the Ounce

INSPIRE MINDS.
CHANGE LIVES.™

UCHICAGOConsortium
ON SCHOOL RESEARCH

SURVEY DEVELOPMENT BRIEF JULY 2016

Essential Organizational Supports for Early Education

The Development of a New Survey Tool to Measure Organizational Conditions

Stacy B. Ehrlich, Debra M. Pacchiano, Amanda G. Stein, and Stuart Luppescu

Acknowledgements

We would like to acknowledge the many people who contributed to this work through their partnership, support, encouragement, and feedback. This work is the result of a strong collaboration between the University of Chicago Consortium on School Research (UChicago Consortium) and the Ounce of Prevention Fund (Ounce). We gratefully acknowledge several funders for their support of this work including an anonymous funder, The Joyce Foundation, and the Bill & Melinda Gates Foundation. We also express our deep gratitude to all the principals, center directors, early education staff, teachers, and parents who participated in our focus groups, cognitive interviews, and the testing of our surveys.

In conducting this work, we received ongoing support from the Office of Early Childhood Education at the Chicago Public Schools (CPS) and the City of Chicago Department of Family & Support Services (DFSS). Leaders in both agencies have seen the vision for this work, provided critical feedback along the way, and encouraged early education schools and centers to participate in our development work. In particular, we would like to thank Serah Fatani and Beth Mascitti-Miller from CPS and Beth Stover and the late Vanessa Rich from DFSS. In piloting our teacher survey, we also had support from the Office of Planning, Research & Evaluation (OPRE) at the Administration for Children & Families within the U.S. Department of Health & Human Services, who excitedly incorporated our pilot survey into their national Family and Child Experiences Survey (FACES). We thank Jennifer Brooks for her enthusiasm, when approached by the Ounce, around bringing the five essential supports to early education, and for making the initial connection with OPRE. We also thank Lizabeth Malone and Emily Moiduddin at Mathematica Policy Research, who led the implementation of our survey in the FACES study and have provided ongoing feedback on our analyses.

We also benefited from the feedback and support of our colleagues at UChicago Consortium and the Ounce. We want to thank Penny Bender Sebring, Tony Raden, and Ann Hanson who are part of our larger project team for their ongoing insights on this work and for ensuring we are continuously attending to the broader needs of the early education practice and policy communities. We also have a an outstanding advisory committee, comprised of Elaine Allensworth (UChicago Consortium), Tony Bryk (Carnegie Foundation), Rachel Gordon (University of Illinois-Chicago), Karen Mapp (Harvard University), Robert Pianta (University of Virginia), and Diana Rauner (the Ounce), who greatly shaped the content on surveys and design considerations for the current validation study. We look forward to their continued advice and expertise as this work moves forward.

A number of colleagues at UChicago Consortium and the Ounce served as readers and thought partners as we conceptualized, analyzed, and wrote multiple drafts of this brief. In particular, we would like to thank Maia Connors, Kelly Ginley, Jason Sommer, Jennifer Cowhy, Holly Hart, David Johnson, Rebecca Klein, and Elliot Regenstein for their close reads of drafts of this brief; and Kaleen Healey and Todd Rosenkranz for their careful technical read. We thank our communications and marketing staff, Bronwyn McDaniel and Jessica Puller from UChicago Consortium and Megan Meyer from the Ounce, for their insightful feedback, support, and countless careful readings. As always, we are indebted to the members of the UChicago Consortium Steering Committee, in particular Luisiana Meléndez, Cristina Pacione-Zayas, Matthew Stagner, and Amy Treadwell for their careful read of this document, thoughtful questions, and feedback.

This project would not be possible without the help of our research assistants, project managers, and teams of data collectors. We especially thank Brooke Fisher and Maureen Wagner who have both kept this ever-growing project on track; Joanna Horton and Nicholas Walker-Craig for supporting the development of surveys and analyses with critical contributions along the way; and our lead data collectors Beth Frank, Ruby Garrett, Nathalie Tirado Gonzalez, and Claudia Melgar who helped tirelessly with recruitment and leading teams of data collectors into the field.

We also gratefully acknowledge the Spencer Foundation and the Lewis-Sebring Family Foundation, whose operating grants support the work of UChicago Consortium.

Cite as: Ehrlich, S.B., Pacchiano, D.M., Stein, A.G., & Luppescu, S. (2016). *Essential organizational supports for early education: The development of a new survey tool to measure organizational conditions.* Chicago, IL: University of Chicago Consortium on School Research and the Ounce of Prevention Fund.

This report was produced by UChicago Consortium's publications and communications staff: Bronwyn McDaniel, Director for Outreach and Communication; and Jessica Puller, Communications Specialist.

Graphic Design: Jeff Hall Design
Photography: Cynthia Howe
Editing: Jessica Puller

07.2016/1000/jh.design@rcn.com

Essential Organizational Supports for Early Education

Decades of evidence indicate that high-quality early education can positively affect the learning trajectories of disadvantaged young children. Accordingly, the early education field has made substantial investments to improve what occurs inside the classroom. While great strides have been made in providing supportive classroom environments for young children, instructional quality in many preschool programs remains persistently low.[1] With such an intensive focus on improving quality, why do we not see improvements in teaching and learning?

Ample evidence displays significant achievement gaps between more- and less-disadvantaged children by the time they enter kindergarten.[2] Research also shows that high-quality early education programs have the potential to prevent or reduce those achievement gaps when children are three and four years old.[3] This evidence has garnered surprising levels of bi-partisan political support for significant increases in investments in early education programming, to develop systems of standards and monitoring, and to expand professional development opportunities for early childhood professionals.[4] To date, efforts to provide high-quality early education have primarily focused on improving what occurs *within the classroom itself*—how the classroom is set up and the particular interactions that take place between teachers and children to support social, emotional, and cognitive development. The paradox for the field is that despite these efforts to improve what occurs in the classroom, publicly-funded pre-kindergarten (pre-k) programs continue to display instructional quality that is too weak to prepare children for kindergarten.[5]

We propose broadening the focus of improvement efforts beyond the classroom and considering the *organizational conditions* that either support or hinder the work of teachers and the relationships among staff, children, and families.[6] *Key here is the recognition that classroom processes do not occur in isolation from organizational processes.* High-quality teaching and sustained child engagement within the classroom depends, in large measure, on whether leadership and staff engage in a culture of ongoing support and development. Attending to these organization-level processes—in addition to other specific practices within the classroom—has been shown to enhance the day-to-day work of

1 Burchinal, Vandergrift, Pianta, & Mashburn (2010); Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services (2013, 2014, 2015a).
2 Denton & West (2002); Fryer & Levitt (2006); Magnuson, Meyers, Ruhm, & Waldfogel (2005); Puma, Bell, Cook, & Heid (2010).
3 **e.g.,** Frede, Jung, Barnett, Lamy, & Figueras (2007); Gormley, Gayer, Phillips, & Dawson (2005); Institute of Medicine & National Research Council (IOM & NRC, 2015); Weiland & Yoshikawa (2013).
4 Atchison & Workman (2015); IOM & NRC (2015); Yoshikawa et al. (2013).
5 Burchinal et al. (2010); Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services (2013, 2014, 2015a).
6 Regenstein, Connors, & Romero-Jurado (2016); Regenstein & Romero-Jurado (2014).

teachers, improving classroom instruction in sustained ways that lead to better student outcomes. Indeed, research on school improvement from the University of Chicago Consortium on School Research (UChicago Consortium) indicates that improving schools requires coherent, orchestrated action across the following five organizational dimensions: Effective leaders, collaborative teachers, involved families, supportive environment, and ambitious instruction.[7] However, early education has yet to incorporate these organization-level dimensions into definitions of quality and consider how the processes supporting them contribute to overall improvements in instructional quality.

New Surveys Help Broaden the Definition of Quality

UChicago Consortium and the Ounce of Prevention Fund (Ounce) are taking a first step in attempting to broaden the definition of quality by developing a set of surveys to measure key organizational conditions in early childhood settings. We are leveraging UChicago Consortium's existing organizational framework and set of surveys used in school settings—called the 5Essentials—to define and develop the *Five Essentials—Early Education*. These early education surveys are being designed for use in publicly-funded programs—including federally-funded Head Start, state-, and locally-funded programs—that provide center-based services (not home-based services) to three- and four-year-old children.[8] Recognizing the importance of strong organizational supports and being able to adequately measure them has the potential to shift the early education field toward more comprehensively defining high-quality practices; using these more holistic definitions of quality may in turn enhance continuous improvement efforts to increase kindergarten readiness for all children.

There are three phases to our survey development work: (1) Initial survey development and pilot testing, (2) a validation study, and (3) initial survey implementation in centers and schools. This brief documents the first phase of work to develop and pilot test the *Five Essentials—Early Education* surveys. We find it imperative to initiate the conversation about organizational supports now, as cities, states, and the nation are focusing intently on improving the quality of early education for all children, rather than waiting until we complete all phases of our work. Therefore, in this document, we share the framework underlying the surveys, describe our survey development process, define the specific constructs measured by the surveys, and present initial survey reliability results from a pilot study conducted in spring 2015. Over the next year, we will complete our validation study and then transition into shaping implementation and supporting the use of the surveys within pre-k settings.

We present this brief to practitioners and researchers who are interested in measuring the quality of organization-level supports. For all audiences, this brief aims to explain why the early education field would benefit from a measurement system that captures the strength of organizational processes. By providing concrete definitions of the organizational conditions being measured by our new surveys, we encourage practitioners to begin conceptualizing what this may mean for their own work. For other researchers seeking to develop new surveys, this brief provides a roadmap of our rigorous survey development process, whereby we describe our methods for achieving reliable and valid measurement of our intended constructs.

Ultimately, the *Five Essentials—Early Education*

7 Bryk (2010).

8 Programs can be located within schools (which we refer to as "school-based") or within a community-based setting (which we refer to as "center-based").

surveys are designed to capture indicators of processes occurring at the school or center level that, in prior research, have been linked to improvements in student learning.[9] As such, they aim to take the temperature of a program so that leaders and staff can collaborate on identifying the processes behind what is working well and what may need improvement. We intend for these surveys to highlight what strong organizational supports are, encouraging the early education field toward a more comprehensive definition of *high-quality* pre-k. On the ground, we aspire to provide school and center leaders with reliable and valid data on key organizational conditions that reinforce positive instructional practices among teachers and staff as they work with preschool children and families.

