School Readiness Assessment
The ASR Model™

2013 SCHOOL READINESS in Santa Clara County

Quality Matters:

An assessment of how Preschool Quality and Family Income relate to School Readiness

FUNDED BY: FIRST 5 SANTA CLARA COUNTY

PRODUCED BY: ASR

About FIRST 5 Santa Clara County

FIRST 5 Santa Clara County (www.first5kids.org) is dedicated to making a difference for local children by investing millions of Proposition 10 tobacco tax money each year towards effective programs in health, education, family and community services. FIRST 5 works with over 65 non-profit organizations in the county, both as a funder and a convener, to meet its goals in five areas: Health Access; Family Support; Early Care and Education; Neighborhood Support; and Systems Change.

About Applied Survey Research

Applied Survey Research (www.appliedsurveyresearch.org) is a nonprofit social research firm dedicated to helping people build better communities by creating meaningful evaluative and assessment data, facilitating information - based planning, and developing custom strategies. Incorporated in 1981, the firm has 33 years of experience working with public and private agencies, health and human service organizations, city and county offices, school districts, institutions of higher learning, and charitable foundations. Through community assessments, program evaluations, and related studies, ASR provides the information that communities need for effective strategic planning and community interventions.

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Acknowledgments

Applied Survey Research (ASR) would like to acknowledge the following individuals for their support and assistance in the planning and implementation of the 2013 school readiness assessment in Santa Clara County:

- Jolene Smith, FIRST 5 Santa Clara County, Chief Executive Officer
- Melanie Daraio, FIRST 5 Santa Clara County, Chief Program Officer
- Judith Calvo, FIRST 5 Santa Clara County, Director of Research and Evaluation
- Laura Buzo, FIRST 5 Santa Clara County, Program Director
- Cathy Andrade, FIRST 5 Santa Clara County, Program Director

This assessment would not have been possible without the support of the families and teachers of participating kindergarteners who generously gave their time and energy to help us better understand the skills of the children entering their classrooms. Families shared their experiences transitioning into kindergarten and teachers dedicated ample time to training, completing student observations, project management, and questionnaire completion. We gratefully acknowledge the assistance of the many kindergarten teachers listed in the following table.

Participating Santa Clara County Districts, Superintendents, Schools, and Teachers

District	School	Teacher Name
Alum Rock Superintendent Stephen Fiss and Director of Academic Services Sharon De Angelo	César Chávez Principal Linda Rodriguez	Pamela Akina
		Jane DeJesus
		Hazel Herman
		Sandra Rivera
	A.J. Dorsa Principal Devorah Duncan	Veronica Castaneda
		Dennis Monlux
		Catherine Villarreal
		Yolanda Villarreal
	Ben Painter Principal Gail Smith	Kathleen D. De Arana
		Lisa Deshpande
		Qui Pham
Evergreen Superintendent Katherine Gomez	Carolyn Clark Principal Gina Juarez Fierro	Karen Acosta
		Kasandra Douglas
		Sue Gresch
		Susan Noda
	Tom Matsumoto Principal Jim Sherman	Laurie Bierman
		Kelly Cimoli
		Shannon Simpson
		Shirley Madsen
		Michaela Wells

District	School	Teacher Name
Franklin-McKinley Superintendent Dr. John Porter and Assistant Superintendent of Educational Services Stella Kemp	Los Arboles Principal Ricardo Balderas	Carolyn Burkhardt
		Mike Hertzfeldt
		Heather Martinez
		Juana Quintana
		Patricia Roach
	Ramblewood Principal Tara Bell	Eva Dean
		Jeannie Martin
		Jennifer Robinson
	George Shirakawa Principal Cesar Torrico	Angie Dinh
		Adoracion "Dory" Lopez
		Melody Su
		Jolene Wong
	Windmill Springs Principal Monica Nagy	Emily Choo
		Rebecca Haslemann
		Renee Weslowski
Oak Grove Superintendent Jose Manzo and Director of Educational Innovation and Development Nora Guerra	Julia Baldwin Principal Joyce Millner	Laura Butera
		Andrea Judge
	Christopher Principal Bill Abraham	Koren James
		Lori McKinney
		Shirley Veloro
		Jenny Zuniga
	Bertha Taylor Principal Betsy Fitch	Tracey Matsui
		Julie Stenton

Executive Summary

STUDY PURPOSE

This study examines school readiness and its relationship to preschool experiences across a sample of incoming kindergarten students in Santa Clara County during Fall 2013. The study was commissioned by FIRST 5 Santa Clara County and conducted by Applied Survey Research (ASR). The purpose of the study is to understand how preschool quality is correlated to school readiness, over and above the influences of other known factors such as family and neighborhood socioeconomic status. Specifically, the research questions were:

- *What is the profile of school readiness across the county in 2013?*
- *Overall, what factors are associated with increased readiness levels?*
- *Does preschool have the same benefit for low income children as it does higher income children?*
- *If it does benefit children differently, why? How do preschools that serve lower income children differ from those serving higher income children?*
- *Which markers of quality are most closely related to increased school readiness, particularly amongst low income children?*
- *Do neighborhoods with higher socioeconomic status and readiness scores have higher quality preschools?*

To answer these questions, the study assessed the state of school readiness among 844 incoming kindergarten students in 12 elementary schools in Santa Clara County. The school readiness data were obtained through a teacher-based assessment of new kindergarten students conducted within the first month of school, using ASR's *Kindergarten Observation Form*. Teachers also collected data on children's family backgrounds and preschool experiences from a survey sent home to parents. An additional self-regulation measurement (HTKS) was conducted by outside assessors. Second, this study identified the various "feeder" preschools around the assessment region and explored how those preschools varied in terms of staffing, size and teaching practices.

To collect information on the various preschool "feeder" schools, ASR and FIRST 5 Santa Clara County conducted a phone survey of preschool directors in 2013-2014. In this survey, directors were asked to describe specific features of their preschools and teaching staff in accordance with the latest research on common attributes of high quality preschools. Third, ASR examined how students' level of school readiness was correlated with specific attributes of the preschools they attended, over and above other known influences on school readiness such as socioeconomic status.

