

Using a Multi-Method Approach to Examine the Reliability and Validity of Surveys Measuring Early Education Organizational Conditions

Stacy B. Ehrlich^a, Debra M. Pacchiano^b, Amanda G. Stein^b, Maureen Wagner^b, Sangyoon Park^a,
and Beth Frank^a

^aUniversity of Chicago Consortium on School Research

^bOunce of Prevention Fund

Abstract

Background:

School climate—driven by the *organizational conditions* of a learning setting—has consistently been found to be related to student outcomes (e.g., Allensworth, Ponisciak, & Mazzeo, 2009; Kraft, Marinell, & Yee, 2016; Pallas & Buckley, 2012; Sebastian & Allensworth, 2012). Under the newest federal education legislation (Every Student Succeeds Act), districts and states have broadened K-12 school quality definitions to include school climate for state report cards and school accountability. Early education research also suggests, similar to K-12 settings, that early childhood education (ECE) programs with supportive organizational climate are more likely to exhibit higher quality (e.g., Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Dennis & O’Connor, 2013; Rohacek et al., 2010).

However, ECE programs have faced struggles with improving the instructional quality, and thus with reducing achievement gaps that already exist when children enter school (Aikens, Klein, Tarullo, & West, 2013; Burchinal et al., 2010; Early et al., 2007; Ross, Moiduddin, Meagher, & Carlson, 2008). To date, improvement efforts have primarily focused on what occurs within the classroom itself. However, ECE programs are complex organizations; classroom processes do not occur in isolation from the rest of the organization. What the ECE field is missing is a measurement tool that allows programs to measure the strengths and weaknesses of their organizational conditions.

Purpose:

The purpose of the *Early Education Surveys* is to provide reliable and valid data that will guide ECE leaders and practitioners to generate improvements in teaching and learning by strengthening the organizational conditions in which educators work. This proposed paper presents findings from a validation study, employing quantitative and qualitative methods, to test a new set of “*Early Education Surveys*” designed to measure organizational conditions in ECE settings (Ehrlich, Pacchiano, Stein, & Luppescu, 2016). Because accurate and field-relevant assessment is essential to improvement, we examine the surveys’ internal reliability and concurrent and construct validity, carefully testing the measurement properties in ECE settings. Therefore, our primary research questions are:

- 1 Are the *Early Education Surveys* internally reliable? Do they function similarly across ECE settings?
- 2 Are responses to the surveys positively related to outcomes in ECE programs at the site level – in particular teacher-child interactions and student outcomes?
- 3 Do teacher and parent survey responses match the on-the-ground experiences in those settings? For each essential, what conditions most differentiate strong and weak settings?
- 4

Setting:

This study was conducted in publicly-funded ECE programs with at least three classrooms serving children ages 3-to-5 in either school- or community-based settings in a large, Midwestern urban city.

Participants:

In winter/spring 2015-16, data were collected from 41 school- and 40 community-based pre-kindergarten sites for the quantitative validation study. Across these sites, 745 teachers and 2,464 parents completed surveys. For the qualitative investigation, a subset of sites were selected by rank-ordering teacher/parent survey responses that had been received by spring 2016. Two sites with strong organizational conditions and two sites with weak organizational conditions (1 school and 1 community-based site each) according to their survey data were recruited.

Research Design:

This was a multi-method validation study. Rasch analyses (a form of IRT) was used to create survey scales and multi-level modeling explored relationships with outcomes. Building off of survey responses, qualitative data collection on a sub-sample of sites allowed for richer understanding of the constructs as they occurred within ECE programs.

Data Collection and Analysis:

Teacher surveys were collected either through a district-wide administration of the K-12 surveys in schools or by our research team in community-based programs. All parent surveys were collected on site by our team. Student administrative data and outcomes were made available by two parent agencies.

