description of sample	The sample was drawn from Tennessee's Child Care Evaluation and Report Card Program and included data on 1,042 family child care providers. Nearly half of all providers had the TECTA certification (Tennessee Early Childhood Training Alliance), while 19% had a CDA, 5% had a 2-year degree or higher in early childhood, and 28% did not specialize in early childhood (i.e., had an unrelated college major or no post-H.S education)
Brief description of study approach	State-hired program assessors conducted observations. Caregivers completed questionnaires about their education, experience, and professional development.
Observational measure of quality used	The study used the five subscales of the FDCRS as well as a composite.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Compared to caregivers without any specific education or training in early childhood, caregivers with a two-year degree or more in early childhood education had higher scores on the FDCRS composite scale, and on three specific subscales: Space and Furnishings, Learning Activities, and Language and Reasoning subscales.
Results from models without covariates	See above.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	No controls were included; analyses were ANOVAs.
Any methodological concerns?	The lack of control variables or other POQs means the associations could be due to factors that are confounded with major, such as children's poverty status or workplace supports.

I. Attributes of Individuals—9. Post-Secondary Education Major Specific to or Related to Early Care and Education: Detailed Study Descriptions

Publication information/citation	NICHD ECCRN (2000). Characteristics and quality of child care for toddlers and preschoolers. <i>Applied Developmental Science</i>, 4(3), 116-135.
Which POQ is considered?	ECE-specific major in post-secondary education
Study focuses on center settings, home-based settings, both	Both
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Participants in NICHD Study of Early Child Care were recruited in 1991 from hospitals in 9 states. Data from child care arrangements were collected when children were 15 mos. (n=612), 24 mos. (n=630), and 36 mos. (n=674).
Brief description of study approach	Quality was observed in the child’s classroom or home-based group at each of the three ages examined. Caregivers completed a questionnaire. Specialized coursework in child development or early education was scored as follows: 0 = none, 1 = high school or vocational level courses, 2 = college level courses.
Observational measure of quality used	Two measures of observed quality were used: <ul style="list-style-type: none"> • Frequency of positive caregiving: The Observational Record of the Caregiving Environment (ORCE) • Rating of positive caregiving: After the ORCE, observers qualitatively rated five scales (e.g., positive regard toward child).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	At 15 months of age, having more education in ECE was associated with higher ratings and higher frequency of positive caregiving, but there was no effect of ECE-focused education at 24 or 36 months.
Results from models without covariates	Neither measure of quality (frequency or rating) was significantly correlated with coursework in ECE or CD at any age.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate regressions controlled for other POQs: group size, child-adult ratio, and caregiver education, beliefs, and experience. Models also controlled for study site and type of care (father/grandfather, center, in-home, child care home).
Any methodological concerns?	No; however, this study does not examine the effect of ECE-specific coursework within post-secondary education. Rather, it considers ECE-specific coursework across levels of formal education as a linear effect.

I. Attributes of Individuals—10. Certification

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses without covariates	POQ is associated with observed quality in <i>multivariate analyses</i>	Brief overview and <i>comment</i>
Center-Based ECE			
Burchinal, Hong, Sabol, Forestieri & Pesiner-Feinberg (in preparation)	--	Higher scores on a categorical measure of educational attainment in which one category included completion of the CDA showed higher education to be related to stronger observed quality. <i>The CDA was not studied separately</i>	As part of a meta-analysis with data from six large studies of ECE, a categorical measure of caregiver/teacher education was developed in which 1=high school diploma or equivalent and no college attendance; 2=some college, a CDA, an associate's degree, or a bachelor's degree without a major or coursework in ECE or a related field; and 3=bachelor's degree or higher and coursework related to ECE. Higher scores on this measure of education were related to significantly higher ECERS Total, ECERS Interaction and CLASS Instructional Support. <i>Note, however, that the CDA was not studied separately, and is part of a category with other markers of educational attainment.</i>
Early, Bryant, Planta, Clifford, Burchinal, Ritchie, Howes & Barbarin (2006)	--	√ For state certification but not for CDA	In the National Center for Early Development and Learning's Multi-State Study of Pre-Kindergarten, teachers with a state teaching certificate had higher scores on one of four measures of quality considered: CLASS Emotional Climate scores. However having a CDA was not associated with higher quality. <i>Certification was only examined among teachers with no degree or with an associate's degree in a field other than ECE or child development.</i>
Torquati, Raikes, & Huddleston-Casas (207)	--	√ For CDA	In stratified random sample of classrooms in centers in four Midwestern states, teachers with a CDA had higher scores on the ECERS-R or ITERS, but not the CIS.
Home-Based ECE			
Hallam, Bargreen & Ridgley (2013)	√	--	In Tennessee's Child Care Evaluation and Report Card Program, nearly half of the family child care providers in the sample had a

I. Attributes of Individuals—10. Certification: Brief Overview of Results

	<p>Tennessee Early Childhood Training Alliance (TECTA), 19% had a CDA, 5% had a 2 year degree or higher in early childhood, and 28% had an unrelated college major or no post HS education. Those with a CDA or TECTA had higher scores on the composite FDCRS as well as scores on specific subscales (Space and Furnishings, Learning Activities, Language and Reasoning, and Basic Care). The TECTA but not CDA was associated with stronger scores on the FDCRS Social Development subscale. <i>Lack of control variables leaves open the possibility that the association of certification and observed quality is attributable to other variables associated with certification.</i></p>
<p>Hughes-Belding, Hegland, Stein, Sideris & Bryant (2012)</p>	<p>Among family child care providers participating in an evaluation of an on-site consultation program (Partners for Inclusion), having a CDA was found to be associated with one of four observed measures of quality (FDCRS: Teaching and interaction subscale) in analyses without covariates. However in multivariate analyses, no association was found between having a CDA and any of the four measures of observed quality.</p>
<p>Notes. A check mark (✓) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.</p>	

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Certification**

I. Attributes of Individuals—10. Certification: Detailed Study Descriptions

Publication information/citation	Burchinal, M., Hong, S. L. S., Sabol, T. J., Forestieri, N., & Peisner-Feinberg, E. (in preparation). Quality rating and improvement systems: Secondary data analyses to illustrate psychometric properties of scale development.
Which POQ is considered?	Certification
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The study is a meta-analysis of data from six large studies, with a range of average ages (36 months – 57 months): Head Start Family and Child Care Experiences Survey (FACES) 2006 and 2009; North Carolina Pre-Kindergarten Evaluation (NC Pre-K), and Georgia Pre-Kindergarten Evaluation (GA Pre-K); and the preschool observational sample from the Early Childhood Longitudinal Survey-Birth Cohort (ECLS-B) and the National Center for Research in Early Care and Education (NCRECE) professional development study.
Brief description of study approach	This study did not explicitly compare teachers with certification to teachers without certification. Rather, the study examined the effect of years of education and three categories of education attainment. The middle category included those with a CDA. Each measure was then averaged across teachers to create a center-level score. The categorical measure was created as follows: (0) high school diploma or equivalent and the teacher had not attended a college or university, (1) some college, or a child development associate’s degree (CDA), an associate’s degree, or bachelor’s degree without either a major or related coursework in early childhood or related fields, and (2) bachelor’s degree or higher and coursework related to early care and education.
Observational measure of quality used	The six studies included one or both of the following measures of quality: <ul style="list-style-type: none"> • Global quality: ECERS (Overall Score and Interactions factor) • Interaction quality: CLASS (Three domain scores: Instructional Support (IS), Emotional Support (ES), and Classroom Organization (CO)).

I. Attributes of Individuals—10. Certification: Detailed Study Descriptions

<p>Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)</p>	<p>Across the studies, the continuous measure of education was significantly and positively associated with ECERS Total Scores, ECERS Interactions, CLASS IS, and CLASS CO. There was a marginally significant effect of education on CLASS ES ($p < .10$).</p> <p>The effect of certification can be examined slightly more clearly using the categorical measure of education, as the middle category included the CDA (as well as an AA or BA/BS without ECE). Higher categories were associated with significantly higher quality on ECERS Total Score, ECERS Interactions, and CLASS IS. There was no effect of education on CLASS ES and CLASS CO.</p>
<p>Results from models without covariates</p>	<p>Not included.</p>
<p>Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?</p>	<p>Analyses adjusted for site, treatment, and basic sample characteristics of centers, and applied sample weights where appropriate.</p>
<p>Any methodological concerns?</p>	<p>All but one data set had multiple teachers per center; in these cases, teachers' scores were averaged within centers. The analyses assumed a linear effect of the education category, such that an increase from 0 to 1 has the same effect on education as an increase from 1 to 2. In reality, this may not be true. From the perspective of consideration of certification, it is a concern that the CDA was not examined separately but was part of category that included other indicators of educational attainment.</p>

I. Attributes of Individuals—10. Certification: Detailed Study Descriptions

Publication information/citation	Early, D. M., Bryant, D. M., Pianta, R. C., Clifford, R. M., Burchinal, M. R., Ritchie, S., Howes, C., & Barbarin, O. (2006). Are teachers' education, major, and credentials related to classroom quality and children's academic gains in pre-kindergarten? <i>Early Childhood Research Quarterly, 21</i> , 174-195.
Which POQ is considered?	Certification
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (pre-kindergarten)
Brief description of sample	The sample was drawn from the National Center for Early Development and Learning's Multi-State Study of Pre-Kindergarten and included 878 children in 237 publicly-funded pre-k classrooms randomly selected from six states.
Brief description of study approach	One classroom from each center was randomly selected to be observed in the fall. Teachers completed a questionnaire in the fall about their education.
Observational measure of quality used	The study used four measures of quality: (1) ECERS-R: Teaching and Interactions, (2) ECERS-R: Provisions for Learning, (3) CLASS: Emotional Climate, (4) CLASS: Instructional Climate
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Providers with a CDA did not have higher quality on any of the four outcomes. (Note that CDA was only examined among employees with no degree or with an Associate's degree in a field other than ECE/CD). Providers with a state teaching certificate to teach 4-year-olds had higher CLASS Emotional Climate, but did not have higher scores on the other three measures of quality.
Results from models without covariates	Correlations were not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Each model controls for state and the percentage of children in classroom below 150% of the poverty line. Models controlled for location (whether program was in school) and hours per week, as well as one other POQ: teacher-child ratio.
Any methodological concerns?	No

I. Attributes of Individuals—10. Certification: Detailed Study Descriptions

Publication information/citation	Torquati, J. C., Raikes, H., & Huddlestone-Casas (2007). Teacher education, motivation, compensation, workplace support, and links to quality of center-based child care and teachers' intention to stay in the early childhood profession. <i>Early Childhood Research Quarterly, 22</i>, 261-275.
Which POQ is considered?	Certification
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 223 center-based childcare providers in 4 mid-western states. There were 122 infant/toddler providers and 101 preschool providers.
Brief description of study approach	The sample was based on a stratified random sampling technique. Observations and teacher questionnaires happened around the same time.
Observational measure of quality used	The study used two measures of quality: (1) ERS (either ECERS-R or ITERS; composite of the 7 subscales) (2) CIS (composite of the three subscales)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Path models showed that having a CDA was associated with greater ERS scores, but having a CDA was <i>not</i> associated with CIS scores.
Results from models without covariates	Correlations were not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Analyses were conducted as path models. Models did not control for any demographics of children. Multivariate models included other POQs, including teacher education, compensation, and workplace supports.
Any methodological concerns?	No

I. Attributes of Individuals—10. Certification: Detailed Study Descriptions

Publication information/citation	Hallam, R. A., Bargreen, K. N., & Ridgley, R. (2013). Quality in family child care settings: The relationship between provider educational experiences and global quality scores in a statewide quality rating and improvement system. <i>Journal of Research in Childhood Education, 27</i> , 393-406.
Which POQ is considered?	Certification
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes. (Includes all children in child care homes, including preschool-age children.)
Brief description of sample	Sample was drawn from Tennessee's Child Care Evaluation and Report Card Program and included 1,042 family child care providers. Nearly half of all providers had the TECTA certification (Tennessee Early Childhood Training Alliance), while 19% had a CDA, 5% had a 2-yr degree or higher in early childhood, and 28% did not specialize in early childhood (i.e., unrelated college major or no post-H.S education)
Brief description of study approach	State-hired program assessors conducted observations. Caregivers completed questionnaires about their education, experience, and professional development.
Observational measure of quality used	The study used five subscales of the FDCRS as well as a composite.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Compared to caregivers without any specialized training in early childhood, those with a CDA or TECTA (Tennessee Early Childhood Training Alliance certification) had higher scores on Space and Furnishings, Learning Activities, Language and Reasoning, and Basic Care, as well as the composite FDCRS. TECTA, but not CDA, was associated with greater scores on FDCRS: Social Development.
Results from models without covariates	See above for results from ANOVAs.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	No controls were included.
Any methodological concerns?	The lack of control variables means the associations could be due to factors that are confounded with certification, such as children's poverty status or workplace supports.