Early Education Programs Can Contribute to Closing the Achievement Gap, But Many Do Not Meet Expectations

The great emphasis on early education in the U.S. is driven by evidence that low-income, high-needs children enter kindergarten significantly behind their better-resourced peers,[10] and that gaps in early academic skills continue to persist or even widen in the elementary years.[11] For example, national data from the Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K) found a difference of one full standard deviation (or 15 standard score points) in literacy and mathematics between children from low- and high-income families at the beginning of kindergarten.[12] In addition, children from lower-resourced families commonly have not developed the age-expected self-regulation and social-emotional skills necessary for navigating K-3 classrooms, which may limit their capacity for learning in these environments.[13]

A substantial body of research suggests that high-quality preschool can help to narrow these gaps. Historically, intensive programs including Perry Preschool, Abecedarian, and Child-Parent Centers have shown long-term benefits for participating children.[14] And collective understanding of how to support the early learning of young children and their families has led to substantial positive changes to the ever-growing field over the last several decades. There have been considerable investments in establishing quality standards and providing professional development to improve practices toward those standards. Recently, federal Head Start accountability policies and some state accountability policies have shifted from focusing solely on structural elements of quality (for example, how the room is arranged for play, as measured by the Early Childhood Environment Rating Scale [ECERS])[15] to ones that incorporate how teachers and children *interact* with each other (as measured by the Classroom Assessment Scoring System Pre-K [CLASS Pre-K],[16] described more below).[17] Although developmentally-appropriate structural components are necessary for high-quality early education, the inclusion of

9 Bryk, Sebring, Allensworth, Luppescu, & Easton (2010).
10 Denton & West (2002); Magnuson et al. (2005); Puma et al. (2010).
11 Fryer & Levitt (2006); Loeb & Bassok (2007); Princiotta, Flanagan, & Gernimo-Hausken (2006).
12 Zill & West (2001).
13 Blair & Razza (2007); Fantuzzo, Bulotsky-Shearer, McDermott, & McWayne, (2007); Reardon (2011). There is also emerging evidence that some subpopulations of children may be faring better than others. Research points to what some have called the "immigrant paradox;" this phenomenon refers to young children of recent immigrants who show similar or stronger self-regulation and social-emotional skills than native English speaking children, although these differences often disappear when accounting for other background characteristics (Halle et al., 2014).
14 e.g., Campbell, Ramey, Pungello, Sparling, & Miller-Johnson (2002); Heckman, Moon, Pinto, Save-lyev, & Yavitz (2010); Reynolds, Temple, White, Ou, & Robertson (2011); Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores (2005).
15 Harms, Clifford, & Cryer (2005).
16 Pianta, La Paro, & Hamre (2007).
17 The Build Initiative & Child Trends (2015); Connors & Morris (2015).

interactions and relationships among teachers and children in standards for quality—and support for improving those interactions through training and technical assistance—significantly advances the early education field. In fact, recent evidence shows that locations such as Boston, Oklahoma, New Jersey, and Tennessee are implementing quality state-funded pre-k programs at scale and improving cognitive outcomes for low-income, high-needs children by as much as one-third to three-quarters of a standard deviation, compared to similar children in control groups.[18] Often, these programs use research-based curricula that include a focus on cultural and linguistic responsiveness, and provide teachers with coaching supports.[19]

While individual programs have shown promise, high-quality instruction does not currently exist across programs at scale.[20] In recent years, the most common tool used to measure classroom interactions among teachers and children is the CLASS Pre-K.[21] Classrooms are observed and scored on three "domains"—Emotional Support, Classroom Organization, and Instructional Support.[22] Each domain is scored on a 7-point scale; classrooms scoring between 1 and 2 are considered to be low-quality, those scoring a 3, 4, or 5 are considered mid-level quality, and those scoring a 6 or 7 are considered high-quality. Observations from publicly-funded programs across the country indicate that although many teachers provide high-quality emotional and classroom organizational supports to children, the quality of instructional supports in many programs is often too low to influence children's learning.[23] For example, in 2015, a large, national sample of Head Start classrooms received an average score of 6.03 on Emotional Support and 5.80 on Classroom Organization.[24] In contrast, those same classrooms received an average score of 2.88 out of 7 points on Instructional Support—in the low-mid quality range. And the quality of instructional supports remained stagnant year after year, with averages of 2.90 in 2014 and 2.72 in 2013.[25] Classrooms at these levels display teacher-child interactions that contain too little concept development support, instructional feedback, and advanced language to impact children's readiness for kindergarten.[26] Indeed, the ongoing weakness in instructional support is evident in the continuing achievement gap that exists when children enter kindergarten.[27]

Explanations for this stubborn underperformance on instruction across many pre-k programs include a wide range of variables, including: Family, community, and child risk factors;[28] low classroom structural quality;[29] incoherent understanding and implementation of instructional strategies;[30] and teacher compensation, work

18 Frede et al. (2007); Gormley et al. (2005); Weiland & Yoshikawa (2013).
19 García & Frede (2010); Weiland & Yoshikawa (2013); Yoshikawa et al. (2013).
20 Yoshikawa et al. (2013).
21 Pianta et al. (2007).
22 Each of these three "domains" are comprised of several "dimensions." Emotional Support is comprised of Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Student Perspective. Classroom Organization is comprised of Behavior Management, Productivity, and Instructional Learning Formats. Instructional Supports is comprised of Concept Development, Quality of Feedback, and Language Modeling. See Pianta et al. (2007) for full descriptions.
23 Aikens, Klein, Tarullo, & West (2013); Barnett, Carolan, Squires, Clarke Brown, & Horowitz (2015); Burchinal et al. (2010); Early et al. (2007).
24 Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services (2015a). We focus here on Head Start programs simply because the data are available for them. Similar data do not exist for other publicly-funded pre-k programs across the country, although individual studies have indicated similar trends (see FNs 17 and 18).
25 Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services (2013, 2014).
26 Burchinal et al. (2010).
27 Mulligan, Hastedt, & McCarroll (2012).
28 e.g., Brooks-Gunn, Johnson, & Leventhal (2010); Garrett-Peters, Mokrova, Willoughby, & Pan (2016).
29 e.g., La Paro, Thomason, Lower, Kintner-Duffy, & Cassidy (2012).
30 e.g., Barnett (2003); Howes (2010); IOM & NRC (2015).

conditions, and job satisfaction.[31] However, the field has yet to seriously consider the relationship between classroom processes and the higher-level organizational processes that can influence whether practices inside the classroom improve or stagnate. While each of the aforementioned factors is likely part of the explanation for low levels of instructional quality, they ignore the complex, integrated organizational structures that actively support the continuous work of teachers and the conditions under which those teachers engage with each other, children, curriculum, and families.[32] In other words, we may be losing sight of the forest for the trees.

The opportunity to create fundamental, systemic improvements in pre-k instruction may lie in broadening our understanding of high-quality early education. This suggests moving the focus beyond individual pieces of structural and classroom quality to the organizational conditions that underlie high-quality practice and improvement more broadly.[33] This project aims to take the first step in helping to broaden the focus by defining these organizational conditions, based on theory and prior empirical work, and developing a valid and reliable way to measure them. Toward this end, UChicago Consortium and the Ounce are developing the *Five Essentials—Early Education* surveys for use in early education settings. Ultimately, the purpose of the *Five Essentials—Early Education* project is to provide actionable survey data on broader organizational constructs that may be a crucial piece of the early education quality puzzle.

The *Five Essentials—Early Education* Provides a Framework and Tools to Measure Key Organizational Conditions

The field of early education has a history of measuring classroom-specific structural components and evidence-based classroom practices. There are, for example, reliable and valid tools to measure classroom structural quality, classroom interactions and instruction, interactions with families, administrative practices, and program climate.[34] These measures are helpful in identifying some areas for improvement within programs, but none measure the organizational conditions that support implementation of those structural components and practices.[35] The *Five Essentials—Early Education* fills this critical measurement gap. Being able to identify and measure programs' organizational conditions can allow leaders to focus on strengthening the supports staff need to successfully improve their work.

Research In Elementary Schools Provides a Way to Think About Key Organizational Conditions In Early Education Settings

Prior research on elementary schools conducted by UChicago Consortium researchers led to the identification of five school-level organizational supports that work together to support school improvement, articulated in the five essential supports framework.[36] These five constructs, defined in more detail below, are: effective leaders, collaborative teachers, involved families, supportive environment, and ambitious instruction.[37]

31 e.g., Whitebook & Ryan (2011); Whitebook, Phillips, & Howes (2014).
32 Bryk et al. (2010); Zaslow, Tout, & Martinez-Beck (2010).
33 Bouffard & Jones (2011).
34 e.g., Bryant (2010). Examples of tools measuring these discrete constructs are: the Preschool Program Quality Assessment (PQA; High/Scope Educational Research Foundation, 2003), the Program Administration Scale (PAS; Talan & Bloom, 2004); CLASS PreK (Pianta et al., 2007); ECERS (Harms et al., 2005); the Child Care Worker Job Stress Inventory (CCWJSI; Curbow, Spratt, Ungaretti, McDonnell, & Breckler, 2000), the Early Childhood Job Satisfaction Survey (ECJSS; Bloom, 2010); and the Early Childhood Work Environment Survey (ECWES; Bloom, 2010).
35 Zaslow et al. (2010).
36 Bryk et al. (2010).
37 The original study (Bryk et al., 2010) used different language than what is presented here, but the terms have since been adapted for easier interpretation.

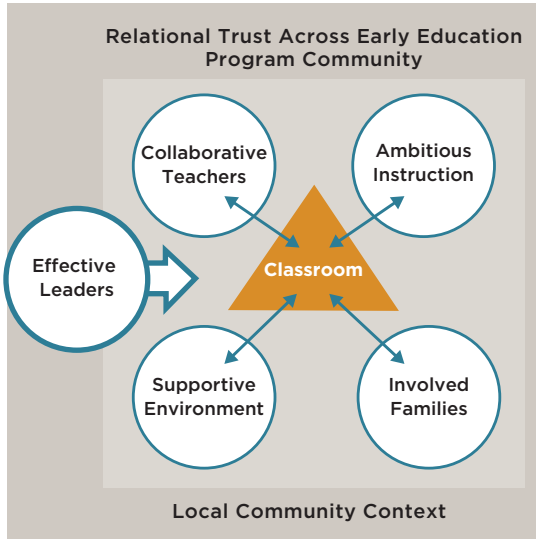
The conceptual framework (**see Figure 1**) specifies these five essential supports as a set of subsystems that operate in strong cooperation with one another to either enable or inhibit improvement in classroom practices.

Each essential has unique salience within the organization, but they are mutually reinforcing. In fact, when one of the essential supports is strengthened, it buttresses the development of the other supports. For example, improving school culture in ways that increase collaboration among teachers is likely to also lead to higher-quality instruction and a safer learning space for students—that is, strengthening ambitious instruction and supportive environments. In turn, teachers are more likely to rely on one another for ideas on how to provide better instruction. They may also generally feel more supported, freeing themselves up to better engage with their students in ways that speak to students' individual needs—academic or otherwise. In other words, these five essential supports operate in tandem, influencing not only each other, but ultimately the professional relationships, capacity-building, classroom interactions, teaching, and learning that occur within a school. School leadership is theorized to be the driving force, acting as the catalyst for improvement by facilitating coherent change and strengthening the other four essentials.

Bryk et al. (2010) originally developed the 5Essentials surveys for teachers in all elementary grades (K-8) and students in grades 6 and above, with expansion to high schools in later years to measure these five organizational conditions. They found that responses to the surveys strongly predicted which schools were most and least likely to improve over time: elementary schools strong in three or more of these supports were 10 times more likely than schools weak in most supports to substantially improve student math and reading test scores over the next few years. Furthermore, it was unlikely that a school had *a sustained* weakness in just one of these supports over time; however, in the rare cases when that occurred, the weakness in one domain ultimately undermined other change efforts. Fewer than 10 percent of schools with a sustained weakness in one essential support showed improvements in student outcomes.[38]

FIGURE 1

The Five Essential Supports Influence Classroom Practices



Note: Adapted from Bryk et al. (2010).