Rasch analyses were used to develop survey scales and test for internal reliability. We then used HLM to examine concurrent validity by testing whether site-level differences on six constructs (Effective Leaders, Collaborative Teachers, Family Involvement, Supportive Environment, Ambitious Instruction, and Parent Voice) measured by the *Early Education Surveys* were related to the following outcomes: (1) teacher-child interactions (CLASS-PreK; Pianta, LaParo, & Hamre, 2008) and (2) student attendance.

To pursue additional evidence of construct validity, we conducted site visits lasting three consecutive days. Data collectors were blind to which sites were “strong” and “weak” based on survey responses. Individual interviews with 7-10 staff members and group interviews of 5-10 parents were conducted in each site. All recordings were transcribed verbatim and iteratively coded using NVIVO software.

Findings/Results:

Initial results (see Table 1) indicate significant relationships between the Effective Leaders and Collaborative Teachers constructs and all three CLASS domains. There are also strong relationships between four of our six constructs—Effective Leaders, Collaborative Teachers, Parent Influence, and Supportive Environment—and student attendance (see Table 2). Lack of associations between some of the constructs (e.g., Parent Voice and Ambitious Instruction) and student outcomes will be discussed. Complete analyses will be presented at the conference.

Qualitative analyses indicate that the on-the-ground conditions overwhelmingly match survey responses and that the conditions most differentiating strong and weak settings are consistent in robust ways with the essential supports survey measures (see Table 3).

Conclusions:

The current project presents findings from a validation study utilizing quantitative and qualitative methods. The result is a rigorously tested survey tool that assesses the strengths and weaknesses of organizational conditions in ECE settings. The addition of a qualitative component to a traditionally quantitative endeavor, such as testing the psychometric properties of surveys, contributes evidence about the surveys' construct and external validity. These data help interpret, clarify, and illustrate quantitative findings. This qualitative approach offers nuanced details about how these organizational conditions are experienced and implemented in actual ECE settings, which will improve the use of these tools in the field and better inform the creation of supports necessary for integrating these surveys into practice. We are currently working with local education agencies to interpret study findings and use the results to influence systems-level policies and supports for programs and practitioners.

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
- Allensworth, E., Ponisciak, S., & Mazzeo, C. (2009). *The schools teachers leave: Teacher mobility in Chicago Public Schools*. Chicago, IL: Consortium on Chicago School Research.
- Burchinal, M., Vandergrift, N., Pianta, R. C., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in prekindergarten programs. *Early Childhood Research Quarterly*, 25, 166-176.
- Dennis, S. E., & O'Connor, E. (2013). Reexamining quality in early childhood education: Exploring the relationship between the organizational climate and the classroom. *Journal of Research in Childhood Education*, 27(1), 74-92.
- 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.
- 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 Ounce of Prevention Fund.
- Kraft, M. A., Marinell, W. H., & Shen-Wei Yee, D. (2016). School organizational contexts,

- teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal*, 53(5), 1411-1449.
- Pallas, A. M., & Buckley, C. K. (2012). *Thoughts of leaving: An exploration of why New York City middle school teachers consider leaving their classrooms*. New York: Research Alliance for New York City Schools.
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom Assessment Scoring System (CLASS)*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Rohacek, M. Adams, G. C., Kisker, E. E., Danziger, A., Derrick-Mills, T., & Johnson, H. (2010). *Understanding quality in context: Child care centers, communities, markets, and public policy*. Retrieved from Urban Institute website: <http://urban.org/UploadedPDF/412191-understand-quality.pdf>
- Ross, C., Moiduddin, E., Meagher, C., & Carlson, B. (2008). *The Chicago program evaluation project: A picture of early childhood programs, teachers, and preschool-age children in Chicago, Final External Report*. Princeton, NJ: Mathematica Policy Research, Inc.
- Sebastian, J., & Allensworth, E. (2012). The influence of principal leadership on classroom instruction and student learning a study of mediated pathways to learning. *Educational Administration Quarterly*, 48(4), 626-663.