KEY FINDINGS

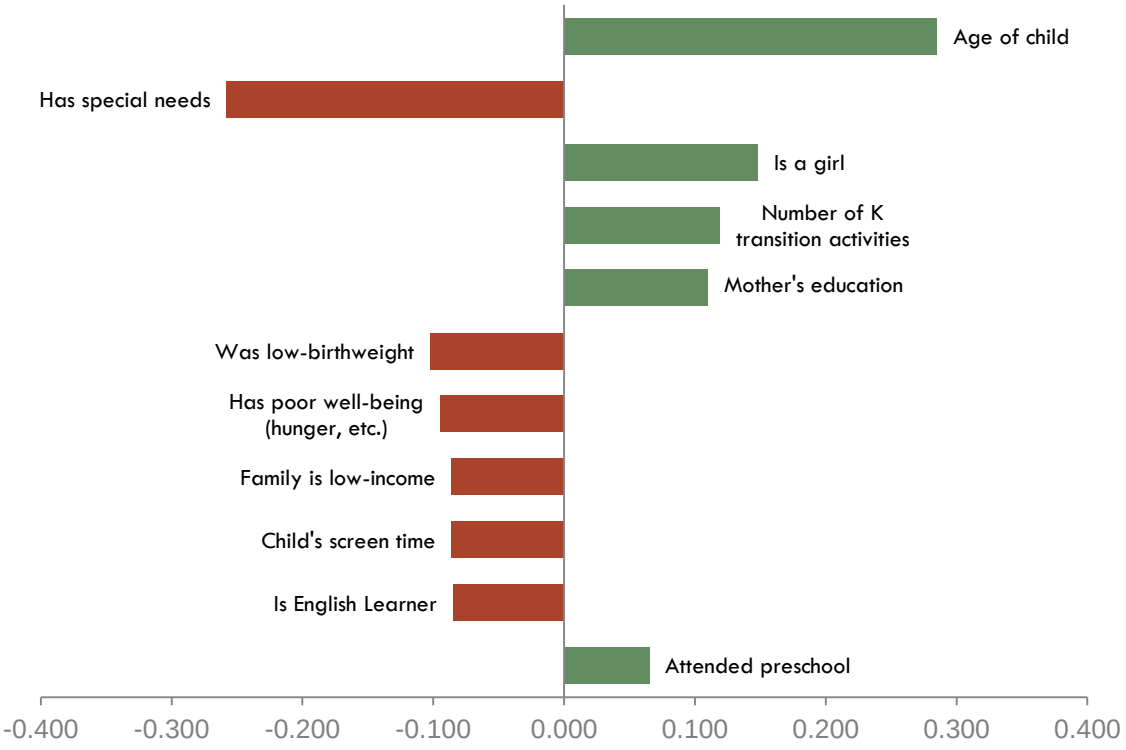
What is the overall profile of school readiness across the county in 2013?

Across a representative sample of 844 kindergarteners, more than half of students are not prepared for kindergarten success. Overall, 38 percent of students were designated as *Strong in All Domains* of school readiness, or having the highest overall level of school readiness within the sample. Low income students, students from neighborhoods with lower socio-economic status (SES) and students without preschool experience are least likely to be ready for kindergarten. Only about 52% of students assessed had attended preschool in the year prior to kindergarten.

What factors are associated with increased readiness levels?

Not all factors are created equal: preschool matters, but not to the same degree as family income and exposure to transition activities. The Quality Matters study reveals the extent to which students' family backgrounds and preschool experiences are likely to shape their readiness for kindergarten. The figure below presents the how strongly specific characteristics relate to readiness, over and above the influence of other related characteristics. Acting as either assets or risk factors, the strongest factors related to readiness in the 2013 sample were children's age, presence of special needs, sex, participation in kindergarten transition activities, and mothers' education. Family income negatively affected readiness scores while preschool experience was associated with higher levels of readiness.

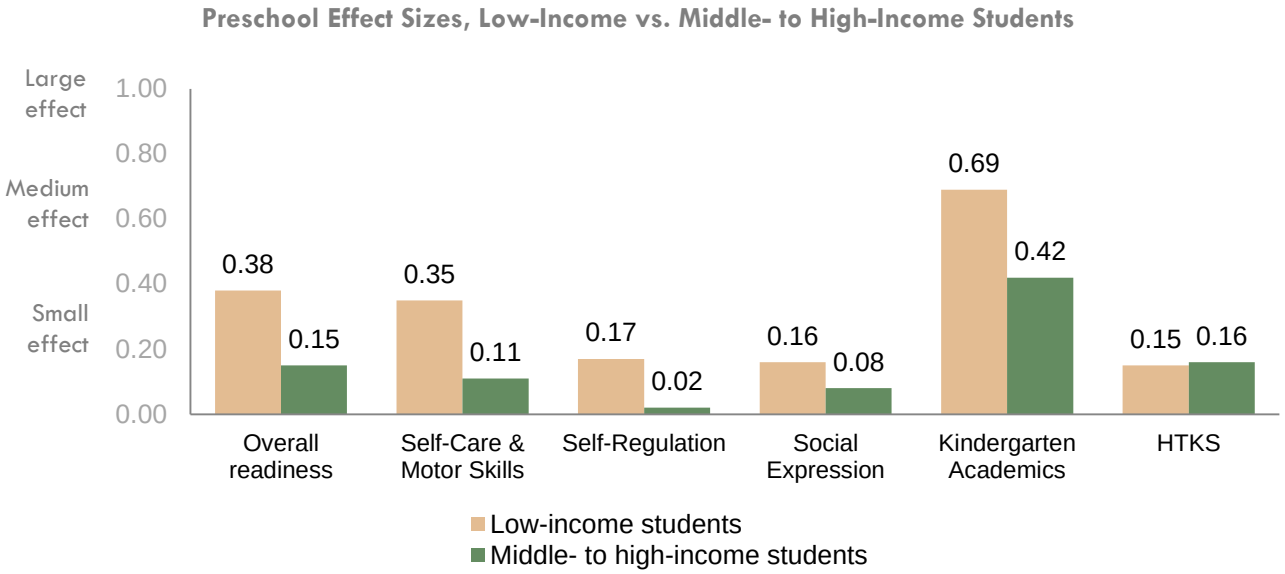
Factors that are Positively and Negatively Associated with School Readiness



Sources: *Kindergarten Observation Form, Parent Information Form, Preschool Experience Form* (2013).
Note: Values for each factor listed above represent standardized beta coefficients that were significant at $p < .10$; $F = 22.55$, $p < .001$, explaining 33 percent of the variance in kindergarten readiness ($R^2 = .34$; Adj. $R^2 = .32$); N=594.

Does preschool benefit low income children to the same extent it does higher income children?

Preschool has a bigger net effect for low income students than it does for higher income students, and this holds true even after adjusting for other differences between these samples.



Source: Kindergarten Observation Form (2013). Note: for low-income students: N=171-178 (preschool) and 117-123 (no preschool). For middle-to high-income students: N=245-150(preschool) and 105-112 (no preschool).

If preschool does benefit children differently, why? How do preschools that serve lower income children differ from those serving higher income children?

There are a number of differences between preschools that primarily serve low-income students and those that serve higher-income students. Those differences that stand out are highlighted in red font, and many of the items were statistically different across the two types of preschools (noted with asterisks and plus symbols).

Preschool Characteristic	Most students are low-income	Few/no students are low-income
Overall class ratio	**7.62**	8.35
Percentage of students attending 5+ hrs/day	**48%**	62%
Percentage teachers who speak same language as students "always"***	**21%**	5%
Years of director experience+	**25.14**	19.95
Percent of directors with masters or PhD	**39%**	23%
Percent of teachers with a BA	31%	39%
Percent of teachers with a BA in ECE	26%	29%
Years of ECE experience (lead teachers)+	**15.46**	12.54
Teachers meet weekly or more to reflect on assessment data and class practices*	**50%**	18%

Preschool Characteristic	Most students are low-income	Few/no students are low-income
Staff receives more than 30 hours professional development on effective teacher-child interaction	16%	19%
Staff receives coaching from master teacher on-site more than 40 hours per year	13%	16%
Staff receives coaching from external consultant more than 40 hours per year+	**28%**	8%
Staff attends trainings/courses 40 hours or more per year+	**40%**	17%
Percent that provide parent education via…		
Workshops**	**76%**	39%
Print materials*	**97%**	77%
Referrals to other agencies*	**97%**	77%
Percent assessing parent needs regularly+	**45%**	25%
Percent asking parents weekly or more to do educational activities with child	36%	34%
Percent asking parents weekly or more to come to meetings/events	6%	10%
Percent sending flyers or emails weekly or more about meetings/events	15%	26%
Percent inviting parents weekly or more to volunteer +	**48%**	27%
Percent sharing child's progress with parents weekly or more	63%	64%
Percent telling parent about child's activities weekly or more	76%	77%
Percent talking to parents weekly or more about K readiness	30%	41%
Percent offering nutritious meal***	**94%**	61%
Percent using formal nutrition policies/guidelines	94%	93%