We Are Developing New Surveys to Identify the Strength of these Five Organizational Conditions in Early Education Settings

While the original five essential supports framework was developed with elementary schools in mind, research in early education likewise indicates that programs are more successful in promoting children's learning when they have strong facilitative leadership and organizational structures in

38 Bryk et al. (2010).

place to support teachers' practices and ongoing learning.[39] Therefore, we posit that pre-k schools or centers that are strong across these five essential supports—indicating a cohesive environment where teachers feel supported, leaders are focused on supporting improvements in instruction, and children are nurtured both cognitively and emotionally—will also display higher-quality classroom interactions and better child outcomes. In order to test whether these relationships exist, we must first measure these constructs in early education settings. This starts with an articulation of what the five essential supports would look like in early education. Here, we provide those definitions. They are heavily based on Bryk et al.'s original five essential supports definitions, with adaptations to improve their fit with the goals and language of the early education field.[40]

Effective Instructional Leaders: The school or program leadership is strategically focused on children's development and early achievement. They nurture trust, collective understanding and responsibility for excellence, and improvement among staff and families.

Collaborative Teachers: Teachers are committed to the school or program, build strong relationships with their colleagues, and work together continuously to improve teaching and learning by engaging in research-based, data-informed cycles of professional development.

Involved Families: Staff develop strong relationships with families and support active family engagement in children's learning.

Supportive Environments: Schools or programs are physically and emotionally safe and engaging environments, wherein staff hold high expectations for children's social-emotional and academic learning, coupled with nurturing, individualized support for children and families.

Ambitious Instruction: Teachers and staff provide consistently engaging, effective, rigorous, and developmentally-appropriate curriculum and instruction.

The Development of the *Five Essentials—Early Education* Surveys

The development and pilot testing of the *Five Essentials—Early Education* surveys has taken two years to complete. We designed the *Five Essentials—Early Education* as a single tool that comprehensively measures the five organizational constructs defined above. While the existing *K-12 5Essentials* surveys tap into these ideas through surveys available to teachers and students, the early education version measures these constructs through the perceptions and experiences of teachers and parents.[41] We drew heavily from UChicago Consortium's existing *5Essentials* teacher survey, which has been in use for over

39 Lower & Cassidy (2007); Muijs, Harris, Chapman, Stoll, & Russ (2004); West-Olatunji, Behar-Horenstein, & Rant (2008).

40 For instance, the K-12 definition of Supportive Environment is: "The school is safe and orderly. Teachers have high expectations for students. Students are supported by their teachers and peers." The early education version expands on those ideas to emphasize that high expectations are for both social-emotional and academic development. It also includes a focus on providing supports to families in addition to children. Another language adaptation was changing "Effective Leaders" to "Effective Instructional Leaders" to highlight the importance of *instructional* leadership as distinct from management.

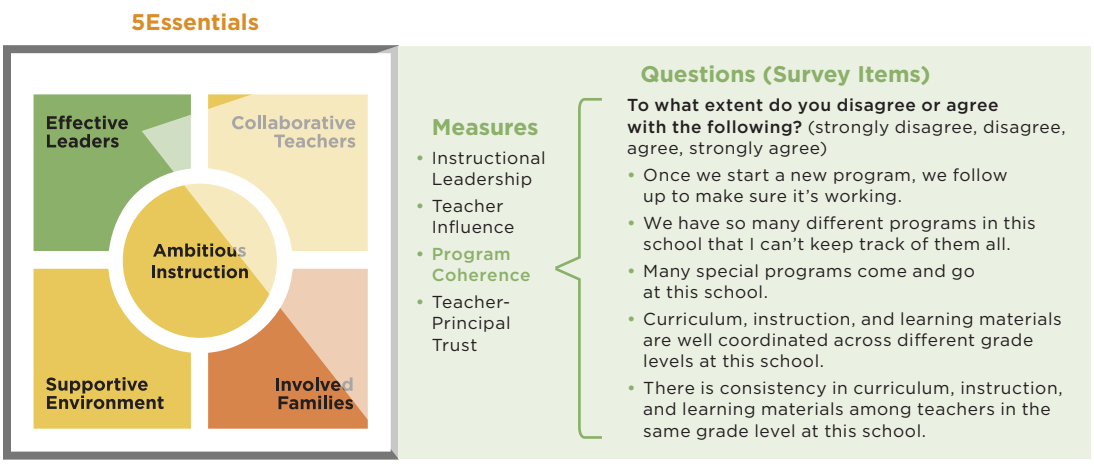
41 See http://uchicagoimpact.org/5essentials for more information on the use of the *K-12 5Essentials* in surveys across the country. See also http://consortium.uchicago.edu/surveys for more information on the surveys themselves. Also note that while we use the term "parent survey," we intend for them to be filled out by any adult caregiver engaged in their child's pre-k experiences. In addition, we are testing the teacher survey with other pre-k staff, not solely teachers. However, most questions ask about what teachers in the school or program do.

20 years with ongoing refinement, to develop the *Five Essentials—Early Education* teacher survey. Because there was no parent survey to draw from, the *Five Essentials—Early Education* parent survey was created as a new survey through the survey development process, described below. Parents are a key stakeholder in the early learning space; they are able to provide a unique perspective on the ways in which early education programs are, or are not, structured to support their child and their family. Together, the teacher and parent surveys are designed to provide a well-rounded picture of how early education program leaders support teachers and other staff and, in turn, how staff support children and families toward early learning goals.

To develop the new *Five Essentials—Early Education* surveys, we engaged in an iterative development process with several rounds of creation, testing, analysis, and revision. We focused our development and testing on publicly-funded early education programs serving children ages 3 to 5 in either school- or center-based settings.[42] Qualitative and quantitative feedback from one cycle was used to inform the next phase of development and testing. Our method of survey development includes the creation of "measures," each of which each represents a particular construct (such as trust among teachers) made from corresponding questions (or survey items). Responses to questions within each measure are analyzed using the Rasch IRT model.[43] Rasch theory posits that questions of varying degrees of difficulty (in this case, ease or difficulty to *endorse or agree with*) differentiate people's placement along a developmental scale: Endorsing more difficult questions means the respondent has higher levels (or more positive beliefs) on the underlying construct. Our use of questions and measures is modeled after the *K-12 5Essentials* surveys. **Figure 2** shows how the Effective Leaders essential is constructed by four measures. In turn, it shows how one of those measures, Program Coherence, is comprised of survey questions.

FIGURE 2

Similar to the *K-12 5Essentials* Surveys, the *Five Essentials—Early Education* Surveys include Questions that Are Combined into Measures Capturing Beliefs and Experiences of Respondents



42 This is our key audience because these programs serve children who are most at risk for entering kindergarten without the necessary academic and social-emotional skills; therefore, these programs have the greatest potential for reducing or closing the achievement gap.

43 Wright & Masters (1982).

The development and testing of both the teacher and parent surveys included steps to determine what the surveys should include, whether our items were appropriately measuring those constructs, and ultimately whether the surveys themselves were reliable. Here, we take you through our development process. Because the parent survey was created anew and we could not draw on an existing K-12 version, it required a more nuanced and iterative development process. Therefore, steps were repeated along the way as we continuously refined the questions and measures for the parent survey. Below, and in **Figure 3**, we take you more specifically through these three steps of our development process.

Step 1: Determine Content

The first step in our development process was to determine which topics should be included on each survey. Theoretically we were interested in capturing aspects of early education programs that related to the five essential supports defined on page 7. To develop the teacher survey, we relied heavily on the existing *K-12 5Essentials* teacher survey developed by UChicago Consortium.[44] The *K-12 5Essentials* surveys have been administered since 1994, resulting in a large bank of teacher survey questions and measures from which to choose. Ultimately, our selection of survey questions to pilot for early education settings was informed by our collective expertise in early education programming, practice, and research. We determined whether existing teacher questions fit into one of three categories: (1) Questions that were appropriate as-is for the early education context, (2) questions that needed terminology revisions for early education, and (3) questions that were irrelevant to early education and, therefore, could be discarded. Then, we determined whether there were concepts that are critical in early education but not addressed in the existing *K-12 5Essentials* surveys, and generated new questions to capture these concepts. For example, the *K-12 5Essentials* survey does not ask teachers about parent influence in decision-making at the school; however, in early childhood it is often an explicit goal to include parent voice in program and policy decisions.[45] Therefore, we created a new measure attempting to capture this aspect of a pre-k program.

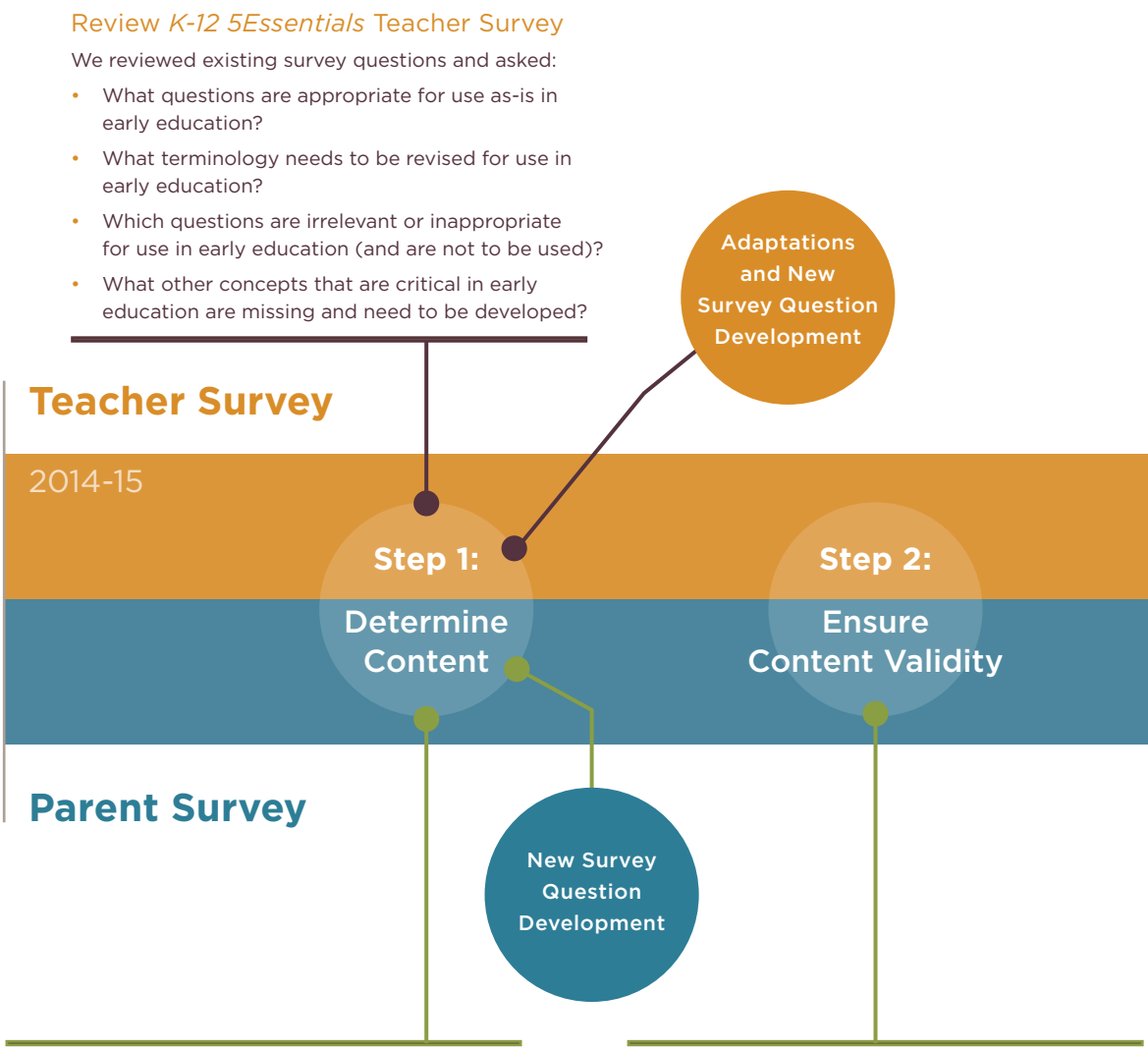
As we developed the parent survey, we took additional steps to ensure it included topics that not only aligned with the five essential supports framework, but also represented what parents had described as most important to them and for which they felt they could provide accurate perspectives. Therefore, to determine appropriate content, we conducted focus groups with various stakeholders, including early education family engagement staff as well as parents who were involved in their program's Head Start Policy Council, Parent Committee, Local School Council, or local community organizations. Conducting focus groups helped us identify key concepts to include on the survey and provided examples of terminology that would evoke the intended meaning of our questions. For example, on the *K-12 5Essentials* surveys, ambitious instruction is measured by asking students about their experiences in the classroom (e.g., *"In your math class, how often do you apply math to situations in life outside of school?"*). Initially, we planned to capture ambitious instruction by asking parents to report on the types of instructional activities occurring in their child's classroom. However, our focus groups revealed that parents are not comfortable reporting on the specific instructional