Table 1. *Standardized coefficients between site-level survey Essential scores and site-level estimates of CLASS domain scores*

	Emotional Support		Classroom Organization		Instructional Support	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Effective Instructional Leaders	0.166~	-0.114	0.232*	-0.064	0.200*	-0.065
Collaborative Teachers	0.178*	-0.014	0.272**	0.050	0.231**	0.018
Parent Involvement	0.018	0.147~	0.044	0.205*	0.043	0.168*
Supportive Environment	0.041	0.022	0.114	0.070	0.061	0.077
Ambitious Instruction	-0.140	-0.084	-0.088	-0.009	-0.12	0.047
Parent Voice	-0.036	0.135	0.041	0.217**	0.070	0.192**

NOTES: (1) Model 1 represents models that include no covariates; Model 2 includes percent Black, percent Latino, percent non-English speakers, and mean neighborhood concentration of poverty. (2) The CLASS was standardized at the classroom level (within each domain) and then entered into the models. SDs on the CLASS domains are: 0.69 (Emotional Support), 0.97 (Classroom Organization), and 1.16 (Instructional Support). (3) ~ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 2. *Standardized coefficients between site-level survey Essential scores and student attendance*

	Model 1	Model 2
Effective Instructional Leaders	2.745***	1.511*
Collaborative Teachers	2.936***	1.634*
Parent Involvement	2.284**	1.694**
Supportive Environment	2.803***	1.837**
Ambitious Instruction	1.231	1.122~
Parent Voice	1.162	1.503*

NOTES: (1) Model 1 represents models that include no covariates; Model 2 includes percent Black, percent Latino, percent non-English speakers, percent age 3, and mean neighborhood concentration of poverty. (2) ~ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 3. Comparison of Conditions Differentiating ECE Settings with Strong and Weak Early Education Survey Responses

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Effective Leaders</p>	<p style="text-align: center;"><i>Strong Conditions</i></p> <ul style="list-style-type: none"> -Leadership vision is purpose-driven and rooted in child developmental science and ECE pedagogy -Leaders embrace a facilitative and relational leadership style -Leaders create quality, supportive learning environments -Leaders support the parent/child relationship by engaging and partnering with parents to instill a love of learning together -Leaders nurture a strong, positive professional culture focused on children’s learning and striving to innovate and improve teaching and learning -Leaders provide consistent instructional guidance to teachers and bring coherency to the myriad of program standards and compliance demands 	<p style="text-align: center;"><i>Weak Conditions</i></p> <ul style="list-style-type: none"> -Leadership vision is compliance-driven to the myriad of program standards and funder requirements -Leaders use a transactional style and micromanagement to enforce compliance -Leaders create a regimented and structured environment to meet mandates -Leaders believe that children’s needs will be met if the center/school is compliant to the standards -Leaders provide minimal family engagement opportunities, limited to those that meet funder requirements. -Leaders foster a negative professional culture and are frustrated when teachers don’t work well together
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Collaborative Teachers</p>	<p style="text-align: center;"><i>Strong Conditions</i></p> <ul style="list-style-type: none"> -A collaborative culture is championed by leadership. Teachers feel welcome to bring up problems of practice, and are committed to raising performance overall, in their own work and in that of their peers -Leaders ensure teachers have protected time to meet together routinely (i.e., weekly and bi-weekly) and that they use the time to address variations in children’s learning and outcomes -Collaboration builds internal capacity by focusing on pedagogical issues, using children’s data to examine practice, and designing and trying out innovations -Collaborative time has a clear purpose and is structured by goals, data, and in some contexts shared protocols that allow teachers to demonstrate expertise and to learn from each other 	<p style="text-align: center;"><i>Weak Conditions</i></p> <ul style="list-style-type: none"> - A culture of individual responsibility is communicated by leadership. Leaders view practice improvement as the teachers’ responsibility and speak openly about their frustration with teachers’ performance --Leaders feel constrained by the demands of their funders, and do not view collaboration as a solution for improving practice -Teachers do not experience dedicated time to meet together with their peers. Teachers ask each other informally about how to address problems while simultaneously expressing distrust in the practice of their peers - Leaders engage with funder-provided coaches and specialists and then “pass along” information to teachers in written memos as procedures teachers should follow -Teachers rarely use children’s data to critically examine their instruction