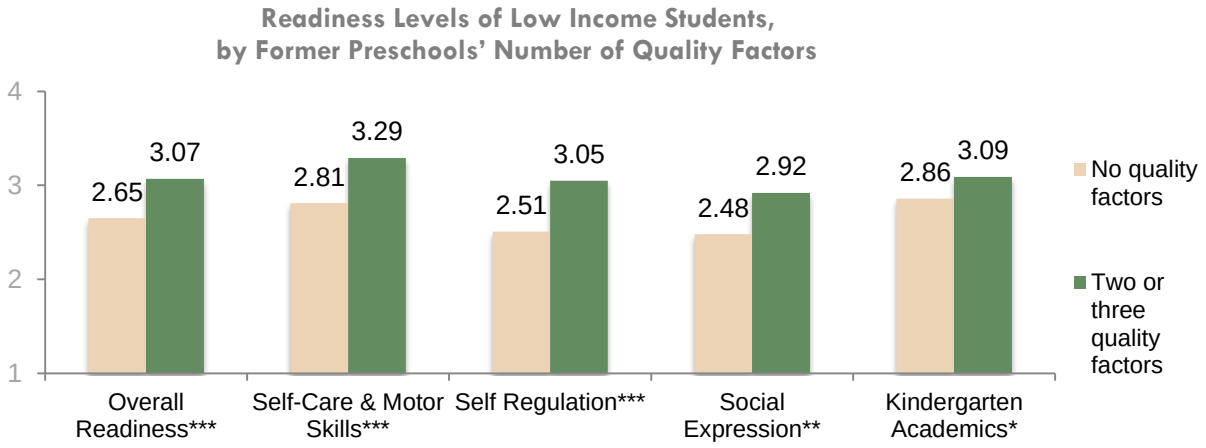
Source: Preschool Directors' Survey (2013). Note: Groups are divided according to whether directors reported that more than 50% of their students were low-income versus 50% or fewer were low-income. Statistical significance (chi-square or ttests, as appropriate) are indicated as follows: + p < .10; * p < .05; ** p < .01; *** p < .001.

Which markers of quality are most closely related to increased school readiness?

Regression analyses were conducted across the 2013 sample of children assessed, using all of the quality variables included above. This analysis revealed that the following **three to five overall aspects** of preschool quality were associated with higher readiness scores:

- **Average annual hours of formal training** received by teachers;
- **Frequency of parent engagement** to do an educational activity with their child at home; and
- **Frequent engagement in reflective practice** – meeting to review assessment data or classroom practices – is associated with stronger *Kindergarten Academics* scores for students at any income level.
- **Average years of teaching experience** held by lead teacher, specifically among low-income students.
- **Speaking to low income students in their home language** a portion of the time -- sometimes or almost always -- is associated with better *Kindergarten Academics* scores.

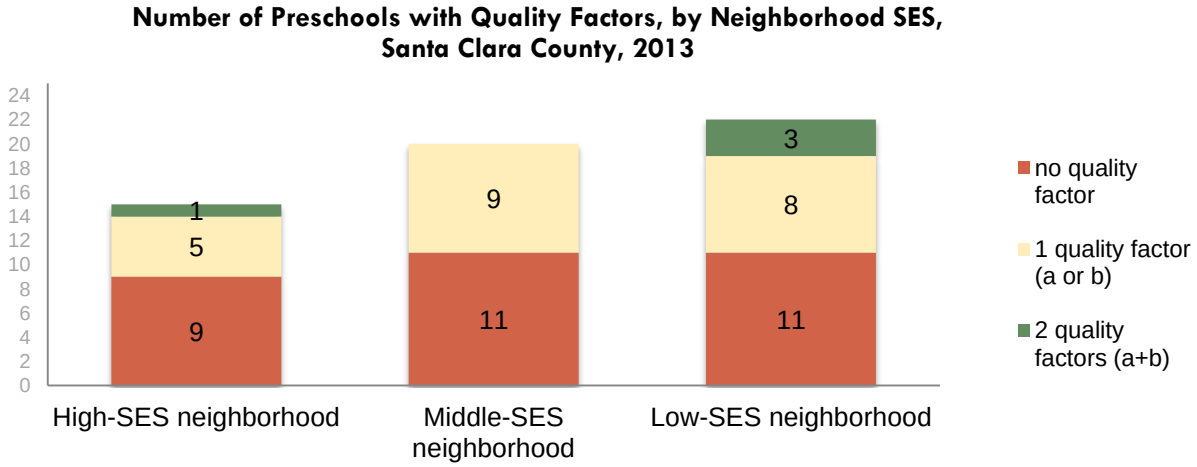
Low income children who had attended preschools with at least two of the three markers of overall quality (teacher PD, parent engagement, teaching experience) were significantly more ready for kindergarten than children whose former preschools did not have those factors, even when accounting for neighborhood and child-level socioeconomic status. In other words, quality makes a difference, over and above family and neighborhood socio-economic status.



N=106 (45 with no quality indicators, 61 with 2 or 3 quality indicators). ANCOVA- means adjusted for wellbeing variable. ***p<0.001; **p<0.01;*p<0.05. Quality Indicators: PD >24 hours/year, Average years of teaching experience >10, Parent activity almost every day.

Do higher income neighborhoods have higher quality preschools?

The figure below illustrates that, proportionally-speaking, low SES neighborhoods are as likely as higher income neighborhoods to have more of the factors related to preschool quality and school readiness.



Source: Analysis of Preschool Director Survey. N=83 but data missing on these variables for 26 preschools.

SUMMARY OF FINDINGS

The Quality Matters readiness study of 2013 has produced the following findings:

- **Most students are still not ready for kindergarten.** Less than half (38%) of students assessed were designated as *Strong in All Domains* of school readiness, and even fewer students (24%) have the skills predictive of academic success by third grade.
- **Disparities underlie the readiness gap.** Children in higher SES neighborhoods, with higher family income, and with prior preschool exposure were more ready for kindergarten than children who did not have those assets.
- **Indeed, all factors are not created equal:** Child level factors have the strongest association with readiness, followed by family income, later followed by preschool experience.
- **Preschool has a bigger net effect for low income students than higher income students.** In other words, preschool provides a bigger "boost" to the readiness scores of low income children than it does their high income peers.
- **Why might preschool benefit children differently? There are many significant differences between the practices of preschools that serve low income students than those that serve higher income students**. In particular, preschools that serve most serve low income students were more likely than those that serve a higher income population to have the following markers of quality:
    - Had lower class ratios
    - Had fewer students in full day care
    - Had teachers who spoke the same language as their students
    - Had directors with more years of experience
    - Had higher percentage of directors with a masters or PhD
    - Had lead teachers with more years of ECE experience
    - Had teachers that met at least weekly to reflect on assessment data and class practices
    - Had teachers that received more than 40 hours a year of external coaching
    - Had teachers that attended more than 40 hours of training per year
    - Provided educational information for parents
    - Conducted regular assessment of parent needs
    - Invited parents to volunteer
    - Provided a nutritious meal to children
- **What aspects of quality matter most? There are three to five indicators of quality** that independently predict school readiness, over and above other known influences such as family income, neighborhood SES and child factors. These factors are:
    - **Average annual hours of formal training** received by teachers;
    - **Frequency of parent engagement** to do an educational activity with their child at home
    - **Frequent engagement in reflective practice** – meeting to review assessment data or classroom practices – is associated with stronger *Kindergarten Academics* scores for students at any income level.
    - **Average years of teaching experience** held by lead teacher, specifically among low-income students.