44 University of Chicago Consortium on School Research (2014). See http://consortium.uchicago.edu/surveys for more information.

45 Head Start Resource Center (2011); Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services (2015b).

FIGURE 3

Timeline of *Five Essentials—Early Education* Survey Development and Testing



Focus Groups with Parents and Family Engagement Staff

Conducting focus groups helped us identify key concepts to include on the parent survey and provide examples of terminology that would evoke the intended meaning of our questions. During our focus groups we asked the following types of questions:

- What do parents care more about in their child's early education program?
- How do parents determine whether a program is high quality?
- What makes parents feel connected to their child's early education program?
- What do parents want to be asked about on a survey of their child's program?

Cognitive Interviews with Parents

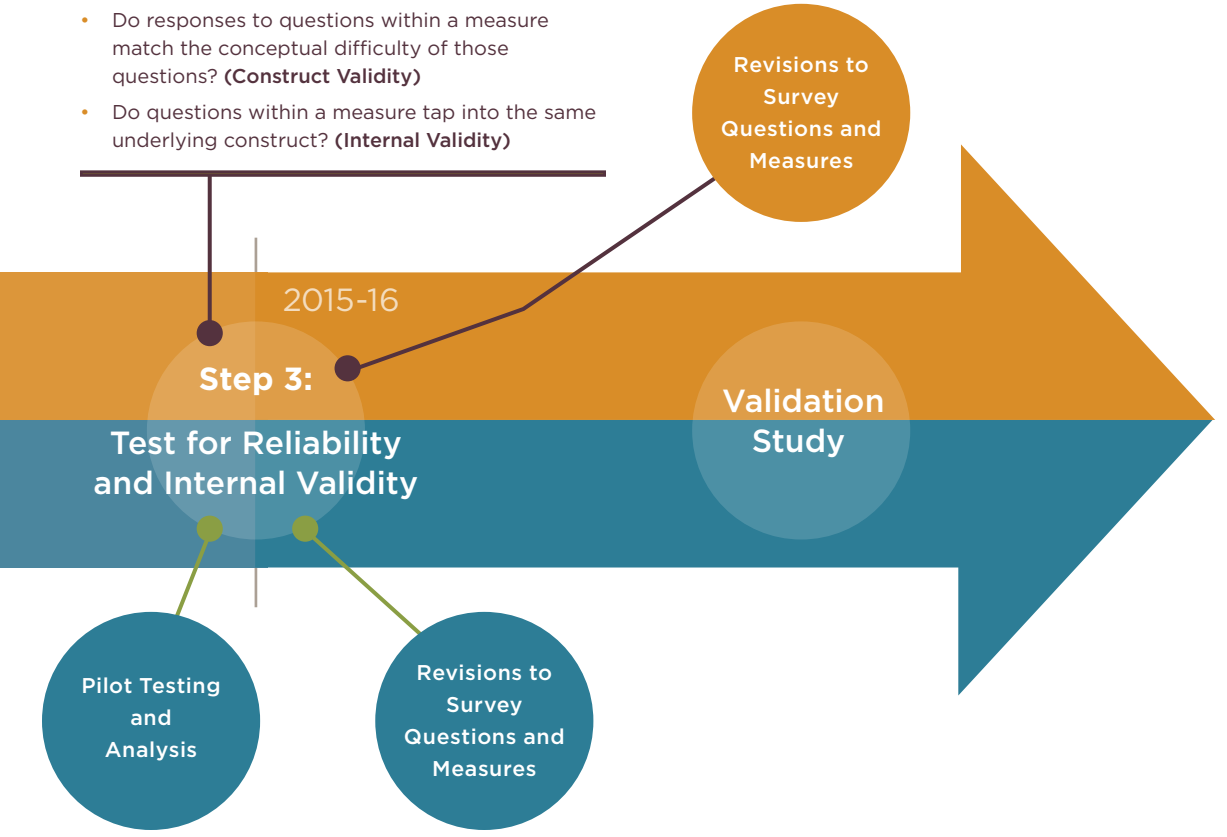
Cognitive interviewing is a method of pre-testing, involving one-on-one interviews with individuals in the target population. Respondents are asked survey questions in a semi-structured format to explore their thought processes and challenges answering each question. The cognitive interviews helped us answer the following questions:

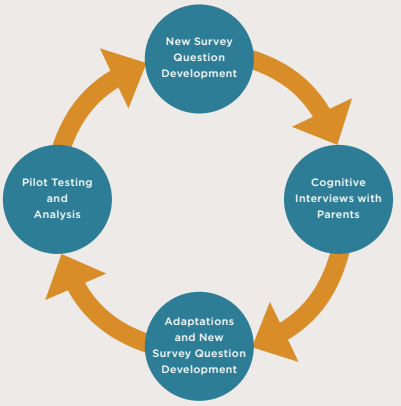
- Are the questions and response categories easy to understand?
- Do parents interpret our survey questions the way we intended?
- Do the response categories appropriately capture parents' experiences?

Pilot Testing and Analysis

Small field pilots allowed us to test how teachers and parents would respond to our survey questions. We then used Rasch analysis to understand:

- Are the survey measures reliable? **(Reliability)**
- Do they differentiate among teachers and parents who have different levels of belief or experiences, particularly at the top and bottom of the distribution? **(Precision)**
- Do responses to questions within a measure match the conceptual difficulty of those questions? **(Construct Validity)**
- Do questions within a measure tap into the same underlying construct? **(Internal Validity)**





Iterative Development Process for Parent Surveys

The development of new surveys is an iterative process, including significant input from stakeholders. To design the new parent survey, we first completed a full cycle of steps 1-3 described in the arrow above, including a small pilot in schools and centers. Analyses from the small pilot led to a second cycle through steps 1-3, including revisions to the survey questions and measures, additional cognitive interviews, and a final round of pilot testing.

interactions taking place in the classroom. While they were confident their child was engaged in their pre-k program and learning (i.e., their child may come home singing a new song or recognizing a letter the child did not know before), parents were not able to report on whether high-quality instructional interactions took place within the classroom in support of this learning. Because of what we heard from parents in our focus groups, we decided to develop questions that captured ambitious instruction for the teacher survey instead. In another example, we created a measure called *Teacher Care and Responsiveness towards Parents* based on our focus groups. It was clear from our discussions that parents feel most comfortable with a program when teachers and staff not only attend to and care about their child, but also attend to the needs, struggles, and accomplishments of the parents themselves.

Step 2: Ensure Content Validity

Most of the teacher survey was selected, or adapted, from the *K-12 5Essentials* teacher survey. Even in the case of the newly-developed ambitious instruction questions, the survey items were modeled after those that had been used with elementary teachers in prior iterations of the *5Essentials* survey. Therefore, we had confidence that teachers would understand the questions and that they would elicit the concepts intended and, thus, decided not to conduct additional testing with those questions.

However, the parent survey required an extra step to ensure we had *content validity*—that our questions were worded appropriately to portray what we wanted to ask about. In other words, we wanted to know: Do the questions on our survey capture the concepts—based on parents' interpretations of the survey questions—they were designed to measure? We also sought to understand how accessible particular words were to parents, in an effort to make the survey as easily understandable and reliable as possible. To answer these questions, we conducted cognitive interviews with parents.[46] Cognitive interviewing is a method of pre-testing involving one-on-one interviews with individuals in the target population.[47] Respondents are asked survey questions in a semi-structured format to explore their thought processes and challenges answering each question. This method can be an inexpensive and effective way of identifying problems in surveys. Cognitive interviews ensure that the questions are easy to understand, the question stems and answer choices are unambiguous, and the questions asked are being interpreted as intended. In our development process, the cognitive interviews provided an additional opportunity to ensure content validity on the parent survey and led to improved clarity of the questions and measures. Findings from cognitive interviews resulted in revisions of questions and response categories before formally testing the reliability of the parent survey. One final assessment of the parent survey included a Lexile analysis to ensure that each measure was written at a high-school reading level or below.

Step 3: Test for Reliability and Internal Validity

The last step in our survey development process focused on determining whether the newly-developed surveys reliably captured a range of perceptions from teachers and parents. We conducted a small pilot with the parent survey prior to a larger, final pilot that also included the teacher survey. Each pilot was designed to answer questions about the psychometric functioning of the survey questions within measures; this process was

46 In conducting our cognitive interviews, we followed methods as described in Willis (2005).
47 Conrad & Blair (2004); Willis (2005).

about assessing reliability, gauging various forms of internal validity, and ensuring that questions captured a range of beliefs and experiences people had (i.e., that our questions were not too "easy" or too "hard" to endorse. The final pilot of both the teacher and parent surveys took place in spring 2015 and sought to answer the following questions:

- Are the survey measures reliable? (Reliability)
- Do they differentiate among teachers and parents who have different levels of beliefs or experiences, particularly at the top and bottom of the distribution? (Precision)
- Do responses to questions within a measure match the conceptual difficulty of those questions? (Construct Validity)
- Do questions within a measure tap into the same underlying construct? (Internal Validity)

We created the surveys with the Rasch model in mind, paying particular attention to the whether or not questions within a measure were asking about a single construct and purposely developing questions that represented a range of difficulty for that construct. Rasch analyses then provided evidence on whether the measures were indeed operating as intended. These analyses were used to discern whether questions fit together properly within a measure and whether the measures were reliable. Our goal was to develop measures that maximize reliability while keeping the number of questions as low as possible, so as to not unnecessarily burden survey takers. **See the box titled *Piloting the Surveys: Data Collection and Analyses* on p.14** for more information on the analyses and how the results were used to ensure the surveys were functioning well in the field.