Supportive Environments	<p style="text-align: center;"><i>Strong Conditions</i></p> <ul style="list-style-type: none"> -Families are welcome and expected to be everywhere in the building -Physical space of school/center embodies leader’s vision -Child-friendly, age-appropriate visual displays and materials are in the common areas of the building -Interactions between teacher-child, family-teacher, and staff-staff are positive and emotionally supportive -High level of morale and trust between leaders and staff -Children’s social/emotional learning is the foundation of the program and seen as necessary for all other learning -Leaders create supportive environments for the whole family in order to truly support the child 	<p style="text-align: center;"><i>Weak Conditions</i></p> <ul style="list-style-type: none"> -Families are only in the building to drop off or pick up their children -Physical space is not connected to the leader’s vision for the program -Common areas may have visual displays, but they aren’t connected to children’s learning -Interactions between teacher-child, family-teacher, staff-staff are neutral at best or impersonal and negative -Staff express low morale and low levels of trust with leadership -Meeting academic standards is the main goal -Leaders and teachers express frustration about children’s social-emotional “issues” and blame parents as either contributing or unresponsive
Involved Families	<p style="text-align: center;"><i>Strong Conditions</i></p> <ul style="list-style-type: none"> -Leaders champion the importance of family engagement and link it to the vision for program success -Staff view families as integral to the work they do to support children’s adjustment to school/center and to advancing children’s learning -Families are provided a variety of formats and times of the day to be involved with the school/center -Leaders and teachers use multiple strategies for communicating with families about their children’s learning and development -Families are well versed in the terminology of ECE and child development -Families are able to speak in detail about the curriculum and the concepts being explored with their child in the classroom -Families describe teachers as exceptionally dedicated, professional, caring, and persistent with meeting their child’s needs 	<p style="text-align: center;"><i>Weak Conditions</i></p> <ul style="list-style-type: none"> --Leaders do not highlight family engagement as an important element in their vision for program success - Staff view some families as an impediment to both the child’s adjustment to the classroom and to their work with children in the classroom -Leaders plan and recruit families to attend monthly meetings as required by funders, and express frustration at low participation rates -Families express frustration at both teachers and leaders for a lack of communication about their child’s adjustment and learning -Teachers are told to let leaders handle “issues” that families bring up about their child or the program -Families lack familiarity with ECE and child development terminology -Families have few details to share about the curriculum or the concepts being explored with their child in the classroom -Families describe teachers as trying hard to do a tough job

Ambitious Instruction	<p style="text-align: center;"><i>Strong Conditions</i></p> <ul style="list-style-type: none"> -Social-emotional learning is the foundation of the program and curriculum for all students of all abilities -Teachers use assessment data to design meaningful learning opportunities -Student-teacher ratios below the maximum standard -Teachers partner with families to develop meaningful learning opportunities at home -Leaders provide teachers quality instructional guidance and emotional support to critically examine and improve practice and children's learning -Teachers provide students with emotional supports to engage in inquiry and to love learning -Instructional planning occurs in Interdisciplinary teams using multiple sources of data on children's learning to identify needs 	<p style="text-align: center;"><i>Weak Conditions</i></p> <ul style="list-style-type: none"> -Discreet skill development is the focus of the program and the curriculum for all students of all abilities -Teachers emphasize rote learning (e.g., number and letter identification; writing name; holding pencil and scissors) -Teachers are frustrated that English language learning (ELL) students and students with Individualized Education Plans (IEPs) aren't making progress -Student-teacher ratios at the maximum standard -Teachers give families homework folders to complete with their child; frustrated when homework is completed by older siblings -Monitoring and compliance of funder requirements take precedence over instructional guidance
------------------------------	---	--