I. Attributes of Individuals—10. Certification: Detailed Study Descriptions

Publication information/citation	Hughes-Belding, K., Hegland, S., Stein, A., Sideris, J., & Bryant, D. (2012). Predictors of global quality in family child care homes: Structural and belief characteristics. <i>Early Education and Development, 23, 697-712.</i>
Which POQ is considered?	Certification
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 257 family providers who were participating in an evaluation of a consultation program (Partners for Inclusion). Providers could not be included if they had a bachelor's degree in early childhood education or a related field.
Brief description of study approach	Providers were interviewed over the phone or at the observation.
Observational measure of quality used	Four measures of quality were used: (1) FDCRS: Teaching and Interaction (2) FDCRS: Tone and Discipline (3) FDCRS: Provisions/Health (4) CIS: Sensitivity
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	There was no association between having a CDA and scores on any of the four observed measures of quality.
Results from models without covariates	CDA was correlated with greater FDCRS: Teaching and Interaction. CDA was not correlated with the other two FDCRS scales (Tone and Discipline, Provisions/Health), or with CIS Sensitivity.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate analyses controlled for state, teacher's perceived ability, and a number of other POQs, including child-adult ratio, professional development, education, modernity, stress, and perceived ability.
Any methodological concerns?	No

II. Attributes of Classrooms/Groups

II. Attributes of Classrooms/Groups

II. Attributes of Classrooms/Groups—1. Use of a Curriculum or Prepared Set of Learning and Play Activities

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses without covariates	POQ is associated with observed quality in multivariate analyses	Brief overview and <i>comment</i>
Center-Based ECE			
Burchinal, Hong, Sabol, Forestieri, & Peisner-Feinberg (in preparation)	--	√	Meta-analysis with data from six studies of early care and education found greater use of curriculum was associated with higher CLASS Instructional Support scores. Use of a curriculum was summarized in a categorical variable in which 0=no curriculum or use of a curriculum that is not published; 1=use of a global curriculum not specific to a content area; and 2=content specific curriculum with training or technical assistance or use of a global curriculum a great deal. <i>The analysis reported is from a paper still in preparation.</i>
Tout & Sherman (2005)	√	--	Among centers that were randomly selected within geographic area strata from the Minnesota Child Care Resource and Referral network's child care records database, programs that used a formal curriculum were more likely to be observed to have "Good Quality" than centers that used no formal curriculum or their own curriculum. <i>The findings are published in a report rather than peer reviewed journal.</i>
Zill, Resnick, Kim, O'Donnell, Sorongon, McKey Pai-Samant, Clark, O'Brien, & D'Elio (2003)	√ Specific curricula found to be associated with higher observed quality	√ Specific curricula found to be associated with higher observed quality	In the sample for Head Start FACES 2000, Head Start programs using the High/Scope curriculum (and, at a marginal level of significance, Creative Curriculum) had significantly higher scores on the Arnett Caregiver Interaction Scale, compared to classrooms using other curricula such as home-grown curricula or High Scope. In analyses without covariates, use of Creative Curriculum or High/Scope curriculum was associated with higher ECERS-R Total scores, ECERS-R Language scores, and Quality Composite scores compared to classrooms using other curricula. These findings are published in a

II. Attributes of Classrooms/Groups—1. Use of a Curriculum or Prepared Set of Learning and Play Activities: Brief Overview of Results

		report rather than a peer reviewed journal, albeit a government report that went through substantial review.
Both Center-Based and Home-Based ECE		
Raikes, Wilcox, Peterson, Hegland, Atwater, Summers, Thornburg, Torquati, Edwards & Raikes (2003)	√ (for homes only) --	Randomly selected child care providers (both center- and home-based) in four Midwestern states were observed. Home-based providers had higher overall quality when provider used a curriculum, compared to home-based settings without a curriculum. Use of a curriculum was not associated with quality in center-based settings for preschool-aged children, though curriculum was associated with quality for infants and toddlers. <i>The analyses involved simple correlations; no controls for demographic variables or further characteristics of the teachers/caregivers, classrooms/groups, or programs were taken into account. Results were published in a report rather than peer reviewed journal article.</i>
<p>Notes. A check mark (√) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.</p>		

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Use of a Curriculum or Prepared Set of Learning and Play Activities**

II. Attributes of Classrooms/Groups—1. Use of a Curriculum or Prepared Set of Learning and Play Activities: Detailed Study Descriptions

Publication information/citation	Burchinal, M., Hong, S. L. S., Sabol, T. J., Forestieri, N., & Peisner-Feinberg, E. (in preparation). Quality rating and improvement systems: Secondary data analyses to illustrate psychometric properties of scale development.
Which POQ is considered?	Use of curriculum
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The study is a meta-analysis of data from six large studies, with a range of average ages (36 months – 57 months): Head Start Family and Child Care Experiences Survey (FACES) 2006 and 2009; North Carolina Pre-Kindergarten Evaluation (NC Pre-K), and Georgia Pre-Kindergarten Evaluation (GA Pre-K); and the preschool observational sample from the Early Childhood Longitudinal Survey-Birth Cohort (ECLS-B) and the National Center for Research in Early Care and Education (NCRECE) professional development study.
Brief description of study approach	Centers' use of curriculum was examined as a categorical indicator. Although there was some variation in the categories used across datasets, the general categories were as follows: (0) no curriculum/ curriculum that is not published, (1) published global curriculum not specific to a content area (or, in ECLS-B, simply the use of a published curriculum), and (2) a content-related curriculum, training or technical assistance, and/or global curriculum that is used a great deal.
Observational measure of quality used	The six studies included one or both of the following measures of quality: <ul style="list-style-type: none"> • Global quality: ECERS (Overall Score and Interactions factor) • Interaction quality: CLASS (Three domain scores: Instructional Support (IS), Emotional Support (ES), and Classroom Organization (CO)).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Results from a meta-analysis of 6 studies: Greater use of curriculum (i.e., centers with a higher categorical score) associated with significantly higher CLASS IS scores; however, there were no effects of curriculum on ECERS Total Score, ECERS

II. Attributes of Classrooms/Groups—1. Use of a Curriculum or Prepared Set of Learning and Play Activities: Detailed Study Descriptions

	Interactions, CLASS CO, or CLASS ES.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Analyses adjusted for site, treatment, and basic sample characteristics of centers, and applied sample weights where appropriate.
Any methodological concerns?	All but one data set had multiple teachers per center; in these cases, teachers' scores were averaged within centers. The analyses assumed a linear effect of the curriculum categories, such that an increase from 0 to 1 on the categorical variable had the same effect on observed quality as an increase from 1 to 2. This may not be the case.

II. Attributes of Classrooms/Groups—1. Use of a Curriculum or Prepared Set of Learning and Play Activities: Detailed Study Descriptions

Publication information/citation	Tout, K., & Sherman, J. (2005). A snapshot of quality in Minnesota's child care centers: A report of the Minnesota Child Care Policy Research Partnership. 37-44.
Which POQ is considered?	Use of curriculum
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	154 centers were randomly selected within geographic area strata from the Minnesota Child Care Resource and Referral network's child care records database. Half of centers were located in the Twin Cities metropolitan area and half of centers were located in Greater Minnesota.
Brief description of study approach	Directors and teachers completed surveys on demographic and educational background information, participation in training, perceptions of program quality, and professional development. Classrooms and teacher interaction style were observed.
Observational measure of quality used	Classrooms were observed with the ECERS-R. Classrooms were categorized as "Good Quality" (total score of 5 – 7) or "Less than Good Quality" (total score less than 5).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	A chi square test showed that programs that used a formal curriculum were more likely to be "Good Quality" (i.e., ECERS-R Total Score of 5 or greater) than centers that used no formal curriculum or their own curriculum.
Results from models without covariates	See above.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	This was a chi-square test, so no controls or other POQs were included.
Any methodological concerns?	Without control variables, it is unclear whether use of curriculum is confounded with other characteristics of the program, which could result in increased quality. This is not a peer-reviewed article.

II. Attributes of Classrooms/Groups—1. Use of a Curriculum or Prepared Set of Learning and Play Activities: Detailed Study Descriptions

Publication information/citation	Zill, N., Resnick, G., Kim, K., O'Donnell, K., Sorongon, A., McKey, R.H., Pai-Samant, S., Clark, C. O'Brien, R. & D'Elio, M.A. (2003). Head Start FACES 2000: A Whole-Child Perspective on Program Performance. Washington, DC: Administration for Children and Families, US Department of Health and Human Services.
Which POQ is considered?	Use of curriculum
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample includes 231 center-based Head Start teachers from 43 Head Start programs.
Brief description of study approach	Personal interviews were conducted with teachers to determine which curriculum was being used. Teachers were classified as using Creative Curriculum, High/Scope, or another curriculum (e.g., locally designed curricula, High Reach, Montessori, Los Cantos Los Ninos). Observers rated classrooms on the ECERS-R and CIS.
Observational measure of quality used	ECERS-R: Total score and Language Subscale Quality Composite score: derived from the ECERS-R Language subscale, the Assessment Profile Scheduling scale, and the Assessment Profile Learning Environment scale) The Caregiver Interaction Scale (CIS): Total scores was used to understand teacher sensitivity, responsiveness, and encouragement.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate models showed that, compared to classrooms with other curricula, Head Start classrooms using the High Scope curriculum (and to a lesser extent, Creative Curriculum) had higher scores on the CIS. Use of curriculum was not associated with ECERS-R Total Score, Language Score, or Quality Composite.
Results from models without covariates	Classrooms using Creative Curriculum and High/Scope curriculum had significantly higher ECERS-R Total, Language, and Quality Composite scores than classrooms using other curricula. Results for the CIS were not presented.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate analyses control for program-level factors (parent education, parent income, percent non-minority students, percent language minority students, average teacher salary) and classroom-level factors (years of experience, ethnicity, teacher salary). Other POQs in the model included teacher education and teacher attitudes/knowledge.
Any methodological concerns?	This study compared two curricula to several others (including home-grown, widely available, and all other curricula); it does not show the effect of a curriculum vs. no curriculum. This is not a peer-reviewed article.

II. Attributes of Classrooms/Groups—1. Use of a Curriculum or Prepared Set of Learning and Play Activities: Detailed Study Descriptions

Publication information/citation	Raikes, H., Wilcox, B., Peterson, C., Hegland, S., Atwater, J., Summers, J. A., Thornburg, K., Torquati, J., Edwards, C.P., & Raikes, A. (2003). Child care quality and workforce characteristics in four Midwestern states. <i>Publications of the Center on Children, Families, and the Law (and related organizations)</i>, 13.
Which POQ is considered?	Use of curriculum or planned activities
Study focuses on center settings, home-based settings, both	Both
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Observations were conducted for 365 child care providers.
Brief description of study approach	Randomly selected child care providers completed the Provider Survey from The Gallup Organization in four states. Of those providers, a random sub-sample was selected for conducting observational assessments.
Observational measure of quality used	ECERS-R, ITERS, FDCRS.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Correlations showed that use of curriculum was not associated with ECERS, but use of curriculum was positively correlated with FDCRS and ITERS.
Results from models without covariates	See above
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The analyses did not include covariates.
Any methodological concerns?	This is not a peer-reviewed article. Analyses do not control for any demographic variables or other characteristics of the teachers, classrooms or programs that may account for the association between use of curriculum and quality.