Pilot Results: How did the *Five Essentials—Early Education* Surveys Perform in the Pilot Study?

The results of our pilot study analyses address the questions in Step 3 of our development process. We present here the reliability coefficients, which tell us whether each measure had low levels of random error. Consistent with others who use Rasch, we aim for measures to have reliabilities above 0.80,[48] but find measures above 0.70 to be acceptable at the individual level.[49]

Table 1 presents results for the *Five Essentials—Early Education* teacher survey. It lists each measure and its corresponding Rasch reliability after adjusting the measure based on Rasch output (**as described in the box titled *Piloting the Surveys: Data Collection and Analyses* on p.14**).[50] Most measures on the teacher survey (19 of 27) had reliabilities at or above our preferred threshold of 0.80, and all but one measure met our 0.70 minimum threshold. The one measure with reliability below 0.70—Early Childhood Discipline—has been removed from the survey for future iterations. Measures that were retained for future administrations but had reliabilities below 0.80 were revised for a new round of testing in

48 e.g., Amin et al. (2012); Chen, Pan, Chung, & Chen (2013); Linacre (2015).

49 The intended use of these measures is to explore these constructs at the school- or center-level, so school-level or center-level reliabilities are more important and are expected to be higher than individual reliabilities.

50 Using output provided by Winsteps, the authors paid particular attention to several statistics for measure and item evaluation. These were our general guidelines, but many of them are not absolutes and can be over-ridden by theoretical and practical considerations: (1) Item separation and reliability (model version, of non-extreme people) to ensure that reliability was above 0.70, preferably above 0.80 (which corresponds to a separation > 2); (2) category fit statistics and Andrich thresholds, to ensure that the observed average for each category increased monotonically; (3) infit mean square, to identify questions that were above 1.3 (considered by some to be a conservative cutoff, e.g., Prieto, Contador, Tapias-Merino, Mitchell, & Bermejo-Pareja, 2012); an indication that they are measuring something other than the construct being tapped by all other questions in the measure this identified questions as candidates for removal; and (4) item difficulty, to ensure that questions were ordered in a way we would theoretically expect. We also used item difficulty to identify redundant questions in terms of difficulty (i.e., not adding much strength to the overall measure, particularly when there were too many questions).

Piloting the Surveys: Data Collection and Analyses

Data Collection Efforts

Teacher Survey

The Five Essentials—Early Education teacher survey was largely based on existing banks of questions; therefore, there was only one round of development and testing—addressing questions in Steps 1 and 3 of our development process. The spring 2015 pilot testing occurred in both school- and center-based settings. To pilot in school-based programs, the survey was offered to all preschool teachers in the Chicago Public Schools (CPS) through an online survey administration tool; a total of 1,153 teachers responded.[A] Because the school-based survey was part of a larger survey given to teachers, the full completion time (for all survey questions, not just ours) was roughly 30-40 minutes. Teacher pilot data were also collected from a national sample of center-based Head Start teachers participating in the Family and Child Experiences Survey (FACES, conducted by the Office of Planning, Research, & Evaluation at the Administration for Children & Families).[B] Eighty-eight percent of those teachers sampled responded to the survey (n=363). Because our items were added onto existing surveys for the FACES study, there were two versions—Version A and Version B—each of which was given to roughly half of the participating teachers (Version A was taken by 177 teachers; Version B by 186 teachers). This kept the average time it took to complete the survey to under 20 minutes. Teachers in the FACES sample were provided the option to complete the survey online (68.3 percent) or using a paper-pencil version (31.7 percent). All teacher surveys were provided in English only.

Parent Survey

The development of the *Five Essentials—Early Education* parent survey involved two rounds of interviews with parents and staff and pilot data collection. Our first round included the following processes in fall 2014: Three focus groups with parents and one focus group with early education family support specialists (Step 1 of our development process); cognitive interviews with 20 parents (Step 2 of our development process); and preliminary field testing in four center-based programs, resulting in over 200 surveys from English- and Spanish-speaking parents (Step 3 of our development process). Following analyses on the small pilot, a second round of development included revisions to questions and measures based on our Rasch analyses. We conducted additional cognitive interviews on newly developed questions with nine parents in preparation for the final pilot.

The final pilot occurred in spring 2015, when the parent survey was administered on-site in seven school-based and nine center-based preschool sites. Surveys were collected by the authors and research team members. Teams of data collectors visited sites and recruited parents to take the pilot survey between May-June 2015. The online survey was developed using Qualtrics and tablets were made available to parents for use; hard copy versions were available upon request or used when difficulties arose connecting to the internet. Surveys were available in both English and Spanish. There were 253 parents who responded to the survey (139 in English and 114 in Spanish, evenly distributed over school- and center-based sites); 81 percent were completed online using tablets with the remaining filled out using paper-pencil versions (mostly due to internet connection issues). On average, surveys took parents between 10-20 minutes to complete.

Analyses

Final analyses on the *Five Essentials—Early Education* surveys were conducted on the combined sample from CPS and FACES for the teacher survey and on the combined sample from school- and center-based programs in Chicago for the parent survey. All analyses were conducted using the Rasch model, with Winsteps Rasch Measurement Program, Version 3.90.2.[C,D]

Using Rasch Helps Ensure Reliability and Construct and Internal Survey Validity

Rasch output provides abundant information about the functioning of our measures. Our analyses helped us address the questions laid out in Step 3 of our development process. Of primary

PILOTING THE SURVEYS...*CONTINUED*

importance is that our measures were reliable: That what we are measuring captures the true response (or experience) of the respondent. In other words, responses to survey questions do not have large amounts of random error. Rasch reliability coefficients also helped us determine whether the questions in the measure have enough precision to differentiate across people who hold different opinions about a construct. We used these information points to decide whether new questions should be written to be more sensitive to particular portions of the distribution (e.g., writing questions that are easier or harder to endorse).

Using information garnered from our Rasch analyses, we could also ascertain whether we had construct validity and internal validity in our survey items (or questions) and measures. Rasch output includes "item difficulty," which indicates which items within a measure are easier vs. harder for respondents to endorse. For example, consider a measure about director/principal relations with parents. Two questions in the measure may be: **(1)** How often is the director/principal visible when you are in the center? and **(2)** How frequently has the director/principal reached out to get feedback about your child's experience? Because it is pretty common for a center director to be visible to parents, the first question would be considered "easier to endorse," with many parents responding in the top response category (*"daily"*). In contrast, questions that are considered more "difficult to endorse" are ones where fewer people choose the highest response category. The second question here asks something that is less common in programs; it is less likely that parents would respond with the highest response category (*"all the time"*). The combination of these two questions allows us to differentiate between parents who are experiencing "OK" interactions with the director from those who are experiencing something harder to achieve—where the director seems to go above and beyond to connect with families. *Construct validity* can be confirmed by determining whether the item difficulties match the conceptual difficulty of those concepts (i.e., we confirm that a question that is empirically difficult also is one that is conceptually difficult to endorse).

Internal validity can be confirmed by testing the unidimensionality—or that all questions are measuring a single construct—of the set of questions and by confirming the fit of the data to the model. The Rasch model calculates an expected response for each person to each item, and the degree to which people and items in the aggregate are acting in accordance with expectation produces measures of fit. Fit statistics included in the output help determine whether there are questions measuring a concept *other than* the one being assessed by the other questions in that measure (indicating that we should perhaps reject the presumption of unidimensionality). We may increase the internal validity of measures by removing questions not related to the concept being measured, or by adding questions that enhance the definition of the concept. We use the item fit statistics, along with correlations between questions, to verify that our measures only include questions that are measuring the degree to which people endorse a single, underlying concept. Analogously, a person with a poor fit statistic ("large misfit") is likely someone who is responding in unexpected ways. We are likely to be skeptical of the measure from a person with a large misfit statistic; to adjust for this in analyses, we inflate the standard error of the person to reflect our uncertainty about that person's measure score.

A We cannot calculate a response rate because the roster information used to send surveys to school teachers/staff does not allow us to identify who is a pre-k teacher (they are self-identified on the surveys themselves). Therefore we cannot calculate a response rate.

B Office of Planning, Research & Evaluation, Administration for Children & Families, U.S. Department of Health & Human Services (2016).

C Linacre (2015).

D See http://consortium.uchicago.edu/sites/default/files/uploads/survey/Overview of Analyses_0.pdf for an overview of the Rasch model and its benefits for survey development.

TABLE 1

Rasch Reliabilities for the *Five Essentials—Early Education* Teacher Survey Pilot

Measure	Rasch Reliability Coefficient	Number of Teachers Completing at Least One Question Within Measure[a]
Essential: Effective Instructional Leaders		
Instructional Leadership	0.85	1,304
Program Coherence	0.82	1,295
Teacher Influence	0.89	1,298
Teacher-Principal/Director Trust	0.93	1,324
Essential: Collaborative Teachers		
Collective Responsibility	0.92	1,315
Collective Use of Assessment Data	0.86	1,317
Orientation to Innovation	0.86	1,504
Quality Professional Development	0.82	1,294
Reflective Dialogue	0.87	1,336
School Commitment	0.80	1,319
Socialization of New Teachers	0.79	1,334
Teacher-Teacher Trust	0.86	1,322
Teacher Collaboration	0.87	1,323
Essential: Involved Families		
School/Center Welcoming to Families[b]	0.74	1,311
Teacher Collaboration with Parents	0.78	1,319
Teacher-Parent Trust	0.89	1,318
Essential: Supportive Environment		
Attendance	0.71	1,291
Child-Child Interactions	0.80	1,288
Early Childhood Discipline[b]	0.58	1,292
Positive Learning Climate[c]	0.78	902
Teacher Safety	0.89	1,320
Essential: Ambitious Instruction		
Early Cognitive Development Instruction[d]	0.87	705
Early Language and Literacy Instruction[d]	0.87	699
Early Math Instruction[d]	0.83	723
Early Social-Emotional Development Instruction[d]	0.79	744
Preschool Pedagogical Practices[b, d]	0.75	707
Quality of Student Interactions[c]	0.87	901

a Because each measure was only given to roughly half of the FACES sample (either 177 or 186 teachers; see the box titled *Piloting the Surveys: Data Collection and Analyses*), the maximum number of possible respondents for each measure is either 1,330 or 1,339. The exception is Orientation to Innovation, which had questions on both versions for FACES administration; the maximum number of possible respondents for that measure is 1,516.

b This measure has since been removed from the survey.

c This measure was limited to a subset of teachers in CPS who identified themselves as teaching either a self-contained classroom or a subject-specific classroom. Only 64 percent of preschool teachers identified themselves as one of those, accounting for lower response numbers.

d This measure was randomly assigned to teachers within CPS, accounting for lower response numbers.