- Speaking to low income students in their home language a portion of the time -- sometimes or almost always -- is associated with better *Kindergarten Academics* scores.

PROGRAM RECOMMENDATIONS

Based on the results of the Quality Matters study, and specifically, the characteristics of preschool that were *most predictive of children's school readiness*, ASR offers the following programmatic recommendations to FIRST 5 Santa Clara County.

- Continue to support children's access to *high quality* preschools.
- Support further professional development for preschool teachers.
- Encourage preschool teachers to assign activities that parents can do at home with their children — and do it as often as possible.
- Through interventions such as provider education, curriculum enhancement, parent engagement and early mental health consultation for providers, support the development of children's self-regulation skills, which this study revealed to be children's most challenging area and which research shows is highly predictive of long-term academic success.
- Target the community-based factors that are most strongly associated with enhanced readiness levels, such as basic health needs, economic security, and developmental screening.

AREAS FOR FURTHER RESEARCH

As in most counties, Santa Clara County preschools do not yet use uniform measures of classroom quality, teacher-child interaction, or child development, though this is slowly changing with the advent of quality rating information systems (QRIS). Therefore, in the absence of such data, this study relied on preschool directors to inform us about the characteristics of their sites, based on proxies or known markers for preschool quality. Once QRIS data about preschool quality become available, ASR recommends more thoroughly exploring the relationship between children's experiences in preschool and their consequent readiness for kindergarten, using direct measures of child development (e.g., Ages and Stages Questionnaire), teacher-child interactions (e.g. CLASS) and the preschool environment (e.g., Infant-Toddler Environment Rating Scale, Early Childhood Environment Rating Scale).

Background

SCHOOL READINESS: WHAT IS IT?

In recent years, the issue of children's readiness for school has received increasing attention from policymakers, professionals, researchers, the media, and caregivers. In one of the early large-scale efforts to establish a common framework for addressing school readiness issues, in 1995 the *National Education Goals Panel* (*NEGP*) defined school readiness as involving three critical components: (1) readiness of children for the social and academic institution of school; (2) readiness of families and communities to prepare children for school; and (3) readiness of schools to meet the diverse needs of incoming students and their families. With respect to the first component – children's readiness for school – the *NEGP* conceptualized five dimensions of development and skills that are critical to a child's readiness for school: *Physical Well-Being & Motor Development, Social & Emotional Development, Approaches Toward Learning, Communication and Language Usage,* and *Cognition & General Knowledge*. In different communities throughout the country, these *NEGP* dimensions of readiness have become the foundation for the development of school readiness measurement tools attempting to quantify children's school readiness.

NATIONAL EDUCATION GOALS PANEL
Definition of School Readiness:

- **Readiness of children** for the social and academic institution of school
  - Physical Well-Being & Motor Development
  - Social & Emotional Development
  - Approaches Toward Learning
  - Communication & Language Usage
  - Cognition & General Knowledge
- **Readiness of families and communities** to prepare children for school
- **Readiness of schools** to meet the diverse needs of incoming students and their families

In recent years, a great deal of local and national research has been dedicated to studying how ready children are for school when they begin kindergarten, documenting the levels of proficiency that children demonstrate across a broad spectrum of school readiness skills, along with the factors that are associated with greater (or lesser) readiness levels. Currently, a variety of school readiness measurement tools and methods are being used in different regions throughout the country, providing information to various stakeholders in both the early education and K-12 system about children's strengths and needs as they enter kindergarten and begin their school careers.

WHY DOES SCHOOL READINESS MATTER?

Why should we study children's readiness for school? A growing body of research has been devoted to answering questions about if and how readiness impacts later school success. A number of studies looking at the relationship between readiness and later achievement have demonstrated that children's social and cognitive readiness for school act as a "springboard" for later success in school. The five dimensions of readiness defined by the *NEGP* have all been found to contribute to a child's success in school (Kagan, Moore, & Bredekamp, 1995). In particular, children who have competence across these five dimensions are more likely to succeed academically in first grade than are those who are competent in only one or two dimensions (Hair, Halle, Terry-Humen, & Calkins, 2003). A number of other studies have also found associations between early school readiness and later success in school. For example:

- Mastery of basic numerical concepts prepares children to learn more complex math problems and problem-solving approaches (e.g., Baroody, 2003).

- Number competency skills at kindergarten entry predicts both growth rates between first- and third-grade math and math performance level in third-grade achievement (Jordan, Kaplan, Ramineni, & Locuniak, 2009).
- Children who have difficulty paying attention, following directions, getting along with others, and controlling negative emotions of anger and distress tend to do less well in school (e.g., Raver & Knitzer, 2002; Raver, 2003).
- The ability to control and sustain attention and participate in classroom activities is associated with achievement test scores in the early elementary grades (e.g., Alexander, Entwisle, & Dauber, 1993).
- *Approaches to Learning* at kindergarten entry, which includes constructs such as persistence, emotion regulation, and attentiveness, was found to predict reading and math performance up through fifth grade (Li-Grining, Votruba-Drzal, & Maldonado- Carreno, & Haas, 2010).
- Students who performed less well on standardized tests in second and third grades also trailed on both cognitive and socioemotional readiness measures early in their kindergarten year (Cannon & Karoly, 2007).
- Both academic and nonacademic school readiness skills at entry to kindergarten were found to be significantly related to eventual reading and mathematics achievement in fifth grade (Le, Kirby, Barney, Setodji, & Gershwin, 2006).

Perhaps one of the most comprehensive examinations of the impact of school readiness comes from a meta-analysis of six longitudinal, non-experimental data sets exploring the connections between readiness and later achievement (Duncan, Claessens, Huston, Pagani, Engel, Sexton, et al., 2007). These researchers found that the strongest predictors of later achievement were school-entry math, reading, and attention skills (in that order). To the authors' surprise, however, some measures of socio-emotional behaviors (internalizing and externalizing problems and social/interpersonal skills) were generally not significant predictors of later academic performance. (Applied Survey Research's local data shows findings stating the otherwise.)

More recently, the journal *Pediatrics* published an article arguing that early academic preparedness is crucial for outcomes even broader than those in the domain of education. Specifically, with a host of references supporting their position, the authors of this article asserted that "cognitive development and education are arguably fundamental determinants of health" (Fiscella & Kitzman, 2009, p. 1073). They cited research showing associations between education and outcomes such as chronic disease rates, disability, engagement in risk behaviors, and later socioeconomic factors that in turn influence health status. From these and other national-levels studies – along with local research conducted with Bay Area students and described in the following section – there is strong evidence that school readiness matters. There is somewhat less agreement on exactly which readiness skills matter most and how broad and long-lasting their potential impact on the future of young students may be.

HOW DO WE MEASURE SCHOOL READINESS?