II. Attributes of Classrooms/Groups—2. Group Size

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate analyses</i>	Brief overview and <i>comment</i>
Center-Based ECE			
Blau (2000)	--	√ Though note that when unobserved center-level characteristics were held constant the relationship was no longer found	In sample of centers drawn from Cost, Quality and Outcomes Study, multivariate analyses showed that larger group sizes were significantly associated with higher quality on the ECERS/ITERS. However when center-level unobserved characteristics were held constant, the relationship was no longer found.
Burchinal, Hong, Sabol, Forestieri & Peisner-Feinberg (in preparation)	--	Not significant	In a meta-analysis using data from six large studies of early care and education, group size was not found to be related to observed quality whether considered as a continuous or a categorical variable (with categorical variable distinguishing 3 levels, with cut-points differing by child age).
Phillips, Mekos, Scarr, McCartney & Abbott-Shim (2001)	√	Not significant	In a sample of child care centers in Boston, central Virginia and Atlanta, group size was found to be negatively associated with observed quality in preschool classrooms (as well as in infant and toddler classrooms) in simple correlations. However in multivariate analyses, group size was found to be associated with observed quality only for toddler classrooms; there was no relationship in preschool classrooms
Home-Based ECE			
Burchinal, Howes & Kontos (2002)	Not significant	--	In a sample of 208 licensed family child care homes drawn from the Family Child Care Study (NC, TX and CA) and the California Licensing Study, group size was not found to be significantly correlated with observed quality using the FDCRS and the Caregiver Involvement Scale (CIS) Sensitivity and

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

			Detachment scales.
Clarke-Stewart, Vandell, Burchinal, O'Brien & McCartney (2002)	--	√	Child care homes drawn from the NICHD Study of Early Child Care were observed at 15, 26 and 36 months. Compliance with recommended group size was significantly related to higher ORCE scores but not CC-HOME scores.
NICHD ECCRN (2000)	√	√	Multivariate regressions with a sample that included both center- and home-based care in the NICHD Study of Early Child Care found that smaller group sizes predicted more frequent positive caregiving and higher ratings of positive caregiving at both 15 months and 24 months. At 36 months, smaller group sizes predicted frequency, but not rating, of positive caregiving. Simple correlations indicated that smaller group size was associated with both frequency and rating of positive caregiving.
<p>Notes. A check mark (√) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.</p>			

Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:

Group Size

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

Publication information/citation	Blau, D. (2000). The production of quality in child-care centers: Another look. <i>Applied Developmental Science</i>, 4(3), 136-148.
Which POQ is considered?	Group Size
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample is drawn from the Cost, Quality, and Outcomes (CQO) Study, which collected data from a random sample of 100 centers in four states: California, Colorado, Connecticut, and North Carolina. The analysis sample includes 548 observed classrooms. The mean group size in the sample was 13.5 children.
Brief description of study approach	The author uses data from the CQO Study to examine the effects of group size, child-adult ratio, and teacher qualifications on the quality of child care provided in day care centers. Unobserved effects, including center fixed effects and zip code fixed effects are included in analyses to control for differences across centers.
Observational measure of quality used	ECERS and ITERS
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate regression analysis showed that larger group size was significantly related to higher quality (ECERS/ITERS). The effect was no longer significant when center-level unobserved characteristics were held constant.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The multivariate regression controlled for a very large number of teacher characteristics (age, race, experience, tenure, education, training) and center characteristics (turnover, state, language, etc). The model also controlled for demographics of the children at the center (parent education, marital status, race, ethnicity). The model that accounted for unobserved effects included center as a fixed effect.
Any methodological concerns?	No

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

Publication information/citation	Burchinal, M., Hong, S. L. S., Sabol, T. J., Forestieri, N., & Peisner-Feinberg, E. (in preparation). Quality rating and improvement systems: Secondary data analyses to illustrate psychometric properties of scale development.
Which POQ is considered?	Group size
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The study is a meta-analysis of data from six large studies, with a range of average ages (36 months – 57 months): Head Start Family and Child Care Experiences Survey (FACES) 2006 and 2009; North Carolina Pre-Kindergarten Evaluation (NC Pre-K), and Georgia Pre-Kindergarten Evaluation (GA Pre-K); and the preschool observational sample from the Early Childhood Longitudinal Survey-Birth Cohort (ECLS-B) and the National Center for Research in Early Care and Education (NCRECE) professional development study.
Brief description of study approach	The effect of group size was examined as a continuous measure as well as a categorical measure. The categorical measure was created as follows, based on the age of children: 3-year-olds: (0) greater than 18 children, (1) between 14 and 18 children, and (2) less than or equal to 14 children. 4-year-olds: (0) greater than 20, (1) between 16 and 20 children, and (2) less than or equal to 16 children.
Observational measure of quality used	The six studies included one or both of the following measures of quality: <ul style="list-style-type: none"> • Global quality: ECERS (Overall Score and Interactions factor) • Interaction quality: CLASS (Three domain scores: Instructional Support (IS), Emotional Support (ES), and Classroom Organization (CO)).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Center-level group size was not related to any of the measures of quality, regardless of whether the continuous or categorical indicator of group size was examined.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ	Analyses adjusted for site, treatment, and basic sample characteristics of centers,

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

<p>considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?</p>	<p>and applied sample weights where appropriate.</p>
<p>Any methodological concerns?</p>	<p>All but one data set had multiple teachers per center; in these cases, teachers' scores were averaged within centers. The analyses assumed a linear effect of the group size category, such that an increase from 0 to 1 has the same effect on education as an increase from 1 to 2. In reality, this may not be true. The analysis reported is from an article in preparation rather than a peer reviewed journal article.</p>

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

Publication information/citation	Phillips, D., Mekos, D., Scarr, S., McCartney, K., & Abbott-Shim, M. (2001). Within and beyond the classroom door: Assessing quality in child care centers. <i>Early Childhood Research Quarterly, 15(4)</i>, 475-496.
Which POQ is considered?	Group size
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes (infant, toddler, and preschool classrooms)
Brief description of sample	The sample included classrooms in 104 childcare centers (87 infant rooms, 104 toddler rooms, and 96 preschool rooms) from Boston, central Virginia, and Atlanta.
Brief description of study approach	The centers were visited for a full day to interview the center director and three head teachers from each of the infant, toddler, and preschool classrooms. The appropriate observational measure was used to assess quality.
Observational measure of quality used	Overall scores on the ITERS and ECERS were used as measures of observed quality.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Group size was found to be significantly and negatively associated with observed quality for toddler classrooms, after controlling for staff qualifications. Group size was not found to be significantly associated with quality for infant or preschool classrooms.
Results from models without covariates	Group size was negatively correlated with quality in separate analyses of infant, toddler and preschool classrooms.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The POQ is considered along with other variables in the multivariate analyses: site location, ratio compliance with state regulations, teacher training, teacher wages, and parent fees. The POQs teacher-child ratio and teacher education were also included in the analyses.
Any methodological concerns?	No

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

Publication information/citation	Burchinal, M., Howes, C., & Kontos, S. (2002). Structural predictors of child care quality in child care homes. <i>Early Childhood Research Quarterly</i>, 17, 87-105.
Which POQ is considered?	Group size
Study focuses on center settings, home-based settings, both	Homes
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample of 208 licensed family child care homes was drawn from two large studies: the Family Child Care study (NC, TX, CA) and the California Licensing Study. Homes served primarily babies, toddlers, and/or preschoolers, with some school-age children. Families tended to be low-income.
Brief description of study approach	Homes were observed by trained observers, who conducted the quality rating and counted the number of children.
Observational measure of quality used	The study used two measures of quality: (1) Family Day Care Environment Rating Scale (FDCRS) (2) Caregiver Involvement Scale (CIS): Sensitivity and Detachment scales
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Group size was not significantly correlated with FDCRS, CIS Sensitivity, or CIS Detachment.
Results from models without covariates	See above
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	None.
Any methodological concerns?	No control variables were included. The sample was largely low-income so it may not be generalizable to the broader population.

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

Publication information/citation	Clarke-Stewart, K. A., Vandell, D. L., Burchinal, M., O'Brien, M., & McCartney, K. (2002). Do regulable features of child-care homes affect children's development? <i>Early Childhood Research Quarterly, 17</i> (1), 52-86.
Which POQ is considered?	Group size
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes (infant, toddler, and preschool)
Brief description of sample	The sample included child care homes drawn from the NICHD Study of Early Child Care. Children's child care homes were observed at 15 months (164 child-care homes), 24 months (172 homes), and 36 months (146 homes).
Brief description of study approach	The number of children enrolled was based on a caregiver interview. A group size compliance variable (1 = compliant / 0 = non-compliant) was created based on the number of children enrolled.
Observational measure of quality used	Two observational measures were used: (1) Observational Record of the Caregiving Environment (ORCE; multiple scales were assessed at different ages); (2) Child Care HOME (broad quality of caregiving environment)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Compliance with recommended group size points was significantly related to higher ORCE scores, but not CC-HOME scores. The number of children enrolled was unrelated to either measure of quality.
Results from models without covariates	None included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The analyses included family demographic variables, as well as other POQs: teacher education, training, and beliefs.
Any methodological concerns?	The number of children enrolled was not always the number of children present during the observation. It is possible that a home could enroll some children who are only present part of the day, decreasing the actual maximum group size.

II. Attributes of Classrooms/Groups—2. Group Size: Detailed Study Descriptions

Publication information/citation	NICHD ECCRN (2000). Characteristics and quality of child care for toddlers and preschoolers. <i>Applied Developmental Science</i>, 4(3), 116-135.
Which POQ is considered?	Group size
Study focuses on center settings, home-based settings, both	Both
Confirm that study focuses on preschool-age children	Yes (infant/toddler and preschool)
Brief description of sample	Participants in NICHD Study of Early Child Care were recruited in 1991 from hospitals in 9 states. Screening and enrollment took place when children were born, and follow-up analyses of families' child care arrangements were conducted when children were 15 months (n=612), 24 months (n=630), and 36 months (n=674) of age.
Brief description of study approach	Two half-day visits were conducted to observe quality and group size in the child's classroom at each of the three ages examined. The second visit at each age included an interview and questionnaire from the caregiver.
Observational measure of quality used	Two measures of observed quality were used: <ul style="list-style-type: none"> • Frequency of positive caregiving: The Observational Record of the Caregiving Environment (ORCE) was used to measure the frequency with which caregivers deliver positive caregiving (e.g., positive affect, positive physical contact, speak positively, ask questions). • Rating of positive caregiving: After the ORCE, observers qualitatively rated five scales (e.g., sensitivity to child's nondistress signals, positive regard toward child).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate regressions showed that smaller group sizes predicted more frequent positive caregiving and higher ratings of positive caregiving at both 15 months and 24 months. At 36 months, smaller group sizes predicted frequency, but not rating, of positive caregiving.
Results from models without covariates	Smaller group sizes were significantly correlated with higher quality at 15 months, 24 months, and 36 months, both in terms of frequency of positive caregiving as well as overall rating of positive caregiving.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate regressions controlled for teacher-child ratio, caregiver education, beliefs, experience, specialized training. Models also controlled for study site and type of care (father/grandfather, center, in-home, child care home).
Any methodological concerns?	No

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio

Brief Overview of Results of Selected Studies for this Predictor of Quality

Study	POQ is associated with observed quality in analyses without covariates	POQ is associated with observed quality in <i>multivariate analyses</i>	Brief overview and <i>comment</i>
Center-Based ECE			
Blau (2000)	--	√ Though note that when unobserved center-level characteristics were held constant the relationship was no longer found	In sample of centers drawn from Cost, Quality and Outcomes Study, multivariate analyses showed that larger (better) adult-child ratios were significantly associated with higher quality on the ECERS/ITERS. However when center-level unobserved characteristics were held constant, the relationship was no longer found.
Burchinal, Hong, Sabol, Forestieri & Peisner-Feinberg (in preparation)	--	√	In a meta-analysis using data from six large studies of ECE, ratio was examined as both a continuous variable and categorical variable (with cut-points according to recommendations of professional organizations). When child-adult ratio was examined as a continuous variable, centers with lower ratios (fewer children per adult) had higher scores on the ECERS Total Score, ECERS Interactions, and CLASS Emotional Support, and marginally higher scores on CLASS Instructional Support and CLASS Classroom Organization. When examined as a categorical indicator, lower ratios were associated with significantly higher scores on all five quality measures.
De Schipper, Riksen-Walraven & Geurts (2006)	--	√	A sample of caregivers from child care centers in the Netherlands was observed during structured play episodes in a group of 3 children (3:1 ratio) and again in a group of 5 children (5:1 ratio) ages 10 months and older. Findings indicated improvements in the quality of interactions with the better ratio especially for younger children.