2016 to see if their reliability improved with the revisions. Other characteristics of the measures also informed further refinement; for example, if the questions within a measure were not sensitive enough to differentiate teachers who strongly endorsed the concept, we created questions that were harder to endorse for testing in 2016.

Results from the *Five Essentials—Early Education* parent survey are presented in **Table 2.**[51] As shown, the Rasch reliabilities for measures tested on our parent survey were more variable than those on the teacher survey. Recall that the parent survey was created anew while the teacher survey was largely adapted from existing surveys in use; thus it is not surprising that the measures were less reliable as they had less time in development. As with the teacher survey, we aim for measures to have reliabilities above 0.80, with acceptance of measures above 0.70.

Because of the low reliabilities on four of the parent survey measures, we have made substantial adjustments to the survey and are testing those new revisions in our current validation study. For instance, Support for Kindergarten Transition was revised by keeping several of the pilot-tested questions, but developing several new questions that we believe will improve the reliability of the measure. Other measures, such as Parent Engagement and Quality of Engagement Opportunities, were re-conceptualized entirely. They originally had questions that focused on parent *involvement* in school or center events;

TABLE 2

Rasch Reliabilities for the *Five Essentials—Early Education* Parent Survey Pilot

Measure	Rasch Reliability Coefficient	Number of Parents Completing at Least One Question Within Measure
Essential: Effective Instructional Leaders		
Principal/Director-Parent Relations	0.88	245
Essential: Involved Families		
Curriculum-Related Teacher Communication with Parents	0.95	229
Family Engagement in Center/School	0.68	246
General Teacher Communication with Parents	0.91	244
Parent-Teacher Trust[a]	0.89	124
Quality of Engagement Opportunities[b]	0.61	227
Teacher Care and Responsiveness Towards Parents	0.80	245
Essential: Supportive Environment		
Child-Child Interactions	0.51	249
Support for Kindergarten Transition[b]	0.61	175
Program Orientation Towards Early Education	0.84	246

a Two versions of this measure were tested, and the reliability is only shown for one version. This accounts for the lower response numbers.

b This measure depended on a preceding question. Support for Kindergarten Transition was only asked of parents who reported that their child was transitioning into kindergarten the following year; Quality of Engagement Opportunities was only asked of parents who reported Engagement in the Center/School (preceding measure).

51 Table 2 lists the measures under the essential we hypothesize that they will load onto. We will be testing the relational structure of measures to essentials as part of our 2016 validation study.

TABLE 3

Revisions to *Five Essentials—Early Education* Parent Survey for 2016 Testing

Piloted Measures Kept for 2016 Testing	New Measures Developed for 2016 Testing
• Principal/Director-Parent Relationships	• Including Parents as Partners
• Program Orientation towards Early Education	• Parent Influence on the Program
• Support for Kindergarten Transition	• Social-Capital Building of Parents
• Teacher Communication with Parents	• Staff Care of Parent as Person
	• Teachers' Interactions with Children

however, in making revisions, we heeded the advice of experts who encouraged us to ask questions more aligned with what how the field conceptualizes key aspects of family *engagement*. This led us to shift the focus toward whether parents felt they had influence on the program, whether they felt they were partners in educating their child, and whether there were supports provided to build their own social capital. Researchers dedicated to understanding family engagement practices have found that these types of connections between families and programs are most impactful on both family and child outcomes.[52] There were other revisions made as well, including taking questions in some measures and developing them out into multiple new measures. For instance, although Teacher Care and Responsiveness had high reliability, there were other indications that it was capturing more than one construct. Therefore, some of those items were incorporated into the newly developed Staff Care of Parent as Person and Social-Capital Building of Parents. With the substantial revisions conducted since the pilot study, **Table 3** outlines which measures were retained on the parent survey for a new round of testing in 2016, as well as a listing of new measures we created after the completion of the pilot study.

A Validation Study is Currently Underway

With revised and new measures created, UChicago Consortium and the Ounce are currently testing external validity of the surveys in a validation study. **The box titled *Definitions of* Five Essentials—Early Education *Measures being Tested in 2016* on p.19** gives an overview of the current measures we are testing and a description of the concepts they intend to capture. Over the course of the 2015-16 school/program year, the research team collected data to test whether program-level variations in responses to the *Five Essentials—Early Education* surveys are related to pre-k program outcomes we believe matter, specifically teacher-child interactions within the classroom and child development outcomes. Analyses on this round of data collection will also help us further refine the surveys. For example, we plan to decrease the overall number of questions and measures to shorten the survey, thus reducing burden on teachers and parents. We also plan to use newly collected survey data to empirically identify which measures from each of the surveys cluster together under each of the five essential supports.[53]

52 e.g., Halgunseth (2009); Mapp & Kuttner (2013).

53 We also will be testing the assumption that there are five essential supports in early education. It is theoretically possible that a subset of the five essential supports identify early education programs that display positive classroom practices and child outcomes.

Definitions of *Five Essentials—Early Education* Measures being Tested in 2016

Our 2016 data collection efforts focus on testing survey measures that capture teachers' and parents' experiences and beliefs about their (or their child's) preschool center or school. This box provides definitions of each construct being tested on the 2016 validation study versions of the surveys. Those marked with a (T) represent measures on the teacher survey and those marked with a (P) are on the parent survey. The survey measures are listed under the five essential supports, based on how we hypothesize each measure will load onto each construct. We will test the relational structure of measures to essential supports as part of our 2016 study.

Effective Instructional Leaders

- **Instructional Leadership* (T)**: The principal/director is an active and skilled instructional leader who sets high standards for teaching and children's learning.
- **Principal/Director-Parent Relationships (P):** School/Center leaders actively reach out to and are responsive to parents.
- **Program Coherence* (T):** School/center programs are coordinated and consistent with its goals for children's learning.
- **Program Orientation towards Early Education (P):** The school/center approaches their work with children as early educators responsible for preparing children for kindergarten.
- **Teacher Influence* (T):** Teachers have influence on a broad range of decisions regarding school/center policies and practices.
- **Teacher-Principal/Director Trust* (T):** Teachers and school/center leaders share a high level of mutual trust and respect.

Collaborative Teachers

- **Collective Responsibility* (T):** Teachers share a strong sense of responsibility for children's development and learning, school improvement, and professional growth.
- **Collective Use of Assessment Data* (T):** Teachers review child assessment data with others in the school/center.
- **Orientation to Innovation* (T):** Teachers are continually learning and seeking new ideas, have a "can do" attitude, and are encouraged to try new ideas in their teaching.
- **Quality Professional Development* (T):** Professional development is rigorous, sustained, and focused on children's learning.
- **Reflective Dialogue* (T):** Teachers talk with and learn from one another about instruction and children's learning.
- **School Commitment* (T):** Teachers are deeply committed to the school/center.
- **Socialization of New Teachers* (T):** New teachers are included in the professional community and are given helpful feedback on their instructional practices.
- **Teacher-Teacher Trust* (T):** Teachers are supportive and respectful of one another, personally and professionally.
- **Teacher Collaboration* (T):** Teachers observe each other's practice and work together to review assessment data and develop instructional strategies.

DEFINITIONS OF FIVE ESSENTIALS—EARLY EDUCATION MEASURES...*CONTINUED*

Involved Families

- **Including Parents as Partners (P):** Staff respect parents' inputs and concerns as knowledgeable partners in supporting their child's learning and development.
- **Parent Influence* (T):** Teacher perceptions of whether the school/center involves parents of various backgrounds in making programming decisions.
- **Parent Influence on the Program (P):** Parent perceptions of whether the school/center actively includes parents of various backgrounds in program improvement efforts.
- **Parent Involvement (T):** Teacher perceptions of parents as active participants in their child's experience in the school/center.
- **Teacher Communication with Parents (P):** Teachers provide specific feedback on children's learning and development to parents.
- **Teacher Collaboration with Parents (T):** Teachers shape their teaching practices based on input from parents and provide parents with information on how to support their child's learning at home.
- **Teacher-Parent Trust* (T):** Teachers feel supported and trusted by parents.

Supportive Environment

- **Attendance (T):** Teachers review attendance data and use it to reach out and provide supports to families.
- **Child-Child Interactions (T):** Children interact with each other in positive ways.
- **Positive Learning Climate (T):** Children act within the classroom with comfort and enthusiasm to learn.
- **Social-Capital Building of Parents (P):** Staff help families develop social capital through connections with other adults and resources.
- **Staff Care of Parent as Person (P):** School/center staff extend expressions of care for parents as individuals, beyond the interest in their child.
- **Support for Kindergarten Transition (P):** Staff support parents in planning for the transition to kindergarten.
- **Teachers' Interactions with Children (P):** Teachers express care and respect for children in their classroom.
- **Teacher Safety* (T)**: Teachers report little or no disorder in the hallways, physical conflict among students/children, vandalism, robbery or theft, and threats of violence against teachers.

Ambitious Instruction

- **Early Cognitive Development Instruction (T):** Teachers provide opportunities for children to learn, practice, and apply early cognitive development skills, such as formulating predictions, comparisons, and explanations for how things work.
- **Early Literacy and Language Instruction (T):** Teachers provide opportunities for children to learn, practice, and apply critical early literacy and language skills.
- **Early Math Instruction (T):** Teachers provide opportunities for children to learn, practice, and apply critical early mathematics concepts and skills.
- **Early Social-Emotional Instruction (T):** Teachers provide opportunities and for children to learn, practice, and apply early social-emotional skills.
- **Quality of Student Interactions (T):** Children interact in ways that specifically support each other's academic and social-emotional learning and development.

* These measures come from the existing *K-12 5Essentials* survey, either exactly or slightly modified for appropriate use in early education settings.

Next Steps in Developing, Testing, and Implementing the *Five Essentials—Early Education* Surveys

As we continue our work, we will investigate both the teacher and parent surveys to understand whether they should be used across different settings and with different populations of survey-takers. This includes examining possible differences in the (1) non-response rates to questions and measures (missingness); (2) rates of misfitting people (people who did not respond to the set of questions within a measure in an expected fashion); and (3) Differential Item Functioning (DIF) between groups. DIF analysis allows us to look at respondents in two groups and ask: Are there particular survey items (questions) that are easier or harder to endorse by teachers/parents in one group than another group, given similar overall beliefs or experiences with the construct being asked about?[54] For example, the *Five Essentials—Early Education* surveys were developed to be used in both school-based and center-based settings. However, it is possible that the experiences in those two settings are different enough that some survey questions might work well with teachers or parents in one setting but not in the other. Our analyses can test for these differences, helping us determine whether the same survey can be used across both settings or if there is a need to create two versions. We similarly will examine whether the surveys function comparably among English- and Spanish-speaking parents.