Development of a Bay Area-based School Readiness Measure

In 2000, First 5 San Mateo County, Peninsula Community Foundation, County Office of Education and other stakeholders commissioned Applied Survey Research (ASR) to develop and implement the first large-scale kindergarten school readiness assessment in the Bay Area. ASR launched a comprehensive literature review to identify readiness frameworks (e.g., National Education Goals Panel or NEGP) and the few tools that were in use around the country.

With input from a variety of subject matter experts – including community stakeholders, child development and education experts, preschool teachers, and kindergarten teachers – ASR developed and pilot-tested a 19-item *Kindergarten Observation Form* (KOF) to measure children's school readiness skills. After this pilot test, modifications were made to refine the tool, education experts again weighed in, and a more advanced skill representing phonemic awareness was added (i.e., recognition of rhyming words). This resulted in a 20-item tool in which skills were organized according to the five *NEGP*-designated categories of school readiness. (These are listed in Part 1 of this report).

Since that initial assessment, school readiness assessments have been conducted in multiple counties including San Mateo County (2002, 2003, 2005, 2008), Santa Clara County (2004, 2005, 2006, 2008), Lake County, Illinois (2005, 2006), San Francisco County, (2007, 2009), Santa Cruz County (2008), in Los Angeles Unified Preschool (2008, 2009), Alameda County (2008, 2009, 2010, 2011, 2012, 2013), Marin County (2010, 2011, 2012, 2013), Coconino County, Arizona (2011, 2012, 2013), and Sacramento County (2012, 2013). During this time, the ASR School Readiness Assessment Model's tools and methods were continually refined and enhanced, as will be described below.

Shifting from the National Education Goals Panel framework to the Basic Building Blocks of Readiness

For several years, the set of skills measured by the *KOF* was organized and reported according to the five categories established by the *NEGP*, as described above: *Physical Well-Being & Motor Development, Social & Emotional Development, Approaches Toward Learning, Communication & Language Usage, and Cognition & General Knowledge.*

In 2005, ASR re-examined the readiness data to determine whether the *NEGP* categories were the most statistically valid way to "sort" or categorize the readiness skills. Using an approach called factor analysis, ASR found that the readiness skills sorted better, statistically speaking, into four primary dimensions of readiness rather than the five *NEGP* categories that had been used in KOF analyses.[1] Those four dimensions were labeled the *Basic Building Blocks* of readiness, and each contained between three and seven items (see Part 1 of this report for a list of items)

The building blocks are described as follows:

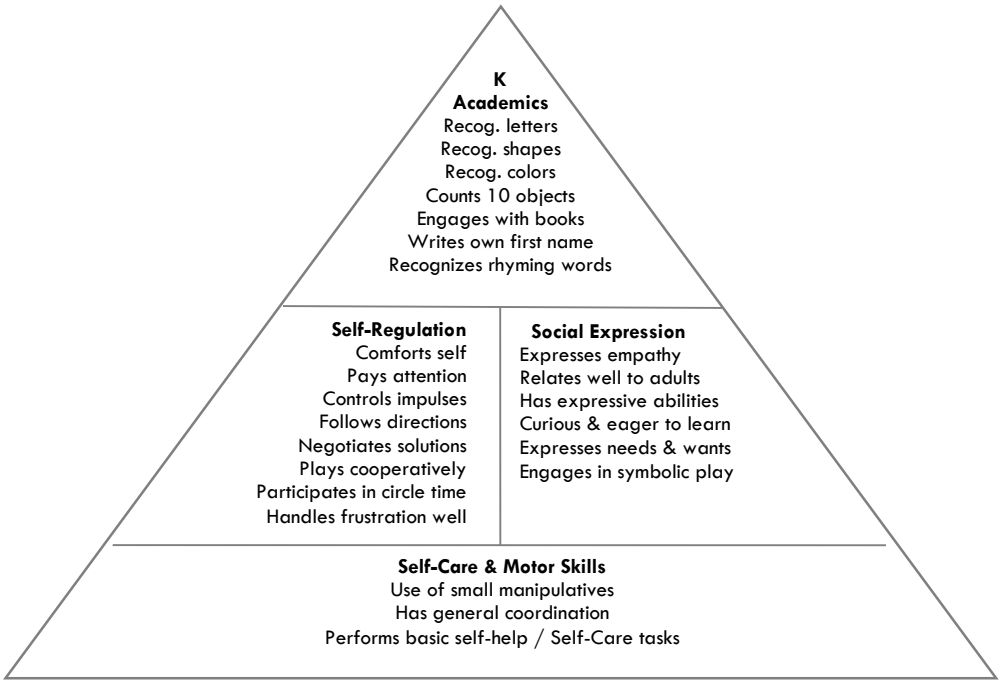
- *Self-Care & Motor Skills* include those skills needed for taking care of one's basic needs or skills showing fine/gross motor coordination.
- *Self-Regulation* skills include basic emotion regulation and self-control skills that are needed to be able to perform well in the classroom.
- *Social Expression* skills include measures related to interacting with others and engagement with play and learning.
- *Kindergarten Academics* skills represent the "nuts and bolts" skills such as letter and color recognition, shape identification, and counting abilities.

Although all of these skill dimensions are essential components of readiness, the pyramid below suggests a framework of skill progression, with basic skills related to taking care of oneself as a foundation, upon which

[1] The report section "School Readiness in Alameda County – 2010" includes more information on the "crosswalking" of *Kindergarten Observation Form* skill items from the *NEGP* categories to the *Basic Building Blocks*.

rest key social-emotional components of readiness. The apex of the pyramid contains the beginnings of the more academically-oriented skills that provide children a foundation for the content covered in kindergarten and beyond.

Figure 1: **The KOF's Basic Building Blocks of Readiness**



Since 2005, each readiness assessment conducted by ASR has confirmed these four basic building blocks as a data-driven framework of readiness – even with the addition of four new readiness skills since the original factor analysis was conducted. Feedback from teachers, early education experts and other stakeholders has indicated that these categories have intuitive appeal as well – people quickly understand what is meant by these four conceptual groupings (face validity), and they feel children's skills naturally sort along these lines.

Local Longitudinal Readiness Research with the KOF

ASR has conducted two longitudinal studies to understand how school readiness, as measured by the KOF, predicts academic outcomes in elementary school. The first study in 2007 included data from San Mateo County kindergartners assessed in 2001, 2002 and 2003 across eight low income school districts.[2] This study showed that about 62% of children who were *Proficient* across all KOF building blocks went on to be at grade level in 3rd grade reading, as opposed to 6% who weren't *Proficient* in any of the blocks. In 2010, ASR updated the study with a more representative sample across 19 school districts in Santa Clara and San Mateo counties that had been assessed in from 2004 and 2005.[3] This study found that there was particularly potent interaction

[2] Applied Survey Research, 2008. *Does Readiness Matter? How Kindergarten Readiness Translates Into Academic Success.* Report can be downloaded at http://www.appliedsurveyresearch.org/projects_database/school-readiness-assessments/does-readiness-matter-how-kindergarten-readiness-translates.html

[3] Applied survey research, 2010. *School Readiness and Student Achievement: A Longitudinal Analysis.* http://www.appliedsurveyresearch.org/projects_database/school-readiness-assessments/school-readiness-and-student-achievement-a-longitudinal-anal.html

between the Kindergarten Academics block and the Self-Regulation block, in that kindergarten students who were *Proficient* in both blocks were more likely to be at grade level in math and reading (70%), than students who had proficiency in one block or the other, and much more so than children who were not *Proficient* in any block. The results of this study were consistent with the findings of the national research literature and supported the KOF as a readiness measurement tool with the capacity to strongly predict academic outcomes 3 ½ years after children are assessed in kindergarten.