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Brief Overview of Results

Pianta, Howes, Burchinal, Bryant, Clifford, Early & Barbarin (2005)	Not significant	Not significant	In a sample drawn from the National Center for Early Development and Learning Multi-State Pre-Kindergarten Study, multivariate regressions no relation between ratio and any measures of quality included in the study. <i>Note, however, that ratio in these pre-kindergarten settings was relatively uniform and low (approximately 1:7).</i>
Home-Based ECE			
Hughes-Belding, Hegland, Stein, Sideris & Bryant (2012)	Not significant	Not significant	In a sample of family child care providers who were participating in an evaluation of an intervention involving on-site consultation to improve quality (Partners for Inclusion), correlations and multivariate analyses showed no association between ratio and observed quality. Some of the family child care homes were large, so there were instances of more than one caregiver per home.
Both Center- and Home-Based ECE			
NICHD ECCRN (2000)	√	√	In a sample of both center- and home-based care settings from the NICHD Study of Early Child Care, having fewer children per adult was associated with more positive observed quality in terms of both frequency and ratings of positive caregiving at all three ages considered (15, 24 and 36 months). In multivariate analyses having fewer children per adult was significantly positively related to both the frequency and ratings of positive caregiving at both 15 and 24 months, but only to the frequency of positive caregiving at 36 months.
Notes. A check mark (√) indicates that the POQ was significantly associated with quality; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.			

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Child-Adult Ratio**

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Detailed Study Descriptions

Publication information/citation	Blau, D. (2000). The production of quality in child-care centers: Another look. <i>Applied Developmental Science</i>, 4(3), 136-148.
Which POQ is considered?	Child-adult ratio
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample is drawn from the Cost, Quality, and Outcomes (CQO) Study, which collected data from a random sample of 100 centers in four states: California, Colorado, Connecticut, and North Carolina. The analysis sample includes 548 observed classrooms. The mean adult-child ratio in the sample is .18.
Brief description of study approach	The author uses data from the CQO Study to examine the effects of group size, adult-child ratio, and teacher qualifications on the quality of child care provided in day care centers. Unobserved effects, including center fixed effects and zip code fixed effects are included in analyses to control for differences across centers.
Observational measure of quality used	ECERS and ITERS
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate regression analysis showed that larger (i.e., better) adult-child ratios were significantly associated with greater quality (ECERS/ITERS). However, when center-level unobserved characteristics are held constant, adult-child ratio was no longer significantly associated with quality.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The multivariate regression controlled for a very large number of teacher characteristics (age, race, experience, tenure, education, training) and center characteristics (turnover, state, language, etc). The model also controlled for demographics of the children at the center (parent education, marital status, race, ethnicity). The model that accounted for unobserved effects included center as a fixed effect.
Any methodological concerns?	No

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Detailed Study Descriptions

Publication information/citation	Burchinal, M., Hong, S. L. S., Sabol, T. J., Forestieri, N., & Peisner-Feinberg, E. (in preparation). Quality rating and improvement systems: Secondary data analyses to illustrate psychometric properties of scale development.
Which POQ is considered?	Child-adult ratio
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The study is a meta-analysis of data from six large studies, with a range of average ages (36 months – 57 months): Head Start Family and Child Care Experiences Survey (FACES) 2006 and 2009; North Carolina Pre-Kindergarten Evaluation (NC Pre-K), and Georgia Pre-Kindergarten Evaluation (GA Pre-K); and the preschool observational sample from the Early Childhood Longitudinal Survey-Birth Cohort (ECLS-B) and the National Center for Research in Early Care and Education (NCRECE) professional development study.
Brief description of study approach	The effect of child-adult ratio was examined as a continuous measure as well as a categorical measure. The categorical measure was created as follows, based on the age of children: 3-year-olds: (0) greater than 9:1, (1) less than or equal to 9:1 and greater than 7:1, and (2) less than or equal to 7:1. 4-year-olds: (0) greater than 10:1, (1) less than or equal to 10:1 and greater than 8:1, and (2) less than or equal to 8:1.
Observational measure of quality used	The six studies included one or both of the following measures of quality: <ul style="list-style-type: none"> • Global quality: ECERS (Overall Score and Interactions factor) • Interaction quality: CLASS (Three domain scores: Instructional Support (IS), Emotional Support (ES), and Classroom Organization (CO)).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	When child-adult ratio was examined as a continuous variable, centers with lower ratios (fewer children per adult) had higher scores on the ECERS Total Score, ECERS Interactions, and CLASS ES, and marginally higher scores on CLASS IS and CLASS CO. When examined as a categorical indicator, lower ratios were associated with significantly higher scores on all five quality measures.

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Detailed Study Descriptions

Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Analyses adjusted for site, treatment, and basic sample characteristics of centers, and applied sample weights where appropriate.
Any methodological concerns?	All but one data set had multiple teachers per center; in these cases, teachers' scores were averaged within centers. The analyses assumed a linear effect of the child-adult ratio categories, such that an increase from 0 to 1 has the same effect on education as an increase from 1 to 2. In reality, this may not be true.

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Detailed Study Descriptions

Publication information/citation	De Schipper, E.J., Riksen-Walraven, M., & Geurts, S.A.E. (2006). Effects of child-caregiver ratio on the interactions between caregivers and children in child care centers: An experimental study. <i>Child Development, 77(4)</i>, 861-874.
Which POQ is considered?	Child-adult ratio
Study focuses on centers, home-based settings, or both	Center
Confirm that study focuses on preschool-age children	Yes. (Average age: 34 months. Range: 10 - 47 months.)
Brief description of sample	The sample was drawn from 64 child care centers in the Netherlands. The sample included 217 female caregivers. Approximately 95% of the caregivers were white.
Brief description of study approach	Caregivers were videotaped by researchers during two consecutive structured play episodes: once with a group of three children (3:1 ratio) and again with a group of five children (5:1 ratio). Researchers rated interaction quality.
Observational measure of quality used	The videotaped caregiver-child interactions during the structured play episodes were rated using 8 7-point scales, based on similar scales from the NICHD Observational Record of the Caregiving Environment (ORCE). Video-taped interactions during lunch were rated on five 7-point scales, also based on the ORCE.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	A repeated-measures ANCOVA showed that a decrease in the child-caregiver ratio from 5:1 to 3:1 with the same caregiver resulted in improvements in the quality of child-caregiver interaction, particularly for younger children. Caregivers displayed more supportive presence and more regard for autonomy when playing with groups of three as opposed to five children. The children cooperated better with caregivers in groups of three than in groups of five. The only aspect of interaction not found to be affected by ratios was caregivers' expression of positive affect toward the children, which was more stable across the two structured play episodes.
Results from models without covariates	Not applicable.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Analyses controlled for the average age of children in the group.
Any methodological concerns?	No.

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Detailed Study Descriptions

Publication information/citation	Pianta, R., Howes, C., Burchinal, M., Bryant, D. Clifford, R., Early, D. & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? <i>Applied Developmental Science, 9</i> , 144-159.
Which POQ is considered?	Child-adult ratio
Study focuses on centers, home-based settings, or both	Center
Confirm that study focuses on preschool-age children	Yes (pre-k)
Brief description of sample	The sample of 238 teachers was drawn from the National Center for Early Development and Learning’s Multi-State Pre-Kindergarten Study. Classrooms in centers/school were selected at random. Most served only four year olds. The mean child-adult ratio was 6.9. Almost all teachers (93%) were female and were predominantly white (61%). Note that ratio in these settings was relatively uniform and, on average, low (approximately 1:7).
Brief description of study approach	Observations took place in fall and teachers completed surveys during the year.
Observational measure of quality used	The study included five measures of quality: (1) ECERS-R: Teaching and Interactions; (2) ECERS-R: Provisions for Learning; (3) CLASS: Instructional Climate; (4) CLASS: Emotional Climate; (5) Emerging Academics Snapshot (nature and varieties of activity settings as an index of opportunities to learn)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate regressions showed that child-adult ratio was not associated with any observed measures of quality.
Results from models without covariates	Child-adult ratios were not correlated with any observed measures of quality.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate models included other POQs, including program characteristics (in-school, half-day, teacher education, teacher experience, teacher depression, modernity beliefs, wages). Models also controlled for classroom demographics (child poverty).
Any methodological concerns?	No. Though not a methodological concern, it is important to note that ratio in these prekindergarten classrooms averaged 6.9 and was fairly uniform.

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Detailed Study Descriptions

Publication information/citation	Hughes-Belding, K., Hegland, S., Stein, A., Sideris, J., & Bryant, D. (2012). Predictors of global quality in family child care homes: Structural and belief characteristics. <i>Early Education and Development, 23, 697-712.</i>
Which POQ is considered?	Child-adult ratio
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 257 family providers who were participating in an evaluation of a consultation program (Partners for Inclusion). Providers served at least one child who was at least 20 months old and not older than 50 months. Providers could not be included if they had a bachelor's degree in early childhood education or a related field. Some of the homes had multiple caregivers, allowing the study to examine child-adult ratio rather than simply group size.
Brief description of study approach	Observations of quality were conducted in the home. During the observation, the observer noted the child-adult.
Observational measure of quality used	Four measures of quality were used: (1) FDCRS: Teaching and Interaction, (2) FDCRS: Tone and Discipline, (3) FDCRS: Provisions/Health, (4) CIS: Sensitivity
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate regressions showed that child-adult ratio was not associated with any of the four observed measures of quality in models controlling for state and other POQs.
Results from models without covariates	Correlations showed that child-adult ratio was not associated with any of the four observed measures of quality.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate analyses controlled for state and caregiver's perceived ability, as well as a number of other POQs: professional motivation, professional development, education, modernity, and stress.
Any methodological concerns?	Providers had agreed to participate in a professional development program, so they may not be representative of the general population of child care providers.

II. Attributes of Classrooms/Groups—3. Child-Adult Ratio: Detailed Study Descriptions

Publication information/citation	NICHD ECCRN (2000). Characteristics and quality of child care for toddlers and preschoolers. <i>Applied Developmental Science</i>, 4(3), 116-135.
Which POQ is considered?	Child-adult ratio
Study focuses on center settings, home-based settings, both	Both
Confirm that study focuses on preschool-age children	Yes (toddler and preschool)
Brief description of sample	Participants in NICHD Study of Early Child Care were recruited in 1991 from hospitals in 9 states. Screening and enrollment took place when children were born, and follow-up analyses of families' child care arrangements were conducted when children were 15 months (n=612), 24 months (n=630), and 36 months (n=674) of age.
Brief description of study approach	Two half-day visits were conducted to observe quality and teacher:child ratio in the child's classroom at each of the three ages examined. The second visit at each age included an interview and questionnaire from the caregiver.
Observational measure of quality used	Two measures of observed quality were used: <ul style="list-style-type: none"> • Frequency of positive caregiving: The Observational Record of the Caregiving Environment (ORCE). • Rating of positive caregiving: After the ORCE, observers qualitatively rated five scales (e.g., positive regard toward child).
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	At 15 and 24 months of age, having fewer children per adult was significantly, positively related to both frequency and ratings of positive caregiving. At 36 months of age, frequency (but not ratings) was still associated with child-adult ratio.
Results from models without covariates	Correlations showed that both frequency and ratings of positive caregiving were higher when there were fewer children per adult, across all ages (15, 24, and 36 months)
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate regressions controlled for other characteristics of the caregivers (education, beliefs, experience, specialized training) and group size. Models also controlled for study site and type of care (father/grandfather, center, in-home, child care home).
Any methodological concerns?	No

III. Attributes of Programs

Note that support for some of the Predictors of Quality (POQ) that are Attributes of Programs comes from Professional Standards rather than, or in addition to, individual research studies. The overview and more detailed summary tables for the POQ discussed below indicate whether the source of support for this POQ comes from specific research studies, from professional standards, or in some instances, from both sources.

III. Attributes of Programs—1. Departure Rate

Brief Overview for this POQ: Results of Selected Studies or Recommendations for Practice Based on Professional Standards

Note that there are methodological challenges in the linking of departure rates to quality, as departure rate is a center-level characteristic, whereas quality is a classroom-level characteristic.