During the 2017-18 school/program year, once the current validation study is complete, we will work closely with a small set of schools and center-based programs to help us prepare for broader implementation and use of the surveys in the field. We have two goals for this implementation pilot. The first is to test and finalize methods of survey administration, scoring, and reporting. The second is to design and refine professional resources and tools that enable leaders, teachers, and other staff to use the survey data effectively in their setting. Our aim is to have the *Five Essentials—Early Education* surveys align with the *K-12 5Essentials* surveys, while simultaneously attending to the nuances of the early education field. Having a set of surveys that are conceptually related to each other can support current alignment efforts across pre-k and elementary grades.[55] However, we will consider various options for scoring the early education version, which may or may not be different from the K-12 version. Currently, schools taking the *K-12 5Essentials* surveys receive reports comparing their results to those of other schools. But for the *Five Essentials—Early Education* surveys, we have two settings—schools and community-based centers—and need to consider the best way of providing comparison information. Should programs receive comparison information only for early education programs in the same setting? Or, should programs receive comparison information for all early education programs regardless of the setting? These are examples of questions we will grapple with as we transition from the development phase of survey creation to the implementation phase. By fall 2018, we plan to have the *Five Essentials—Early Education* surveys and corresponding professional resources and tools ready for implementation and use in the field.

54 There can still be true differences in the levels of endorsement between groups without seeing significant and large DIFs; rather, this tests for individual item functioning within the measure across groups.

55 e.g., Kauerz & Thorman (2011); Nyhan (2015, June 24); Sadowski (2006, October).

Conclusion

The early education field has a long tradition of rigorous assessment of classroom-level structures and instructional quality and their relationships to children's outcomes. The goal for the *Five Essentials—Early Education* surveys is to complement these efforts and provide a critical missing piece—reliable and valid survey data on the organizational conditions of early education programs.

Within schools and centers, our hope is that data from the *Five Essentials—Early Education* surveys will provide leaders and staff with actionable information to focus their attention on strengthening the organizational supports that enhance and improve teachers' complex work with children and families. For policymakers and program leaders, we envision that the *Five Essentials—Early Education* surveys can broaden definitions of quality and transform thinking about how instructional improvement is generated. Specifically, we hope that program staff and leaders can use these surveys to identify organizational strengths and weaknesses and engage in collaborative conversations about implementation of improvement efforts.

Practitioners and leaders across the nation have cautioned carefully—and we agree—that in order for these surveys to achieve their intended goals, it is imperative that they not become another measure used in accountability systems; teachers and parents need to know that they can express their voices without the threat of regulation, or worse, loss of funding for their programs. Without becoming an accountability metric, these surveys can be used by practitioners and system leaders to improve organizational-level processes that support those high-quality practices assessed by existing early childhood quality rating and improvement systems (QRIS).

Lastly, our hope is that the *Five Essentials—Early Education* surveys will support alignment efforts between early and elementary educators. When used together, the *Five Essentials—Early Education* surveys and the *K-12 5Essentials* surveys have the potential to provide a common lens, language, and metric for understanding key organizational conditions for instructional improvement across the educational continuum.

References

Aikens, N., Klein, A.K., Tarullo, L., & West, J. (2013). *Getting ready for Kindergarten: Children's progress during Head Start. FACES 2009 report* (OPRE Report 2013-21a). Washington, DC: Office of Planning, Research & Evaluation, Administration for Children & Families, U.S. Department of Health & Human Services.

Amin, L., Rosenbaum, P., Barr, R., Sung, L., Klaassen, R.J., Dix, D.B., & Klassen, A. (2012). Rasch analysis of the PedsQL: An increased understanding of the properties of a rating scale. *Journal of Clinical Epidemiology, 65*(10), 1117-1123.

Atchison, B. & Workman, E. (2015). State pre-K funding: 2014-15 fiscal year. Denver, CO: Education Commission of the States. Retrieved from http://www.ecs.org/clearinghouse/01/16/97/11697.pdf

Barnett, W.S. (2003). *Better teachers, better preschools: Student achievement linked to teacher qualifications. Preschool Policy Matters, 2.* New Brunswick, NJ: National Institute for Early Education Research.

Barnett, W.S., Carolan, M.E., Squires, J.H., Clarke Brown, K., & Horowitz, M. (2015). *The state of preschool 2014: State preschool yearbook.* New Brunswick, NJ: National Institute for Early Education Research.

Blair, C., & Razza, R.P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development, 78*(2), 647-663.

Bloom, P.J. (2010). *Measuring work attitudes in the early childhood setting: Technical manual for the Early Childhood Job Satisfaction Survey and the Early Childhood Work Environment Survey.* Wheeling, IL: McCormick Center for Early Childhood Leadership, National Louis University.

Bouffard, S.M., & Jones, S.M. (2011). The whole child, the whole setting: Toward integrated measures of quality. In M. Zaslow, I. Martinez-Beck, K. Tout, & T. Halle (Eds.), *Quality measurement in early childhood settings* (pp. 281-295). Baltimore, MD: Paul H. Brookes Publishing Company.

Bryant, D. (2010). *Observational measures of quality in center-based early care and education programs* (OPRE Brief No. 2011-10c). Washington, CD: Office of Planning, Research & Evaluation, Administration for Children & Families, U.S. Department of Health & Human Services. Retrieved from http://www.acf.hhs.gov/programs/opre/cc/childcare_technical/reports/observe_measures.Pdf

Brooks-Gunn, J., Johnson, A., & Leventhal, T. (2010). Disorder, turbulence, and resources in children's homes and neighborhoods. In G.W. Evans & T.D. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 155–170). Washington, DC: American Psychological Association Books.

Bryk, A. (2010). Organizing schools for improvement. *Phi Delta Kappan, 91*(7), 23–30.

Bryk, A., Sebring, P., Allensworth, E., Luppescu, S., & Easton, J. (2010). *Organizing schools for improvement: Lessons from Chicago.* Chicago, IL: University of Chicago Press.

The Build Initiative & Child Trends (2015). A catalog and comparison of Quality Rating and Improvement Systems (QRIS). Retrieved from http://qriscompendium.org/

Burchinal, M., Vandergrift, N., Pianta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. *Early Childhood Research Quarterly, 25*(2), 166-176.

Campbell, F.A., Ramey, C.T., Pungello, E.P., Sparling, J., & Miller-Johnson, S. (2002).
Early childhood education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science, 6*(1), 42-57.

Chen, Y.L., Pan, A.W., Chung, L., & Chen, T.J. (2013).
Examining the validity and reliability of the Taita symptom checklist using Rasch analysis. *Journal of the Formosan Medical Association, 114*(3), 221-230.

Connors, M.C., & Morris, P.A. (2015).
Comparing state policy approaches to early care and education quality: A multidimensional assessment of quality rating and improvement systems and child care licensing regulations. *Early Childhood Research Quarterly, 30*, 266-279. (Special Issue on Quality Rating and Improvement Systems as Change Agents).

Conrad, F.G. & Blair, J. (2004).
Aspects of data quality in cognitive interviews: The case of verbal reports. In S. Presser, J. Rothgeb, M. Couper, J. Lessler, E. Martin, J. Martin & E. Singer (Eds.) *Questionnaire development, evaluation and testing.* New York, NY: John Wiley and Sons.

Curbow, B., Spratt, K., Ungaretti, A., McDonnell, K., & Breckler, S. (2000).
Development of the child care worker job stress inventory. *Early Childhood Research Quarterly, 15*(4), 515-536.

Denton, K., & West, J. (2002).
Children's reading and mathematics achievement in kindergarten and first grade. (NCES 2002-125). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Early, D.M., Maxwell, K.L., Burchinal, M., Alva, S., Bender, R.H., Bryant, D., & Henry, G.T. (2007).
Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development, 78*(2), 558-580.

Fantuzzo, J., Bulotsky-Shearer, R., McDermott, P.A., & McWayne, C. (2007).
Investigation of dimensions of social-emotional classroom behavior and school readiness for low-income urban preschool children. *School Psychology Review, 36*(1), 44-62.

Frede, E., Jung, K., Barnett, W.S., Lamy, C.E., & Figueras, A. (2007).
The Abbott Preschool Program longitudinal effects study (APPLES). New Brunswick, NJ: National Institute for Early Education Research.

Fryer, R.G., & Levitt, S.D. (2006).
The black-white test score gap through third grade. *American Law and Economics Review, 8*(2), 249-281.

García, E.E., & Frede, E.C. (2010).
Young English language learners: Current research and emerging directions for practice and policy. New York, NY: Teachers College Press, Early Childhood Education Series.

Garrett-Peters, P.T., Mokrova, I., Willoughby, M., & Pan, Y. (2016).
The role of household chaos in understanding relations between early poverty and children's academic achievement. *Early Childhood Research Quarterly, 37*(4), 16-25.

Gormley, W.T., Jr., Gayer, T., Phillips, D., & Dawson, B. (2005).
The effects of universal pre-K on cognitive development. *Developmental Psychology, 41*(6), 872-884.

Halgunseth, L. (2009).
Family engagement, diverse families, and early childhood education programs: An integrated review of the literature. *Young Children, 64*(5), 56-58.

Halle, T.G., Whittaker, J.V., Zepeda, M., Rothenberg, L., Anderson, R., Daneri, P., & Buysse, V. (2014).
The social–emotional development of dual language learners: Looking back at existing research and moving forward with purpose. *Early Childhood Research Quarterly, 29*(4), 734-749.

Harms, T., Clifford, R.M., & Cryer, D. (2005).
Early Childhood Environment Rating Scale-revised. New York, NY: Teachers College Press.

Head Start Resource Center. (2011).
The Head Start parent, family, and community engagement framework: Engaging families — prenatal to age 8. Arlington, VA: Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services.

Heckman, J.J., Moon, S.H., Pinto, R., Savelyev, P.A., & Yavitz, A. (2010).
The rate of return to the High/Scope Perry Preschool Program. *Journal of Public Economics, 94*(1), 114-128.

High/Scope Educational Research Foundation. (2003).
Preschool program quality assessment (2nd Ed.) (PQA) administration manual. Ypsilanti, MI: High/Scope Press.

Howes, C. (2010).
Culture and child development in early childhood programs. New York, NY: Teachers College Press.

Institute of Medicine (IOM) & National Research Council (NRC). (2015).
Transforming the workforce for children birth through age 8: A unifying foundation. Washington, DC: National Academy Press.

Kauerz, K., & Thorman, A. (2011).
QRIS and P-3: Creating synergy across systems to close achievement gaps and improve opportunities for young children. Boston, MA: The Build Initiative.

La Paro, K.M., Thomason, A.C., Lower, J.K, Kintner-Duffy, V.L., & Cassidy, D.J. (2012).
Examining the definition and measurement of quality in early childhood education: A review of studies using the ECERS-R from 2003 to 2010. *Early Childhood Research and Practice, 14*(1), 115-132.

Linacre, J.M. (2015).
A user's guide to Winsteps (program manual 3.91.0). Retrieved from http://www.winsteps.com/manuals.htm

Loeb, S., & Bassok, D. (2007).
Early childhood and the achievement gap. In H.F. Ladd & E.B. Fiske (Eds.), *Handbook of research in education finance and policy* (pp. 517-534). New York, NY: Routledge Press.

Lower, J.K. & Cassidy, D.J. (2007).
Child care work environments: The relationship with learning environments. *Journal of Research in Childhood Education, 22*(2), 189-204.

Magnuson, K., Meyers, M.K., Ruhm, C.J., & Waldfogel, J. (2005).
Inequality in children's school readiness and public funding. *Focus, 24*(1), 12-18.

Mapp, K.L., & Kuttner, P.J. (2013).
Partners in education: A dual capacity-building framework for family–school partnerships. Austin, TX: SEDL.