Purpose of the Quality Matters Study

PRESCHOOL QUALITY AS A SCHOOL READINESS FACTOR

It is well documented that family and neighborhood socio-economic status (SES) is associated with children's school readiness (family: Hill, 2001; Duncan & Magnuson 2005; Janus & Duku 2007; neighborhood: Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997; Kohen, Brooks-Gunn, Leventhal & Hertzmann 2002; Lapointe, Ford & Zumbo 2007). Preschool experience is also associated with school readiness, as seen in numerous studies, including many conducted by ASR (Abbott-Shim, Lambert & McCarty, 2003; Magnuson, Meyers, Ruhm & Waldfogel, 2004; ASR, 2009; ASR, 2012).

What is not as well demonstrated is how much of an effect preschool has over and above the effect of socioeconomic status (SES) on school readiness, and whether (and why) there is variability within the preschool 'benefit.' A preliminary analysis by ASR on 2008 school readiness data from Santa Clara County shows that children with preschool experience do have higher readiness scores, across schools that are ranked low, middle and high on their academic performance index (API). However, within each API level, there is variation amongst the readiness scores of preschooled children. We presume this variation is due to differences in preschool settings, family practices, and individual child differences.

KEY GOALS OF THE 2013 QUALITY MATTERS SCHOOL READINESS STUDY IN SANTA CLARA COUNTY

The premise of the Quality Matters study is that ***preschool quality matters***, no matter which neighborhood a child happens to live in. Secondly, quality preschool may provide more of a benefit to lower income children, acting as a buffer against factors that higher income children are less likely to face. Third, if we can identify and statistically link the markers of quality that are behind this benefit, then funders such as FIRST 5 Santa Clara have a blueprint for helping build up those markers in local preschools, particularly those that serve low income children.

Sponsored by FIRST 5 Santa Clara County, the purpose of the Quality Matters study is to understand the effect of preschool quality on children's school readiness over and above other contributing factors, including family and neighborhood SES. The key research questions are:

- *What is the profile of school readiness across the county in 2013?*
- *Overall, what factors are associated with increased readiness levels?*
- *Does preschool have the same benefit for low income children as it does higher income children?*
- *If it does benefit children differently, why? How do preschools that serve lower income children differ from those serving higher income children?*
- *Which markers of quality are most closely related to increased school readiness, particularly amongst low income children?*
- *Do neighborhoods with higher socioeconomic status and readiness scores have higher quality preschools?*

In partnership with FIRST 5 Santa Clara County, ASR conducted a kindergarten readiness assessment in a sample of Santa Clara County schools and linked the readiness data with the preschool quality data obtained from a preschool quality study that ASR conducted concurrently.

In collaboration with FIRST 5 Santa Clara County, ASR developed a crosswalk of three preschool quality schemas: Race to the Top, Child Signature Program 2, and Educare. The crosswalk is available in ASR's forthcoming report on preschool quality in Santa Clara County. A summary may be found in Appendix 1. Based on this crosswalk and certain RAND Corporation studies about preschool quality, ASR collaborated with FIRST 5 Santa Clara County to develop a set of survey questions, related to the preschool quality elements that appeared in all or almost all of the crosswalk sources, drawn from existing national surveys. These questions were asked of preschool directors via a telephone survey during the second half of 2013 and early 2014 (see Appendix 2 for survey instrument), and form the basis of the preschool quality measures used in this study. Further descriptions and analyses of the preschool quality measures may be found in ASR's forthcoming report on preschool quality in Santa Clara County. A summary of these measures may be found in Appendix 3.

Methodology

OVERVIEW OF DATA COLLECTION INSTRUMENTS AND ADMINISTRATION

Five instruments were used in this assessment. One form was completed by teachers: the *Kindergarten Observation Form*. Parents provided information about their child and family background on the *Parent Information Form*, and specifically about their child's early care experience on the *Preschool Experience Form*. ASR assessors measured children's self-regulation using the *Head, Toes, Knees, Shoulders Task*. Finally, ASR contracted with the IHR Group to conduct a telephone survey of preschool directors to assess preschool quality. The table below provides a summary of each of the tools, their content, and who completed each one.

Figure 2: **Overview of Data Collection Instruments**

Instrument	What Key Data Are Assessed?	Who Completes It?
Kindergarten Observation Form (KOF)	24 school readiness skills of children in selected classrooms; Kindergarten Academics domain includes skills-based assessment.	Participating kindergarten teachers.
Parent Information Form (PIF)	Pre-K childcare; kindergarten transition activities; activities and routines in the home; parental supports, attitudes, and stressors; demographic and SES variables.	Consenting parents of children in the assessment.
Preschool Experience Form (PEF)	Pre-K childcare; types of care including informal and family care and formal care centers.	Consenting parents of children in the assessment.
Head, Toes, Knees, Shoulders Task (HTKS)	Interactive "Simon Says"-type tasks. Skills-based assessment in self-regulation domain.	Trained ASR assessors.
Preschool Directors Survey	Elements of preschool quality based on a crosswalk of Race to the Top, Child Signature Program 2, and Educare standards as well as selected RAND studies.	IHR Group, trained telephone interviewers, speaking to a sample of preschool directors in Santa Clara County.

KINDERGARTEN OBSERVATION FORM (KOF)

As described earlier, the *Kindergarten Observation Form* was originally developed by Applied Survey Research in 2000. Readiness items reflect a range of skills, from minimum competencies, such as *Performs basic self-help/self-care tasks*, to higher-level competencies that help provide a baseline for teachers at the beginning of the year, such as *Recognizes rhyming words*.

The *Kindergarten Observation Form* uses teacher observation to assess children across 24 readiness skills (see Appendix 4). Teachers rated the proficiency of their students across 24 readiness skills on a scale of 1-4 as follows: "Not Yet" (1), "Beginning" (2), "In Progress" (3), or "Proficient" (4). The 24 skills assessed in 2013 can be viewed in detail on the *Kindergarten Observation Form* (see Appendix 1).

Given that the readiness research takes place in kindergarten classrooms, observational methods are deemed most appropriate, valid, and reliable method of assessment for the following reasons:

- Because student behavior can vary from day-to-day, teachers are in a better position than outside observers to assess their students, as teachers can draw on the knowledge gained through four weeks of daily interactions.
- Teacher observation is less intrusive and less intimidating for students than assessment by outside observers.

The caveat of teacher observations is that there is natural variation between teacher observers. To minimize bias due to such variation, the assessment tool includes a subset of measurable indicators, assessment instructions, a clearly defined response scale, a comprehensive scoring guide describing appropriate proficiency levels for each of the 24 readiness skills, and a thorough teacher training (see "Implementation" section for details on the trainings conducted).

Teachers are asked to observe and score each child according to his or her level of proficiency in each skill, using the following response options: *Not Yet* (1), *Beginning* (2), *In Progress* (3), and *Proficient* (4). An option of *Don't Know / Not Observed* is provided as well.