Study	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate</i> analyses	Brief overview and <i>comment</i>
Center-Based ECE			
Blau (2000)	--	Not significant	Analyses using data from the Cost, Quality and Outcomes Study found no association between annual turnover and observed quality. <i>Note that percent turnover was examined as a continuous variable. Analyses did not consider quality in light of a designated threshold for turnover.</i>
Cassidy, Lower, Kinter-Duffy, Hedge & Shim (2011)	Observed quality declined following change of staff. However because of sample size, significance tests were not conducted	Not reported	In a sample of child care centers in North Carolina with star ratings, this study focused on classrooms that experienced staff turnover. Changes over time showed the ECERS-R average and all subscale scores to be lower after classrooms experienced turnover. However significance tests were not conducted because of small sample size (13 classrooms. <i>This study raises the possibility that turnover is related to observed quality specifically during the period of transition.</i>
Gerber, Whitebook & Weinstein (2007)	Not significant	Not significant	In a sample of preschool classrooms in Northern California, turnover was not found to be associated with either Attunement or Harshness on The Caregiver Interaction Scale or with the ECERS-R. <i>Analyses focused on a small sample of 41 classrooms. Analyses did not set a threshold for a high rate of turnover or consider observed quality in light of high turnover.</i>
Roach, Kim	Not significant; not clear	Not significant; not	In the evaluation of the Centers for Excellence Program, which provided

III. Attributes of Programs—1. Departure Rate: Brief Overview of Results

& Riley (2006)	if analyses included covariates	clear if analyses included covariates	technical assistance and funding for children in 341 classrooms in 50 centers, no association was found between director report of turnover and observed quality. It is not clear from the brief reporting of findings if the results are from multivariate analyses. <i>Analyses did not set a threshold for high turnover or consider observed quality in light of high turnover.</i>
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**Descriptions of Individual Studies that Examined the Predictor of Quality:
Departure Rate**

III. Attributes of Programs—1. Departure Rate: Detailed Study Descriptions

Publication information/citation	Blau, D. (2000). The production of quality in child-care centers: Another look. <i>Applied Developmental Science</i>, 4(3), 136-148.
Which POQ is considered?	Departure rate
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	Yes (infants/toddlers and preschool)
Brief description of sample	The sample is drawn from the Cost, Quality, and Outcomes (CQO) Study, which collected data from a random sample of 100 centers in four states: California, Colorado, Connecticut, and North Carolina. The analysis sample includes 548 observed classrooms. The average annual turnover was 35.5% (SD = 39.5%).
Brief description of study approach	The author uses data from the CQO Study. Two classrooms were randomly selected in each center and were observed on the ECERS/ITERS. An interview with the director provided staff rosters to calculate turnover. Unobserved effects, including center fixed effects and zip code fixed effects are included in analyses to control for differences across centers.
Observational measure of quality used	The study used the ECERS or ITERS, depending on the age of children in the classroom.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	There was no association between annual turnover percentage and ECERS/ITERS in any of the models.
Results from models without covariates	Not included.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The multivariate regression controlled for teacher characteristics (including age, race, experience, tenure, training), center characteristics (including state, language) and demographics of the children at the center (parent education, marital status, race, ethnicity). Models controlled for another POQ: education. The model that accounted for unobserved effects included center as a fixed effect.
Any methodological concerns?	No.

III. Attributes of Programs—1. Departure Rate: Detailed Study Descriptions

Publication information/citation	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. <i>Journal of Research in Childhood Education, 25 (1), 1-23.</i>
Which POQ is considered?	Departure rate
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Child care centers with star ratings in North Carolina were randomly contacted to be recruited in the study. Of those that agreed to participate, 9 centers actually experienced turnover and were therefore included in this study. Overall, 13 classrooms and 34 teachers were included in the study.
Brief description of study approach	Classrooms experiencing turnover were observed during the departing teachers' last week of employment and one week after the new or replacement teacher began.
Observational measure of quality used	ECERS-R was used as an observational measure.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	ECERS-R Average score and all subscale scores were lower after classrooms experienced turnover. Due to the sample size (13 classrooms) significance tests were not conducted.
Results from models without covariates	See above for results from descriptive analyses.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	None included
Any methodological concerns?	This was an extremely small sample of 13 classrooms.

III. Attributes of Programs—1. Departure Rate: Detailed Study Descriptions

Publication information/citation	Gerber, E. B., Whitebook, M., & Weinstein, R. S. (2007). At the heart of child care: Predictors of teacher sensitivity in center-based child care. <i>Early Childhood Research Quarterly</i>, 22, 327-346.
Which POQ is considered?	Departure rate
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 41 head teachers in preschool classrooms (2.5 - 5 yrs) at 41 child care centers in Northern California. Centers were a mix of those working towards/having attained NAEYC accreditation and those that were not accredited or working towards it.
Brief description of study approach	Trained observers conducted observations. Information about turnover was gathered in interviews with program directors
Observational measure of quality used	The study used the Caregiver Interaction Scale (CIS) to measure two types of sensitivity: (1) Attunement, and (2) Harshness. The study also included the ECERS-R in correlational analyses.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Turnover was not associated with either Attunement or Harshness in regressions controlling for other classroom and center characteristics. Furthermore, turnover was not correlated with ECERS-R in zero-order correlations. (ECERS-R was not examined in regressions.)
Results from models without covariates	Correlations showed that turnover was not associated with Attunement, Harshness, or ECERS-R.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The regressions controlled for classroom characteristics (Number of children, teacher-child ratio, ECERS-R), center characteristics (accreditation status, size, and organizational climate), and demographics (percent of children who are minority and percent who are subsidized).
Any methodological concerns?	The study had a small sample (N = 41 classrooms) so it would be hard to obtain significant results.

III. Attributes of Programs—1. Departure Rate: Detailed Study Descriptions

Publication information/citation	Roach, M. A., Kim, Y., & Riley, D. A. (2006). Once attained, can quality child care be maintained? <i>Early Education and Development</i>, 14(4), 553-570.
Which POQ is considered?	Departure rate
Study focuses on center settings, home-based settings, both	Centers (infant/toddler and preschool)
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample includes all 341 classrooms in 50 centers included in an evaluation of the Centers for Excellence program, which provided technical assistance and funding for children (24 treatment and 26 comparison centers).
Brief description of study approach	Observations were conducted in classrooms in 2001 and then in 2004. Directors reported on their annual turnover.
Observational measure of quality used	ECERS/ITERS, depending on the age of children.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	The study did not set out to test the association between turnover and quality, but post-hoc analysis showed no association between annual turnover and quality.
Results from models without covariates	It is not clear whether the null effect of turnover on quality described above is from correlations or multivariate models.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	It is not clear whether the null effect of turnover on quality described above is from correlations or multivariate models.
Any methodological concerns?	These analyses are post-hoc and are only presented in the discussion, so no details are provided.

III. Attributes of Programs—2. Changes in Assignment to Classrooms or Groups

**Brief Overview for this POQ: Results of Selected Studies or
Recommendations for Practice Based on Professional Standards**

Note that this Predictor of Quality does not pertain to home-based settings.

Citation	Professional Standards			Brief overview and <i>comment</i>
	POQ is discussed in professional standards	Standards are for center-based ECE	Standards are for home-based ECE	
National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk.</i>	√	√	Not applicable	National Association for the Education of Young Children (NAEYC) standards state that every attempt should be made to ensure continuity of adults who work with children, particularly infants and toddlers. Minimizing the number of changes in teaching staff during the day and over the program year enables children to form stable relationships with one or more caregivers.
<p>Notes. A check mark (√) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.</p>				

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Changes in Assignment to Classrooms or Groups**

III. Attributes of Programs—2. Changes in Assignment to Classrooms or Groups: Detailed Study Descriptions

<p>Publication information/citation</p>	<p>National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk</i>. U.S. Department of Health and Human Services Administration for Children and Families Office of Child Care. Retrieved December 2, 2014 from https://occqrisguide.icfwebservices.com/index.cfm?do=crosswalk</p>
<p>Which POQ is considered</p>	<p>Classroom assignment changes</p> <p>Professional standards focus on minimizing classroom assignment changes</p>
<p>Standards/recommendations focus on center settings, home-based settings, both</p>	<p>Centers</p>
<p>Confirm that standards/recommendations focus on preschool-age children</p>	<p>Standards focus on preschool-age children as well as infants/toddlers.</p>
<p>Examples of expert groups recommending this practice</p>	<p>National Association for the Education of Young Children Academy for Early Childhood Program Accreditation (NAEYC)</p>
<p>Brief summary of standard/recommendation and rationale for this POQ</p>	<p>NAEYC standards state that every attempt should be made to ensure continuity of adults who work with children, particularly infants and toddlers. Minimizing the number of changes in teaching staff during the day and over the program year enables children to form stable relationships with one or more caregivers.</p> <p>These standards are included under the category of <i>Program Administration: Staff-Child Ratios and Classroom Assignments</i> in the crosswalk. The standards do not specifically address classroom assignment changes over the last week.</p>

III. Attributes of Programs—3. Providing, Arranging or Assisting with Ancillary Services

Brief Overview for this POQ: Results of Selected Studies or Recommendations for Practice Based on Professional Standards

Citation	Professional Standards			Brief overview and <i>comment</i>
	POQ is discussed in professional standards	Standards are for center-based ECE	Standards are for home-based ECE	
National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk.</i>	√	√	√	<p>Head Start, National Association for the Education of Young Children (NAEYC), National Association for Family Child Care (NAFCC), Caring for our Children (CFOC), and the Department of Defense (DoD) standards state that programs should assist parents/families in identifying and accessing services and resources that are responsive to each family’s needs and goals, including but not limited to health, mental health, oral health, nutrition, child welfare, parenting programs, early intervention-special education screening and assessment services, literacy programs, basic needs such as housing and child care subsidies, and services for pregnant women. The standards also state that program staff should be familiar with family support services and specialized consultants who are able to provide culturally and linguistically appropriate services. Utilizing these types of services when needed promotes healthy family functioning and enables parents/families to support their children’s growth and development.</p> <p>These standards are included under the category of <i>Family and Community Partnerships: Community Resources and Referrals</i> in the crosswalk.</p>
<p>Notes. A check mark (√) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.</p>				

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Providing, Arranging or Assisting with Ancillary Services**

III. Attributes of Programs—3. Providing, Arranging or Assisting with Ancillary Services: Detailed Study Descriptions

<p>Publication information/citation</p>	<p>National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk</i>. U.S. Department of Health and Human Services Administration for Children and Families Office of Child Care. Retrieved December 10, 2014 from https://occqrisguide.icfwebsiteservices.com/index.cfm?do=crosswalk</p>
<p>Which POQ is considered</p>	<p>Ancillary services: helps families find at least one service (Center-based) Ancillary services: Helped at least one family find one or more services in the prior 12 months (Home-based)</p>
<p>Standards/recommendations focus on center settings, home-based settings, both</p>	<p>Centers and family child care homes</p>
<p>Confirm that standards/recommendations focus on preschool-age children</p>	<p>Standards focus on preschool-age children as well as infants/toddlers.</p>
<p>Examples of expert groups recommending this practice</p>	<p>Head Start; National Association for the Education of Young Children Academy for Early Childhood Program Accreditation (NAEYC); National Association for Family Child Care (NAFCC); Caring for Our Children (CFOC); Department of Defense Quality Child Care Expansion Project (DoD)</p>
<p>Brief summary of standard/recommendation and rationale for this POQ</p>	<p>Head Start, NAEYC, NAFCC, CFOC, and DoD standards state that programs should assist parents/families in identifying and accessing services and resources that are responsive to each family’s needs and goals, including but not limited to health, mental health, oral health, nutrition, child welfare, parenting programs, early intervention-special education screening and assessment services, literacy programs, basic needs such as housing and child care subsidies, and services for pregnant women. The standards also state that program staff should be familiar with family support services and specialized consultants who are able to provide culturally and linguistically appropriate services. Utilizing these types of services when needed promotes healthy family functioning and enables parents/families to support their children’s growth and development.</p> <p>These standards are included under the category of <i>Family and Community Partnerships: Community Resources and Referrals</i> in the crosswalk.</p>

III. Attributes of Programs—4. Providing, Arranging or Assisting with Developmental Assessments

Brief Overview for this POQ: Results of Selected Studies or Recommendations for Practice Based on Professional Standards

Study	Professional Standards			Brief overview and <i>comment</i>
	POQ is discussed in professional standards	Standards are for center-based ECE	Standards are for home-based ECE	
National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk.</i>	√	√	√	Head Start, National Association for the Education of Young Children (NAEYC), and Caring for our Children (CFOC) standards state that all children participating in the program should receive developmental screening (i.e., a brief check to identify children who need further evaluation to determine whether they may have disabilities) and assessment (i.e., the collection of information on each child's functioning in these areas: gross and fine motor skills, perceptual discrimination, cognition, attention skills, self-help, social and receptive skills and expressive language) prior to program entry or within the first three months of program entry.
Notes. A check mark (√) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.				