Muijs, D., Harris, A., Chapman, C., Stoll, L., & Russ, J. (2004).
Improving schools in socioeconomically disadvantaged areas—A review of research evidence. *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice, 15*(2), 149-175.

Mulligan, G.M., Hastedt, S., & McCarroll, J.C. (2012).
First-time kindergartners in 2010-11: First findings from the kindergarten rounds of the early childhood longitudinal study, kindergarten class of 2010-11 (ECLS-K:2011) (NCES 2012-049). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012049

Nyhan, P. (2015, June 24).
The power of a good idea: How the San Francisco School District is building a PreK-3rd grade bridge. *New America Report: Education Policy.* Retrieved from https://www.newamerica.org/education-policy/policy-papers/the-power-of-a-good-idea/

Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services. (2013).
2013 Head Start grantee-level data from the Classroom Assessment Scoring System (CLASS®). Washington, DC: Author. Retrieved from https://eclkc.ohs.acf.hhs.gov/hslc/data/class-reports/docs/national-class-2013-data.pdf

Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services. (2014).
2014 Head Start grantee-level data from the Classroom Assessment Scoring System (CLASS®). Washington, DC: Author. Retrieved from https://eclkc.ohs.acf.hhs.gov/hslc/data/class-reports/class-data-2014.html

Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services. (2015a).
2015 Head Start grantee-level data from the Classroom Assessment Scoring System (CLASS®). Washington, DC: Author. Retrieved from https://eclkc.ohs.acf.hhs.gov/hslc/data/class-reports/class-data-2015.html

Office of Head Start, Administration for Children & Families, U.S. Department of Health & Human Services. (2015b).
Head Start Program performance standards. Washington, DC: Author. Retrieved from https://eclkc.ohs.acf.hhs.gov/hslc/standards/hspps/45-cfr-chapter-xiii/45-cfr-chap-xiii-eng.pdf

Office of Planning, Research & Evaluation, Administration for Children & Families, U.S. Department of Health & Human Services. (2016).
Head Start Family and Child Experiences Survey (FACES), 1997-2018. Retrieved from http://www.acf.hhs.gov/programs/opre/research/project/head-start-family-and-child-experiences-survey-faces

Pianta, R.C., La Paro, K., & Hamre, B.K. (2007).
Classroom Assessment Scoring System Pre-K (CLASS Pre-K). Baltimore, MD: Paul H. Brookes Publishing Company.

Prieto, G., Contador, I., Tapias-Merino, E., Mitchell, A.J., & Bermejo-Pareja, F. (2012).
The Mini-Mental-37 test for dementia screening in the Spanish population: An analysis using the Rasch model. *The Clinical Neuropsychologist, 26*(6), 1003-1018.

Princiotta, D., Flanagan, K.D., & Germino Hausken, E. (2006).
Fifth grade: Findings from the fifth-grade follow-up of the early childhood longitudinal study, kindergarten class of 1998-99 (ECLS-K). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006038

Puma, M., Bell, S., Cook, R., & Heid, C. (2010).
Head Start impact study. Final report. Washington, DC: Administration for Children & Families, U.S. Department of Health & Human Services.

Reardon, S.F. (2011).
The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In R. Murnane & G. Duncan (Eds.), *Whither opportunity? Rising inequality and the uncertain life chances of low-income children* (pp. 91-116). New York, NY: Russell Sage Foundation.

Regenstein, E., Connors, M., & Romero-Jurado, R. (2016, February).
Valuing the early years in state accountability systems under the Every Student Succeeds Act, 9-10. Ounce of Prevention Fund, Policy Conversations No. 5, Version 1.0. Chicago, IL: Ounce of Prevention Fund.

Regenstein, E., & Romero-Jurado, R. (2014, June).
A framework for rethinking state education accountability and support from birth through high school, 24-27. Ounce of Prevention Fund, Policy Conversations No. 3, Version 1.0. Chicago, IL: Ounce of Prevention Fund.

Reynolds, A.J., Temple, J.A., White, A.B., Ou, S.R., & Robertson, D.L. (2011).
Age 26 cost–benefit analysis of the Child-Parent Center Early Education Program. *Child Development, 82*(1), 379-404.

Sadowski, M. (2006, October).
Core knowledge for PK-3 teaching: Ten components of effective instruction. New York, NY: Foundation for Child Development Policy Brief, No. 5. Retrieved from http://fcd-us.org/sites/default/files/Core_Knowledge.pdf

Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005).
Lifetime effects: The High/Scope Perry Preschool study through age 40. (Monographs of the High/Scope Educational Research Foundation, 14). Ypsilanti, MI: High/Scope Press.

Talan, T.N., & Bloom, P.J. (2004).
Program Administration Scale: Measuring early childhood leadership and management. New York, NY: Teachers College Press.

University of Chicago Consortium on School Research. (2014).
Surveys of CPS schools. Retrieved from http://consortium.uchicago.edu/surveys

Weiland, C., & Yoshikawa, H. (2013).
Impacts of a prekindergarten program on children's mathematics, language, literacy, executive function, and emotional skills. *Child Development, 84*(6), 2112-2130.

West-Olatunji, C.A., & Behar-Horenstein, L.S., & Rant, J. (2008).
Mediated lesson study, collaborative learning, and cultural competence among early childhood educators. *Journal of Research in Childhood Education, 23*(1), 96-108.

Whitebook, M., & Ryan, S. (2011).
Degrees in context: Asking the right questions about preparing skilled and effective teachers of young children. Berkeley, CA: Joint Publication of the National Institute for Early Education Research and the Center for the Study of Child Care Employment.

Whitebook, M., Phillips, D., & Howes, C. (2014).
Worthy work, STILL unlivable wages: The early childhood workforce 25 years after the National Child Care Staffing Study. Berkeley, CA: Center for the Study of Child Care Employment.

Willis, G. (2005).
Cognitive interviewing: A tool for improving questionnaire design. Thousand Oaks, CA: Sage Publishing.

Wright, B.D., & Masters, G.N. (1982).
Rating scale analysis: Rasch measurement. Chicago, IL: MESA Press.

Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M.R., Espinosa, L.M., Gormley, W.T., Ludwig, J., Magnuson, K.A., Phillips, D., & Zaslow, M.J. (2013).
Investing in our future: The evidence base on preschool education. Ann Arbor, MI: Society for Research in Child Development. Retrieved from http://fcd-us.org/resources/evidence-base-preschool

Zaslow, M., Tout, K., & Martinez-Beck, I. (2010). *Measuring the quality of early care and education programs at the intersection of research, policy, and practice* (OPRE Research-to-Policy, Research-to-Practice Brief OPRE 2011-10a). Washington, DC: Office of Planning, Research & Evaluation, Administration for Children & Families, U.S. Department of Health & Human Services.

Zill, N., & West, J. (2001). *Findings from the condition of education 2000: Entering kindergarten.* U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001035

ABOUT THE AUTHORS

STACY B. EHRLICH is a managing director and senior research scientist at the UChicago Consortium. Stacy's research interests include using quantitative methods to measure student learning and growth for the improvement of education. Leading the early childhood education research agenda at UChicago Consortium, her work focuses on a range of topics affecting students in Chicago including studying early chronic absenteeism; developing a deeper understanding of how noncognitive factors develop over childhood and adolescence across a variety of contexts; and developing and testing surveys that capture the strengths of organizational supports and structures for effective teaching and learning in early education settings. Stacy is also involved in outreach with other research organizations that are implementing research-practitioner partnership models. She holds a PhD in developmental psychology from the University of Chicago and a BS in human development and family studies from the University of Wisconsin-Madison.

AMANDA G. STEIN is a senior research associate at the Ounce of Prevention Fund. Her research interests include studying the short- and long-term trajectories of children and families participating in early education settings and advancing the definition, measurement, and testing of "high-quality" practices and organizational conditions in the early childhood field. Amanda directs the Educare Chicago Implementation and Longitudinal Follow-Up Studies and provides research and evaluation leadership on various Ounce initiatives. She has considerable experience partnering with external organizations, including participating in a network of over 20 early childhood researchers conducting secondary data analyses; collaborating with the Erikson Institute on an early math evaluation; and co-leading the evaluation and dissemination for the Birth-To-College Collaborative with the UChicago Urban Education Institute. She was a post-doctoral fellow in Early Childhood Special Education Policy & Leadership at the University of Colorado, and holds a PhD in human development and family studies from Iowa State University and a BS in developmental psychology from Creighton University.

DEBRA M. PACCHIANO is Vice President, Research to Practice Improvement at the Ounce of Prevention Fund. She is responsible for the conceptualization, implementation, and evaluation of applied research initiatives to advance professional learning, quality improvement, and practice innovation in early education teaching, learning, and leadership. Debra recently completed directing a federal Investing in Innovation (i3) grant to design and evaluate a professional development model that strengthens instructional leadership and job-embedded professional learning supports essential to the continuous improvement of teaching and learning in early education settings. Currently, she is providing conceptual, implementation, and evaluation leadership as the Ounce scales this professional development model across the state of Illinois and nationally. Debra holds a PhD from Indiana University in educational psychology with emphasis in school psychology and early childhood special education and a BS in psychology and public policy from the University of Minnesota.

STUART LUPPESCU is chief psychometrician at UChicago Consortium, specializing in educational measurement. He received a BA and an MA in linguistics from Cornell University, an MA in English as a second language from the University of Hawaii, and a PhD in educational measurement from the University of Chicago. Before coming to Chicago, Luppescu taught English in Japan and Hawaii for 13 years. His research interests include language acquisition, Rasch measurement, and multi-level modeling of achievement data.

UCHICAGOConsortium
ON SCHOOL RESEARCH

1313 East 60th Street
Chicago, Illinois 60637

T 773-702-3364
F 773-702-2010

@UChiConsortium
consortium.uchicago.edu

the Ounce

INSPIRE MINDS. CHANGE LIVES.™

The Ounce of Prevention Fund (Ounce) gives children in poverty the best chance for success in school and in life by advocating for and providing the highest-quality care and education from birth to age five. The Ounce envisions a world in which high-quality early learning opportunities beginning at birth are an integral part of our nation's education system. With commitment to quality as our guiding principle, the Ounce works at the intersection of practice, policy and research and forges public-private partnerships. Over the last 30 years, the Ounce has developed an effective approach to advancing knowledge, testing ideas in real-world settings, advocating for policy change, engaging champions and training practitioners and leaders.

UCHICAGO Consortium
ON SCHOOL RESEARCH

The University of Chicago Consortium on School Research (UChicago Consortium) conducts research of high technical quality that can inform and assess policy and practice in the Chicago Public Schools. We seek to expand communication among researchers, policymakers, and practitioners as we support the search for solutions to the problems of school reform. The UChicago Consortium encourages the use of research in policy action and improvement of practice, but does not argue for particular policies or programs. Rather, we help to build capacity for school reform by identifying what matters for student success and school improvement, creating critical indicators to chart progress, and conducting theory-driven evaluation to identify how programs and policies are working.

THE UNIVERSITY OF CHICAGO | UEI URBAN EDUCATION INSTITUTE

ISBN 978-0-9975073-0-0
50995
9 780997 507300