Most of the items on the *KOF* involve teachers' observation of the children in their classrooms. On the few items that do require one-on-one teacher-child interaction, teachers use passive response rather than on-demand testing techniques in order to reduce anxiety for students during these assessments. This enhances the reliability and validity of skill assessment. If teachers feel they cannot provide an accurate assessment on any items, they are instructed to check the *Don't Know / Not Observed* option. If language differences pose barriers in assessing language-dependent items, teachers may seek the assistance of a bilingual aide to facilitate accurate assessment, or, in cases where such support is not available, *Don't Know / Not Observed* may be checked.

The *Kindergarten Observation Form* also includes fields to capture students' basic demographic information to understand who took part in the study and to examine the characteristics that are associated with children's skill development (e.g., experience in licensed preschool settings, child age, child gender, whether or not child has special needs).

In all investigations conducted to date, the *KOF* has consistently demonstrated strong validity and reliability, including:[4]

- Strong construct validity: Robust correlations have been observed with *Work Sampling System* (overall *r* = .76), *Brigance K – 1 Screen II* (overall *r* = .57; *Kindergarten Academics r* = .74), and other validated measures of school readiness such as subscales of the Woodcock Johnson III (Applied Problems, Letter Naming), Expressive One Word Picture Vocabulary Test, Preschool and Kindergarten Behavior Scales, Ages and Stages, and Head Toes Knees Shoulders Task.
- Consistently demonstrated known-groups validity: The KOF consistently discriminates between groups that are known to vary in their readiness levels, including: older versus younger students, students with and without preschool experience, and students with and without special needs.

[4] More complete information is provided in ASR"s fact sheet entitled *Psychometric Properties of the Kindergarten Observation Form.*

- High levels of internal consistency: Across KOF administrations, the four readiness factors – *Self-Care & Motor Skills, Self-Regulation, Social Expression,* and *Kindergarten Academics* – have consistently strong Cronbach's alphas (between .80 and .92).
- Indications of moderate-to-strong inter-rater reliability: Early stage investigations of inter-rater reliability suggest moderate-to-strong agreement between paired teacher raters in pre-K settings.
- Predictive validity: Skills that fall into two readiness domains represented on the *KOF* (*Kindergarten Academics* and *Self-Regulation* skills, described more fully in later sections of this report) are particularly strong predictors of performance on third grade Mathematics and English-Language Arts California Standards Tests (ASR, 2010).

PARENT INFORMATION FORM (PIF)

To better understand how family factors are related to children's levels of readiness, a *Parent Information Form* (see Appendix 5) was first developed in 2004 for completion by parents. The *Parent Information Form* collects a wide variety of information, including: types of child care arrangements for children during the year before kindergarten entry; ways in which families and children prepared for the transition to kindergarten; parent beliefs about their role in education; engagement in family activities and daily routines; use of parenting supports and family resources; parenting social support, attitudes, and stressors; health and health care measures; and several demographic and socioeconomic measures. Care is taken to ensure that the questions could be read at a sixth grade reading level and versions of the form are available in English, and Spanish. Parents are given a children's book (Spanish/English bilingual) as an incentive for their completion of the *PIF*. To ensure their privacy, parents are provided with an envelope in which they seal their completed survey prior to returning it to their child's teacher.

PRESCHOOL EXPERIENCE FORM (PEF)

The one-page Preschool Experience Form (see Appendix 6) was designed to capture information about the child's early care and education experiences in the event that the parent did not complete the PIF or did not answer the child care questions on the PIF.

HEAD, TOES, KNEES, SHOULDERS TASK (HTKS)

Children's self-regulation skills can be challenging to assess accurately. The Head-Toes-Knees-Shoulders Task (HTKS) (Ponitz et al., 2009) complemented the KOF this study in that the KOF offers skills-based assessment of academic items and the HTKS offers skill-based assessment of self-regulation items. As described later in this report, ASR's 2010 longitudinal study on school readiness and later academic success in San Mateo and Santa Clara counties found that Kindergarten Academics and Self-Regulation were the two readiness domains of the KOF that were most predictive for later success. Additionally, ASR's 2013 outcome evaluation of "Preschool for All" in San Francisco found that the HTKS showed the biggest effects of preschool, stronger than the Woodcock Johnson or Receptive One-Word Vocabulary tests, both of which are established measures of early math, language development, and early literacy.

The Head-Toes-Knees-Shoulders Task (see Appendix 7) is a structured, five- to seven-minute assessment of a child's ability to self-regulate when undertaking a series of tasks in which the child must perform the opposite of commands given to them. For example, when the examiner says, "Touch your toes," the child is instructed to do the opposite, which in this case would be to touch his/her head. Another series would have the child touching his/her shoulders, executing the opposite of the command to touch his/her knees.

Figure 1: **Head, Toes, Knees, Shoulders Assessment Demonstration**

Source: YouTube video: http://www.youtube.com/watch?v=CVT6FQ9czoc

The HTKS task is a measure of inhibitory control (a child must inhibit the dominant response of doing what the assessor says), working memory (the child must remember the rules of the task to do the opposite), and attention-focusing (the child must listen and focus his/her attention on the instructions of each command). The test consists of a total of 20 commands; up to 2 points can be earned for each, if the correct opposite action was produced for the command. One point is earned for a "self-correction" if the student made movement towards or touched the wrong body part, but then corrected him/herself after by touching the correct body part. The task was administered in English, Spanish, or Vietnamese, based on the student's preference.

Assessors were sent to classrooms during the first three to four weeks of instruction to administer the HTKS. The assessments were conducted with each child individually, typically in a quiet corner of the classroom or in the hallway/walkway just outside the open classroom door. Assessors went down the class roster to invite each child to "play a game" with them. Children could discontinue assessments at any time once started, and/or opt out of participation altogether. If children seemed to need a break during the assessment, one was offered.

Each child's language preference (English, Spanish, or Vietnamese) was assessed by first asking teachers to identify language needs of each student in their class. When students were called upon to play the "game," assessors would ask them if they spoke English, Spanish, Vietnamese, or both English and one of the other two languages. Students were then told they were going to play a game similar to "Simon Says" and were asked if they preferred to play the game in Spanish, Vietnamese, or English. While almost all assessors were bilingual, the majority (83%) of students were assessed in English.

PRESCHOOL DIRECTOR SURVEY

To describe and quantify preschool quality, ASR first developed a crosswalk of three preschool quality schemas in collaboration with FIRST 5 Santa Clara County: Race to the Top, Child Signature Program 2, and Educare (see Appendix 1 for summary). Based on this crosswalk and certain RAND Corporation studies about preschool quality (Karoly, Reardon & Cho, 2007; Karoly, Ghosh-Dastidar, Zellman, Perlman & Fernyhough, 2008; Karoly & Zellman, 2012), ASR and FIRST 5 Santa Clara County then collaborated to build a set of survey questions drawn from existing national, state, and/or regional surveys developed by reputable sources (NCES, 2005; NECTC, 2009; NAECY, 2009; First 5 of California, 2012; NAECY, 2012; ASR, 2014). The questions ultimately chosen were related to the preschool quality elements that appeared in all or almost all of the crosswalk and RAND sources.

These questions were asked of preschool directors via a telephone survey (see Appendix 2 for survey instrument), and form the basis of the preschool quality measures used in this study.