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Providing, Arranging or Assisting with Developmental Assessments**

III. Attributes of Programs—4. Providing, Arranging or Assisting with Developmental Assessments: Detailed Study Descriptions

Publication information/citation	National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk</i>. U.S. Department of Health and Human Services Administration for Children and Families Office of Child Care. Retrieved December 08, 2014 from https://occqrisguide.icfwebsiteservices.com/index.cfm?do=crosswalk
Which POQ is considered	Help find developmental assessments
Standards/recommendations focus on center settings, home-based settings, both	Centers and family child care homes
Confirm that standards/recommendations focus on preschool-age children	Standards focus on preschool-age children as well as infants/toddlers.
Examples of expert groups recommending this practice	Head Start; National Association for the Education of Young Children Academy for Early Childhood Program Accreditation (NAEYC); Caring for Our Children (CFOC)
Brief summary of standard/recommendation and rationale for this POQ	<p>Head Start, NAEYC, and CFOC standards state that all children participating in the program should receive developmental screening (i.e., a brief check to identify children who need further evaluation to determine whether they may have disabilities) and assessment (i.e., the collection of information on each child's functioning in these areas: gross and fine motor skills, perceptual discrimination, cognition, attention skills, self-help, social and receptive skills and expressive language) prior to program entry or within the first three months of program entry. The standards state that the results of screening and assessment should be used to make referrals to appropriate professionals, when needed, and ensure that the referrals are followed up. Screenings and assessments allow providers to individualize learning environments, support planning, and communicate with parents.</p> <p>These standards are included under the category of <i>Children with Special Needs: Screening/Assessment</i> in the crosswalk.</p>

III. Attributes of Programs—5. Access to Specialists

Brief Overview for this POQ: Results of Selected Studies or Recommendations for Practice Based on Professional Standards

Citation	Empirical Articles		Professional Standards			Brief overview and <i>comment</i>
	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate</i> analyses	POQ is discussed in professional standards	Standards are for center-based ECE	Standards are for home-based ECE	
Center-Based ECE						
Alkon, Ramler & MacLennan (2003)	--	√				Number of years of mental health consultation services found to be associated with strength of positive change over time in observed quality in classrooms in urban child care centers, controlling for teacher mental health competencies.
Raver, Jones, Li-Grining, Metzger, Champion & Sardin (2008)	--	√				In the Chicago School Readiness Project conducted in Head Start programs, teachers in a treatment condition received behavior management training, and were visited weekly by mental health consultants who coached teachers on the implementation of behavior management strategies. Treatment classrooms had more positive classroom climate, teacher sensitivity, and management of disruptive behavior,

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

	Home-Based ECE					
				and were lower in negative climate.		
Bromer, Van Haitsma, Daley, & Modigliani, (2009).	√	√		In a comparison of matched samples of family child care providers who were or were not participating in a network that provided supports to family child care providers, those who were participating in the network had higher scores on observed quality using the FDCRS (total score as well as all subscales). <i>Note that this is a report and not a peer-reviewed article.</i>		
Doherty, Forer, Lero, Goelman, & LaGrange (2006).	√	√		In a sample of family child care providers in seven jurisdictions in Canada, observed global quality was found to be significantly related to self-reported participation in supports. Multiple regressions found two specific forms of predicted quality: participation in a network of providers, and participation in community story hours.		
Center- and Home-Based ECE						
National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk.</i>			√	√	√	National Association for Family Child Care (NAFCC) and Caring for our Children (CFOC) standards state that child care providers should maintain a list of community professionals and agencies available to provide needed health, dental, and social services to families.
Notes. A check mark (√) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.						

Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:

Access to Specialists

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

Publication information/citation	Alkon, A., Ramler, M., & MacLennan, K. (2003). Evaluation of mental health consultation in child care centers. <i>Early Childhood Education Journal</i>, 31 (2), 91-99.
Which POQ is considered	Access to Specialists in Programs
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	Yes (ages 2-5)
Brief description of sample	25 urban child care centers and their teachers (n=188 in at T1, n = 199 at T2) participated, but only 21 centers had ECERS data at T1 and T2. Some centers had been receiving mental health consultation in the past. Other centers began receiving mental health consultation at T1.
Brief description of study approach	Data were collected at Time 1 and one year later at Time 2. ECERS scores were the averages across all classrooms in the center.
Observational measure of quality used	Early Childhood Environment Rating Scale (ECERS)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Regression analysis examined the relation of teacher competencies and years of mental health consultation with change in quality from Time 1 to Time 2. Having more years of mental health consultation services was associated with significantly greater positive changes in quality, after controlling for teacher mental health competencies.
Results of zero-order correlations	Improved center quality was moderately, though not significantly, correlated with years of mental health consultation ($r = .31, n = 21$).
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Regression analyses controlled for teacher-rated competencies in mental health.
Any methodological concerns?	Small sample (N = 21).

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

Publication information/citation	Raver, C. C., Jones, S. M., Li-Grining, C. P., Metzger, M., Champion, K. M., & Sardin, L. (2008). Improving preschool classroom processes: Preliminary findings from a randomized trial implemented in Head Start settings. <i>Early childhood research quarterly, 23(1), 10-26.</i>
Which POQ is considered?	Access to Specialists in Programs
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	Data were collected as part of the Chicago School Readiness Project, conducted in 18 Head Start sites, which included 35 classrooms led by 94 teachers who served 602 children. Teachers were on average 40 years old, predominantly female (97%), and most teachers belonged to an ethnic minority group (70% African American, 20% Latina, 10% European American). A majority of teachers held an Associate’s Degree or higher.
Brief description of study approach	Teachers in treatment condition received behavior management training and their classrooms were visited weekly by mental health consultants who coached teachers as they implemented behavior management strategies. CLASS and ECERS-R were observed in September and again in March. In late spring, CSRP also provide one-on-one child-focused mental health consultation to three to five children in each classroom, but this paper presents findings prior to the provision of these services (i.e., the focus is on the <i>teacher</i> mental health consultation and behavior management training.)
Observational measure of quality used	Classroom Assessment Scoring System (CLASS) and Early Childhood Environment Rating Scales-Revised (ECERS-R)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Hierarchical linear models showed that treatment classrooms were statistically higher in positive classroom climate and teacher sensitivity, statistically lower in negative climate, and moderately ($p < .10$) higher in behavior management, relative to control classrooms. Teachers receiving mental health consultation also had significant improvement in their management of disruptive behavior compared with controls.
Results from models without covariates	Correlations were not included, but HLMs controlling only for fall scores on the outcome showed significant associations between treatment and all four measures of emotional climate.
Control variables and multivariate analyses: Is this POQ	Baseline measures of ECERS-R and CLASS (collected in the fall) included as covariates

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	in all analyses. Number of children and number of teachers in fall and spring were also included as covariates to control for differences in class size or staffing ratios at both time points. Models control for cohort.
Any methodological concerns?	No

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

Publication information/citation	Bromer, J., Van Haitsma, M., Daley, K., & Modigliani, K. (2009). Staffed support networks and quality in family child care: The family child care network impact study. Chicago: Erikson Institute, Herr Research Center for Children and Social Policy.
Which POQ is considered?	Access to Specialists in Programs
Study focuses on center settings, home-based settings, both	Homes
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	A total of 150 licensed family child care providers participated in the Family Child Care Network Impact Study, including 80 providers who were affiliated with networks and 40 providers who were unaffiliated. A group of 30 providers who belonged to voluntary, provider-run associations also participated. All of the participating providers were female, 65% were African American, 31% were Latina, and 1% were white. The mean age of providers was 46 years, and 54% were experienced providers (providing care for more than 3 years).
Brief description of study approach	The study used a matched control design wherein staffed network-affiliated providers were matched on key provider characteristics (age, gender, race/ethnicity, experience, education, and neighborhood type) to a control group of unaffiliated providers in order to examine the effect of network affiliation on quality of care. Staffed networks are defined in this study as funded programs that provided services to a group of FCC providers, who in turn, delivered child care to children and families enrolled in the network.
Observational measure of quality used	Family Day Care Rating Scale (FDCRS; 6 subscales) and the Caregiver Interaction Scale (CIS; 5 subscales)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Results from multivariate analyses showed that providers who were affiliated with the support network had significantly higher FDCRS total scores, relative to the providers who were not affiliated with any support system. There were not significant differences in the CIS total score in the treatment and control groups.
Results from models without covariates	T-tests showed that providers who were affiliated with the support network had significantly higher FDCRS scores, relative to the providers who were not affiliated with any support system. The effect was significant for all 6 subscales of the FDCRS. Scores on the CIS did not differ significantly between the two groups, but the treatment group had significantly fewer critical and harsh interactions, and moderately fewer ($p < .10$) controlling interactions.

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The multivariate results described above included provider’s relevant education, household income of the provider and ages of children in the FCC program.
Any methodological concerns?	Not a peer-reviewed article.

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

Publication information/citation	Doherty, G., Forer, B., Lero, D.S., Goelman, H., & LaGrange, A. (2006). Predictors of quality in family child care. <i>Early Childhood Research Quarterly</i>, 21, 296-312.
Which POQ is considered?	Access to Specialists in Programs
Study focuses on center settings, home-based settings, both	Homes
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample consisted of 231 family child care providers in seven Canadian jurisdictions. All of the participants were female, and approximately 40% of participants had participated in a formal family child care training program. The average number of years providing child care among this sample was 10.1 years.
Brief description of study approach	Participating providers completed a self-administered questionnaire and were observed in their homes using the Family Day Care Rating Scale. Use of support services was measured using 5 self-report items (Number of care organizations provider belongs to; networks through an organized association or not; networks informally with other providers or not; uses library story hour or not; and uses a toy lending library or not).
Observational measure of quality used	Family Day Care Rating Scale (FDCRS)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Regression analyses showed that two aspects of the use of support services, specifically networking with other providers and use of a community story hour, were predictive of global quality.
Results from models without covariates	All 5 items on the measure of support services were positively correlated with level of quality.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Regressions controlled for teacher's motivation, training and education, and work environment. All five indicators of support services were modeled simultaneously.
Any methodological concerns?	Self-reported use of support services could be inaccurate. Not a peer-reviewed article.

III. Attributes of Programs—5. Access to Specialists: Detailed Study Descriptions

<p>Publication information/citation</p>	<p>National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk</i>. U.S. Department of Health and Human Services Administration for Children and Families Office of Child Care. Retrieved December 11, 2014 from https://occqrisguide.icfwebsiteservices.com/index.cfm?do=crosswalk</p>
<p>Which POQ is considered</p>	<p>Access to family support, mental health, or guidance counselor</p>
<p>Standards/recommendations focus on center settings, home-based settings, both</p>	<p>Center-based care and family child care homes</p>
<p>Confirm that standards/recommendations focus on preschool-age children</p>	<p>Standards focus on preschool-age children as well as infants/toddlers.</p>
<p>Examples of expert groups recommending this practice</p>	<p>National Association for Family Child Care (NAFCC); Caring for Our Children (CFOC)</p>
<p>Brief summary of standard/recommendation and rationale for this POQ</p>	<p>NAFCC and CFOC standards state that family child care providers should maintain a list of community professionals and agencies available to provide needed health, dental, and social services to families.</p> <p>These standards are included under the category of <i>Family and Community Partnerships: Community Resources and Referrals Assignments</i> in the crosswalk. The standards do not specifically address providers' access to on-site family support, mental health, or guidance counselor professionals as part of program administration.</p>

III. Attributes of Programs—6. Financial Support for Professional Development Offered by Program

**Brief Overview for this POQ: Results of Selected Studies or
Recommendations for Practice Based on Professional Standards**

Citation	Professional Standards			Brief overview and <i>comment</i>
	POQ is discussed in professional standards	Standards are for center-based ECE	Standards are for home-based ECE	
National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk.</i>	√	√	√	Head Start and National Association for the Education of Young Children (NAEYC) standards state that programs must establish and implement a structured approach to staff training and professional development, attaching academic credit whenever possible. Head Start and NAEYC standards do not specifically address financial support for PD offered or received. However, Caring for our Children (CFOC) standards state that centers, large family child care homes, or a support agency for a network of small family child care homes should make provisions for paid training time for staff to participate in required professional development (that includes training as well as education) during work hours, or reimburse staff for time spent attending professional development outside of regular work hours.
<p>Notes. A check mark (√) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards); a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.</p>				

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Financial Support for Professional Development Offered by Program**

III. Attributes of Programs—6. Financial Support for Professional Development Offered by Program: Detailed Study Descriptions

Publication information/citation	National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk</i>. U.S. Department of Health and Human Services Administration for Children and Families Office of Child Care. Retrieved December 11, 2014 from https://occqrisguide.icfwebservices.com/index.cfm?do=crosswalk
Which POQ is considered	Financial support for professional development (offered by programs and/or received by individuals)
Standards/recommendations focus on center settings, home-based settings, both	Centers and family child care homes
Confirm that standards/recommendations focus on preschool-age children	Standards focus on preschool-age children as well as infants/toddlers.
Examples of expert groups recommending this practice	Head Start, National Association for the Education of Young Children Academy for Early Childhood Program Accreditation (NAEYC); Caring for Our Children (CFOC)
Brief summary of standard/recommendation and rationale for this POQ	<p>Head Start and NAEYC standards state that programs must establish and implement a structured approach to staff training and professional development, attaching academic credit whenever possible. The program's professional development plan is based on needs identified through staff evaluation and from other information from program evaluation processes, and includes training in the policies and procedures of the program and may also include specialized college-level course work or professional development training in knowledge and skills relevant to the specific age(s) or the special circumstances/specific needs of the children they teach. Head Start and NAEYC standards do not specifically address financial support for PD offered or received. CFOC standards state that centers, large family child care homes, or a support agency for a network of small family child care homes should make provisions for paid training time for staff to participate in required professional development (that includes training as well as education) during work hours, or reimburse staff for time spent attending professional development outside of regular work hours. Professional development activities enable providers to enhance their existing knowledge, acquire new skills, and promote healthy development of young children.</p> <p>These standards are included under the category of <i>Personnel Management and Human Resources: Professional Development Planning</i>; and <i>Personnel Management and Human Resources: Staff Benefits</i> in the crosswalk.</p>

III. Attributes of Programs—7. Coaching or Mentoring Offering by Program

**Brief Overview for this POQ: Results of Selected Studies or
Recommendations for Practice Based on Professional Standards**

Note that we did not find professional standards for this Predictor of Quality for home-based settings. However, see “I. Attributes of Individuals-8. Receipt of Coaching” for research on the use of coaching for home-based providers.

Citation	Professional Standards		Brief overview and <i>comment</i>
	POQ is discussed in professional standards	Standards are for center-based ECE	
National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk</i>	√	√	National Association for the Education of Young Children (NAEYC) standards state that a program’s professional development plan should include mentoring, coaching, and other professional development opportunities for all staff. Coaching and mentoring serve as an individualized approach to helping early childhood providers enhance their existing knowledge, develop new skills, and promote healthy development of young children.
Notes. A check mark (√) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.			

**Descriptions of Individual Studies that Examined the Predictor of Quality:
Coaching or Mentoring Offering by Program**

III. Attributes of Programs—7. Coaching or Mentoring Offering by Program: Detailed Study Descriptions

Publication information/citation	National Center on Child Care Quality Improvement (n.d.). <i>Quality rating and improvement system resource guide: Program standards crosswalk</i> . U.S. Department of Health and Human Services Administration for Children and Families Office of Child Care. Retrieved December 11, 2014 from https://occqrisguide.icfwebsiteservices.com/index.cfm?do=crosswalk
Which POQ is considered	Center level: Coaching/mentoring offered
Standards/recommendations focus on center settings, home-based settings, both	Centers
Confirm that standards/recommendations focus on preschool-age children	Standards focus on preschool-age children as well as infants/toddlers.
Examples of expert groups recommending this practice	National Association for the Education of Young Children Academy for Early Childhood Program Accreditation (NAEYC)
Brief summary of standard/recommendation and rationale for this POQ	<p>NAEYC standards state that a program’s professional development plan should include mentoring, coaching, and other professional development opportunities for all staff. Coaching and mentoring serve as an individualized approach to helping early childhood providers enhance their existing knowledge, develop new skills, and promote healthy development of young children.</p> <p>This standard is included the under the category of <i>Personnel Management and Human Resources: Professional Development Planning</i> in the crosswalk.</p>

III. Attributes of Programs—8. Teachers/Caregivers Report Being Treated with Respect

Brief Overview for this POQ: Results of Selected Studies or Recommendations for Practice Based on Professional Standards

Note that this POQ would not be applicable to home-based care.

Citation	Empirical Articles		Brief overview and <i>comment</i>
	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate</i> analyses	
Center-Based ECE			
Dennis & O'Connor (2013)	√	√	Two scales of organizational climate that include measures that can be seen as related to respect (such as collegiality, supervisor support, and goal consensus), were found to be significantly related to a summary score of process quality items from the ECERS-R in a sample of teachers from community-based preschools serving low income children in large urban areas.
Gerber, Whitebok, & Weinstein (2007)	√	√	Multivariate analyses in a sample of preschools in Northern California that were either working towards/had attained NAEYC accreditation or were not accredited or working towards it, showed that teachers who perceived a better work environment on the Early Childhood Work Environment Survey had higher scores on the sensitivity scale of the Caregiver Interaction Scale (CIS), but did not have significantly lower scores on the harshness scale of the CIS.
Lower & Cassidy (2007)	√	--	Teachers from a sample of child care centers in North Carolina who perceived a more positive work climate on the Early Childhood Work Environment Survey were observed to have stronger ECERS-R scores and stronger scores on a Language/interaction factor from the ECERS-R.
Manlove, Vazquez & Vernon-	Not significant	√ (for teachers with less complex thinking about	Teachers in a sample drawn from the Penn State Health and Development Project who scored low on a measure of “complexity of thinking about children” were divided into those who perceived high versus low levels of professional growth

III. Attributes of Programs—8. Teachers/Caregivers Report Being Treated with Respect: Brief Overview of Results

Feagans (2008)	children only)	opportunities at their centers. Those who perceived higher levels of professional growth opportunities were observed to be more sensitive in their interactions with children on the Caregiver Interaction Scale.
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Notes. A check mark (✓) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards; a minus sign (–) indicates that the association was not examined; *not significant* indicates that the association was examined but was not significant.

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Teachers/Caregivers Report Being Treated with Respect**

III. Attributes of Programs—8. Teachers/Caregivers Report Being Treated with Respect: Detailed Study Descriptions

Publication information/citation	Dennis, S. E. & O'Connor, E. (2013). Reexamining quality in early childhood education: Exploring the relationship between the organizational climate and the classroom. <i>Journal of Research in Childhood Education</i>, 27, 74-92.
Which POQ is considered?	Teachers/caregivers treated with respect
Study focuses on centers, home-based settings, or both	Centers
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 37 teachers at community based preschool centers that served low-income children in large urban areas and had at least 2 classrooms.
Brief description of study approach	The Early Childhood Work Environment Survey (ECWES) was used to assess overall organizational climate structures across 10 dimensions: collegiality, professional growth, supervisor support, clarity, reward system, decision-making, goal consensus, task orientation, physical setting, and innovativeness The Organizational Climate Description Questionnaire for Elementary Schools (OCDQ-RE) was used to assess elements of the relational organizational climate (aspects of school leadership and teacher interactions).
Observational measure of quality used	23 of the 43 items on the ECERS-R were used. There was a focus on process quality items rather than just on environmental factors.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Both measures of organizational climate were associated with higher scores on the ECERS-R summary score of process quality when included simultaneously in a regression. This relationship was <i>stronger</i> for teachers who had been teaching for longer. In addition, organizational climate was less related to classroom quality for teachers with more education.
Results from models without covariates	The ECERS-R total (of selected process quality items) was significantly, positively correlated with both the ECWES total and the OCDQ-RE total.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate regression controlled for director's education, director's experience, teacher's education, teacher's experience, and teacher-child ratio.
Any methodological concerns?	The sample (37) was small. Only one teacher from each center was included.

III. Attributes of Programs—8. Teachers/Caregivers Report Being Treated with Respect: Detailed Study Descriptions

Publication information/citation	Gerber, E. B., Whitebook, M., & Weinstein, R. S. (2007). At the heart of child care: Predictors of teacher sensitivity in center-based child care. <i>Early Childhood Research Quarterly</i>, 22, 327-346.
Which POQ is considered?	Teachers/caregivers treated with respect
Study focuses on center settings, home-based settings, both	Center
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 41 head teachers in preschool classrooms (with children between 2.5 - 5 years) at 41 child care centers in Northern California. Centers were a mix of those working towards or having attained NAEYC accreditation and those that were not accredited or working towards it.
Brief description of study approach	Trained observers conducted observations. Perceptions of work environment were assessed using the Early Childhood Work Environment Survey (ECWES), which assesses morale, interactions, communication, and equitable policies. Higher scores indicated higher levels of staff collaboration, communication, and morale.
Observational measure of quality used	The study used the Caregiver Interaction Scale (CIS) to measure two types of sensitivity: (1) Attunement, and (2) Harshness. The study also included the ECERS-R in correlational analyses.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate analyses showed that teachers who perceived better work environment had higher scores on the sensitivity scale of the CIS, but did not have significantly lower scores on the harshness scale of the CIS.
Results from models without covariates	Zero-order correlations showed that higher scores on the work environment scale were associated with significantly more sensitivity and significantly less harshness.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Models controlled for center accreditation, center size, and teacher education.
Any methodological concerns?	The sample was small (N = 42 teachers) so the criterion used for significant multivariate effect was $p < .10$.

III. Attributes of Programs—8. Teachers/Caregivers Report Being Treated with Respect: Detailed Study Descriptions

Publication information/citation	Lower, J. K. & Cassidy, D. J. (2007) Child care work environments: The relationship with learning environments. <i>Journal of Research in Childhood Education, 22(2), 189-204.</i>
Which POQ is considered?	Teachers/caregivers treated with respect
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	The study focuses on childcare teachers and directors of infants, toddlers, preschoolers, and school aged children.
Brief description of sample	The sample includes 225 teachers and 25 directors from 26 centers in the state of North Carolina Center Demographics: 60% for-profit, 40% not-for-profit Teacher Demographics: 96.8% female; 17-74 years old Director Demographics: 100% women; 23-79 years old
Brief description of study approach	Teachers filled out the Early Childhood Work Environment Survey short form (ECWES) to understand the organizational climate and administration. The ECWES examined centers' organizational climate on 10 dimensions: collegiality, professional growth, supervisor support, clarity, reward system, decision-making, goal consensus, task orientation, physical setting, and innovativeness.
Observational measure of quality used	The study used the ECERS-R, both the average as a measure of global quality as well as specific items to form a "Language/interaction" factor.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Higher scores on the ECWES were associated with greater ECERS-R Global Quality as well as greater ECERS-R Language/Interaction factor scores. In other words, teachers who perceive better organizational climates have better observed quality.
Results from models without covariates	See above.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Only correlations are considered.
Any methodological concerns?	No

III. Attributes of Programs—8. Teachers/Caregivers Report Being Treated with Respect: Detailed Study Descriptions

Publication information/citation	Manlove, E. E., Vazquez, A., & Vernon-Feagans, L. (2008). The quality of caregiving in child care: Relations to teacher complexity of thinking and perceived supportiveness of the work environment. <i>Infant and Child Development, 17</i>, 203-222.
Which POQ is considered?	Teachers/caregivers treated with respect
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	Yes- the teachers are drawn from child care centers that serve children from 1-3 years of age.
Brief description of sample	This study is part of the Penn State Health and Development Project. The present study involves 56 teachers from 11 child care centers (24 classrooms with infants through toddlers).
Brief description of study approach	The measure of teacher perceptions was the <i>Professional Growth</i> scale of the Early Childhood Work Environment Survey (ECWES), which examined whether a center offered professional development opportunities for teachers. Teachers also completed the Concepts of Development Questionnaire (CODQ), which assesses the complexity of their thinking about child behaviors. Caregivers were observed on the CIS around the same time.
Observational measure of quality used	The Caregiver Interaction Scale (CIS) was used to assess two aspects of interaction: Sensitivity and detachment.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Results showed an interaction between teachers' complexity of thinking and their perceived professional growth opportunities in the prediction of quality. For teachers who scored low on a measure of "complexity of thinking about children," those who perceived higher levels of professional growth opportunities were observed to be more sensitive in their interactions with children on the Caregiver Interaction Scale. There were no differences in teachers' detachment.
Results from models without covariates	There was not a significant correlation between perceived professional development growth opportunities and either scale of the CIS (Sensitivity; Detachment).

III. Attributes of Programs—8. Teachers/Caregivers Report Being Treated with Respect: Detailed Study Descriptions

<p>Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?</p>	<p>This was a multivariate analysis of variance using a planned contrast. The model controlled for teacher level of education and included planned contrasts: teachers who perceived high professional growth were split into low- and high-complexity of thinking, then compared on the outcomes of Sensitivity and Detachment. The same approach was used to examine teachers with low perceived professional growth.</p>
<p>Any methodological concerns?</p>	<p>There was not a main effect of teachers' perceived opportunities for professional growth on quality. Rather, results were from a planned contrast and revealed a subgroup of teachers (i.e., those low in complexity of thinking) for whom perceived opportunities for professional growth predicted more sensitive interactions. Among teachers who were low in complexity of thinking, teachers who perceived low opportunities for professional growth had an average sensitivity score of 2.95, whereas teachers who perceived more opportunities for professional growth had an average sensitivity score of 3.25.</p>

III. Attributes of Programs—9. Stress Related to Child Behavior Problems

Brief Overview for this POQ: Results of Selected Studies or Recommendations for Practice Based on Professional Standards

Study	Empirical Articles		Brief overview and <i>comment</i>
	POQ is associated with observed quality in analyses <i>without</i> covariates	POQ is associated with observed quality in <i>multivariate analyses</i>	
Center-Based ECE			
Alkon, Ramier & MacLennan (2003)	Not significant	√ (models examined growth)	Rather than directly studying stress related to children’s behavior problems, this study considered extent of center teachers’ participation in mental health consultation services, which could be seen as reducing such stress. In a sample of urban child care centers and teachers, greater improvements over time were seen on the ECERS when teachers had participated for more years in mental health consultation services.
Friedman-Kraus, Raver, Morris & Jones (2014)	Not significant	High job stress was related to lower observed emotional climate. However study did not find expected pattern for child behavior problems and observed quality or teacher stress.	This study tested a model to examine the influence of classroom-level child behavior problems on teacher stress and, in turn, spring preschool classroom emotional climate using data from the control groups of the Chicago School Readiness Project (CSRP) and the Foundations of Learning Demonstration in New Jersey. Very high and very low levels of job stress were associated with lower emotional climate. However, classrooms with children who had higher levels of behavior problems in the fall were rated as having stronger emotional climate in the spring. There was no evidence that teacher stress in the spring mediated the relationship between child behavior problems in the fall and classroom emotional climate in the spring. <i>Note that the study had low statistical power because of small sample of classrooms. In addition, the measure of teacher stress had low internal reliability.</i>
Home-Based ECE			
Hughes-	Job stress	Job stress was	In a sample of family child care providers participating in an evaluation of a consultation

III. Attributes of Programs—9. Stress Related to Child Behavior Problems: Brief Overview of Results

Belding, Hegland, Sideris & Bryant (2012)	was negatively related with observed quality, but role of child behavior problems was not directly examined.	negatively related with FCDRS Tone and Discipline and CIS Sensitivity. However, the role of child behavior problems was not directly examined.	program to improve quality, a measure of job stress was associated with significantly lower scores on FDCRS Tone and Discipline and on CIS Sensitivity. <i>The measure of job stress did not focus specifically on stress from child behavior problems.</i>
Rusby, Jones, Crowley & Smolkowski (2013)	√	Direction examined was from observed positive attention on the CIS as a predictor of caregiver stress.	In a sample of registered and certified child care home providers in Oregon, observed positive attention on the CIS was a marginally significant predictor of caregiver stress, which included items related to the way teachers were impacted by children’s challenging behavior. <i>In this study, observed positive attention from the CIS was treated as a predictor of caregiver stress, rather than caregiver stress considered a predictor of observed quality. Child behavior problems were controlled in the analyses.</i>
<p>Notes. A check mark (√) indicates that the POQ was significantly associated with quality (for empirical articles) or is discussed as important (in professional standards; a minus sign (–) indicates that the association was not examined; <i>not significant</i> indicates that the association was examined but was not significant.</p>			

**Detailed Descriptions of Individual Studies that Examined the Predictor of Quality:
Stress Related to Child Behavior Problems**

III. Attributes of Programs—9. Stress Related to Child Behavior Problems: Detailed Study Descriptions

Publication information/citation	Alkon, A., Ramler, M., & MacLennadn, K. (2003). Evaluation of mental health consultation in child care centers. <i>Early Childhood Education Journal</i>, 31 (2), 91-99.
Which POQ is considered	Teacher stress: Child behavior problems
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	Yes (ages 2-5)
Brief description of sample	25 urban child care centers and their teachers (n=188 in at T1, n = 199 at T2) participated, but only 21 centers had ECERS data at T1 and T2. Some centers had been receiving mental health consultation in the past. Other centers began receiving mental health consultation at T1.
Brief description of study approach	Data were collected at Time 1 and one year later at Time 2. One classroom in each center was observed.
Observational measure of quality used	Early Childhood Environment Rating Scale (ECERS)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Regression analysis examined the relation of teacher competencies and years of mental health consultation with change in quality from Time 1 to Time 2. Centers with more years of mental health consultation services had greater increases in center quality from Time 1 to Time 2.
Results of zero-order correlations	Improved center quality was moderately, though not significantly, correlated with years of mental health consultation ($r = .31$, $n = 21$).
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Regression analyses controlled for teacher-rated competencies in mental health.
Any methodological concerns?	Teacher stress was not directly assessed; rather we used treatment with mental health consultants as a proxy for reduction of stress related to behavior challenges.

III. Attributes of Programs—9. Stress Related to Child Behavior Problems: Detailed Study Descriptions

Publication information/citation	Friedman-Krauss, A., Raver, C., Morris, P.A., & Jones, S.M. (2014). The role of classroom-level child behavior problems in predicting preschool teacher stress and classroom emotional climate. <i>Early Education and Development</i>, 25, 530-552.
Which POQ is considered	Teacher stress: Children’s behavior problems
Study focuses on center settings, home-based settings, both	Centers
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample was drawn from the Chicago School Readiness Project (CSRP) and the Foundations of Learning Demonstration in New Jersey (FOL). Only control group data are used in the present study. CSRP included 17 teachers in Head Start centers in high-poverty neighborhoods in Chicago. FOL included 22 teachers in Abbott-funded preschool programs in Newark Public School System. In both groups, on average, a total of 48% of children were male, 63.4% Black, 28.4% Hispanic. 63% of teachers had more than 5 years of experience teaching preschool, 78% earned at least a bachelor’s degree.
Brief description of study approach	The study tests a mediating model to examine the influence of classroom-level child behavior problems on teacher stress and, in turn, spring preschool classroom emotional climate. Teachers provided information on: 1) children’s externalizing behaviors in the fall using a modified version of Behavior Problems Index and 2) teacher stress in the spring due to child characteristics using a modified version of Child Care Worker Job Stress Inventory. Trained observers blind to randomization status observed classroom emotional climate in the fall and spring using the CLASS Emotional Climate subscale.
Observational measure of quality used	Classroom emotional climate measured with the CLASS Emotional Climate scale (average of Positive Climate, Negative Climate, and Teacher Sensitivity)
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Very high and very low levels of teacher job stress were associated with lower emotional climate; moderate levels of teacher job stress were associated with higher emotional climate. Interestingly, classrooms with children who had higher levels of behavior problems in the fall were rated as higher in classroom emotional climate in the spring. There was no evidence to support the hypothesis that teacher job stress in the spring mediated the relationship between classroom-level behavior problems in the fall and classroom emotional climate in the spring.
Results from models without covariates	CLASS emotional support was <i>not</i> significantly correlated with teacher-rated

III. Attributes of Programs—9. Stress Related to Child Behavior Problems: Detailed Study Descriptions

	average classroom externalizing behavior nor with teacher stress.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	The multivariate analysis controlled for a number of demographics, including child characteristics (gender, race/ethnicity, household income-to-needs ratio), classroom characteristics (class size in the fall, project/cohort) teacher characteristics (gender, whether teacher was primary income earner for family). Fall classroom emotional climate was controlled for in all of the models.
Any methodological concerns?	The FOL standards included small class sizes (15 student limit) and high teacher qualification (Bachelor’s and specialized EC training). The teacher stress inventory had low internal reliability (alpha = .56). The study had low statistical power due to limited number of classrooms.

III. Attributes of Programs—9. Stress Related to Child Behavior Problems: Detailed Study Descriptions

Publication information/citation	Hughes-Belding, K., Hegland, S., Stein, A., Sideris, J., & Bryant, D. (2012). Predictors of global quality in family child care homes: Structural and belief characteristics. <i>Early Education and Development, 23</i>, 697-712.
Which POQ is considered	Teacher stress: children’s behavior problems.
Study focuses on center settings, home-based settings, both	Home
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	The sample included 257 family providers who were participating in an evaluation of a consultation program (Partners for Inclusion). Providers could not be included if they had a bachelor's degree in early childhood education or a related field.
Brief description of study approach	Providers were interviewed over the phone or at the observation. Job stress was measured using an adapted version of the Child Care Worker Job Stress Inventory that included two scales: Job Stress (6 items) and Job Specific Demands (4 items). For example, an item was “I feel like I have to be a parent and a teacher to the children.”
Observational measure of quality used	Four measures of quality were used: (1) FDCRS: Teaching and Interaction, (2) FDCRS: Tone and Discipline, (3) FDCRS: Provisions/Health, (4) CIS: Sensitivity
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Multivariate regression models showed that job stress was associated with significantly lower scores on two measures: the FDCRS Tone and Discipline scale and the CIS Sensitivity scale. Stress was not a significant predictor of FDCRS Teaching and Interaction, nor of FDCRS Provisions/Health.
Results from models without covariates	Job stress was significantly negatively correlated with all four measures of quality.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What demographic variables are included as controls?	Multivariate analyses controlled for state and a number of other group and caregiver characteristics, including child-adult ratio, professional development, education, modernity, motivation, and perceived ability.
Any methodological concerns?	The measure of job stress was not specific to stress due to children’s behavior problems. Providers had agreed to participate in a professional development program, so they may not be representative of the general population of child care providers.

III. Attributes of Programs—9. Stress Related to Child Behavior Problems: Detailed Study Descriptions

Publication information/citation	Rusby, J.C., Jones, L. B., Crowley, R., & Smolkowski, K. (2013). Associations of caregiver stress with working conditions, caregiving practices, and child behaviour in home-based child care. <i>Early Child Development and Care, 183(11), 1589-1604.</i>
Which POQ is considered	Teacher stress: Children’s behavior problems
Study focuses on center settings, home-based settings, both	Home-based
Confirm that study focuses on preschool-age children	Yes
Brief description of sample	155 registered and certified child care home providers from six counties in Oregon. 98% female, 64% Caucasian, 12% Hispanic or Latino, 8% African American, 4% Asian/PI, 7% multiracial, 5% Unknown race; 16% had high school diploma or GED, 52% some college, 28% had AA or higher.
Brief description of study approach	Stress was measured using a 43-item subscale of the Index of Teaching Stress (focused on efficacy, ways in which they are impacted by children’s challenging behaviors). Observations were completed during site visits.
Observational measure of quality used	Four measures of observed quality were used: <ul style="list-style-type: none"> • Counts of positive attention during a 30-minute observation (e.g., praising) • Counts of negative attention during a 30-minute observation (e.g., criticizing) • The Caregiver Interaction Scale (CIS) was used to measure caregiver sensitivity and involvement. The Observation Record of Caregiving Environment was used to measure caregiver responsiveness.
Brief summary of findings showing association between this POQ and observed quality (based on multivariate analyses where available)	Regression analyses revealed that observed positive attention (from the CIS) was marginally predictive of caregiver stress ($p < .10$).
Results from models without covariates	Greater levels of observed positive attention (from the CIS) were significantly correlated with lower levels of caregiver stress. The other measures of observed quality (observed negative attention, CIS positive interaction, and ORCE responsiveness) were not correlated with caregiver stress.
Control variables and multivariate analyses: Is this POQ considered separately or in an analysis that controls for other variables or simultaneously includes other POQ? What	Multivariate regression controlled for other group and caregiver characteristics (including child-adult ratio, coworker support) as well as caregiver-reported child behavior problems and caregiver-reported tolerance.

III. Attributes of Programs—9. Stress Related to Child Behavior Problems: Detailed Study Descriptions

demographic variables are included as controls?	
Any methodological concerns?	The model used quality to predict stress, controlling for children’s behavior problems, rather than stress to predict quality. Including behavior problems in the model could mask associations between stress and the other indices of quality, although the lack of such correlations does not suggest that dropping behavior problems from the model would reveal additional effects.