In late 2012, a list of all licensed Child Care Centers (CCC) and Family Child Care Homes (FCCH) in Santa Clara County was obtained from the California Department of Social Services. A stratified sample of preschools was drawn using this list (by zip code, based both on the number of children served by the facility compared to the number of preschool-aged children in each zip code, and the proportion of CCC and FCCH facilities in each zip code). When three or more children assessed in the SRA attended a given preschool, and that preschool was not part of the original sample, the preschool was added to the sample.

Preschool directors were interviewed during the second half of 2013 and early 2014 by trained, bilingual (Spanish/English) telephone interviewers from IHR Research Group. The survey included questions about class sizes, teacher-child ratios, teacher and preschool director experience and education, the extent of professional development received by teachers, child/family demographics, use of the CLASS and ECERS assessments, curricula employed, use of data, family engagement and support, and health promotion practices.

PROCEDURES

Recruitment

Applied Survey Research contacted district and school administrators from sampled schools. School administrators and teachers from the targeted sites were provided with information about the assessment, including its purpose, what participation would involve for the kindergarten teachers, and the timeline for completion of the study tasks.

Teacher Trainings

Prior to and early in the start of the Fall 2013 school year, ASR conducted in-depth trainings to orient participating kindergarten teachers to the data collection forms and process. Trainings lasted approximately 90 minutes. After a general overview of the project and study purpose, kindergarten teachers were provided their assessment packets, each containing the KOF, KOF scoring rubric, Parent Information Form, Preschool Experience Survey, assessment card, and FedEx envelope.

The focal point of the training was an item-by-item description of the readiness skill information to be collected via the *Kindergarten Observation Form* and applied practice using the scoring guide to rate readiness. This section of the training helped ensure that different observers used the *KOF* in a consistent way. During the review of the 24 readiness skills, particular emphasis was placed on clarifying:

- The importance of using the *Kindergarten Observation Form Scoring Guide*. The Scoring Guide provides a rubric for each readiness skill defining the specific behaviors/skills which constitute "Not yet," "Beginning," "In progress," or "Proficient" levels of proficiency. Consistent use of the scoring rubric ensures that teachers are rating children according to the same criterion.
- The distinction between assessing the recognition of letters of the alphabet, shapes, colors, and rhyming words (the skills assessed in this project) versus assessing the production of letters, shape names, color names, and rhyming words (skills not assessed in this project). Suggestions were provided as to how to capture recognition information (e.g., "Which one of these is the letter 'A'?" and "Please point to the triangle.").

- The need for children to be assessed in their primary languages. Teachers unable to communicate with children in their preferred languages were encouraged to seek the assistance of bilingual aides or to check *Don't Know/Not Observed* if an accurate assessment was not possible on a given item.
- The administration of the KOF items that required teacher-child interaction (e.g., rhyming, color recognition, shape recognition, letter recognition, numeracy)

Another emphasis during the training was placed on the importance of the *Preschool Experience Form* and the *Parent Information Form* in providing information about the child, family, and early care factors related to school readiness. Teachers were provided with tip sheets for explaining the survey to families and guidelines for supporting families who may have literacy challenges in completing the survey.

Teachers were advised about HTKS assessments and, when possible, assessment dates were scheduled in which ASR's assessors would be visiting the classrooms to complete the individual assessments. Otherwise, teachers were contacted by ASR staff after the training to schedule assessment dates for HTKS assessors' visits.

Obtaining Parent Consent

At the beginning of the school year, teachers explained the project and the consent process to parents and distributed the parent consent forms, *Parent Information Forms*, and *Preschool Experience Forms* (see Appendix 8 for consent forms). The consent process was passive—that is, parents had the opportunity to opt out of having their child participate in the study. Teachers told parents that if they did NOT wish their child to participate that they should return the signed consent form indicating refusal within one week. If parents did not verbally refuse and/or return their forms within one week, parents were notified that teachers would assume consent and proceed with assessments. If parents submitted forms or verbally refused after this time period, any assessments were stopped and that child data was not used in respect of the family's wishes. Teachers collected all completed *Parent Information Forms* and *Preschool Experience Forms* (in sealed envelopes for privacy). All families (participating and nonparticipating) were given a bilingual (Spanish/English) children's book as a token of appreciation for their participation.

Conducting Student Assessments

Teachers were asked to conduct their student assessments approximately three to four weeks after the start of the school year, drawing upon their knowledge and observations of children during the first few weeks of school. The average length of time that elapsed between the start of school and teachers' observations was 25 days – just over three weeks after their classes had started. Completed *Kindergarten Observation Forms*, *Parent Information Forms*, and *Preschool Experience Forms* were returned to ASR via pre-paid FedEx envelopes. After teachers had assessed all of their students and had returned study materials, they were mailed a thank you letter and a $200 stipend in appreciation of their participation. Teachers were also provided with a paid release day in which to conduct assessments.

Trained assessors were sent to classrooms during the first three to four weeks of instruction to administer the HTKS. The assessments were conducted with each child individually, typically in a quiet corner of the classroom or in the hallway/walkway just outside the open classroom door. Assessors went down the class roster to invite each child to "play a game" with them. Children could discontinue assessments at any time once started, and/or opt out of participation altogether. If children seemed to need a break during the assessment, one was offered.

Each child's language preference (English, Spanish, or Vietnamese) was assessed by first asking teachers to identify language needs of each student in their class. When students were called upon to play the "game," assessors would ask them if they spoke English, Spanish, Vietnamese, or both English and one of the other two

languages. Students were then told they were going to play a game similar to "Simon Says" and were asked if they preferred to play the game in Spanish, Vietnamese, or English. While almost all assessors were bilingual, at least 80% of students were assessed in English.

COMPLETION METRICS

The figure below presents a summary of the completion metrics for the study participants. Overall, there were 12 participating schools representing four different school districts in Santa Clara County. In all, students from 44 classrooms were included in the study.

Figure 2: **Completion Metrics – Santa Clara County School Readiness Assessment, 2013**

Data	Completion metrics
Number of participating schools	12
Number of participating classrooms	44
Number of children in these classrooms	910
Parent consent rate	93%
Number of KOFs returned for consented children	844
Number of consented children assessed with HTKS	813
Number of PEFs returned from consenting parents	717
Number of PIFs returned from consenting parents	740
Parent PIF response rate (# PIFs received/# consents)	88%

The parental consent rate was high (92%), with 88% of parents who agreed to have their child take part also completing and returning a parent survey. KOF assessment figures and PIF completion rates for each school are available in Appendix 9. For information about data cleaning, missing data, and statistical analyses, please see Appendix 10.

SAMPLED SCHOOLS AND NEIGHBORHOODS

The study seeks to understand preschool quality over and above neighborhood SES. The proxy used for neighborhood SES was a three-year average (2010-2012) of each elementary school's Academic Performance Index (API) rank. The sample deliberately included four schools in each ranking category. Children attending schools ranked 1-4 were considered to be from low-SES neighborhoods, those attending schools ranked 5-7 were considered to be from middle-SES neighborhoods, and those attending schools ranked 8-10 were considered to be from high-SES neighborhoods. The following table details the sampled elementary schools:

Figure 3: **Elementary Schools, Santa Clara County Sample, 2013**

Elementary School	API Rank (3-year average): Neighborhood SES proxy	Children Assessed
Cesar Chavez Elementary	3	95
Christopher K-8	3	58
A.J. Dorsa Elementary	3	60
Los Arboles Elementary	3	112
Subtotal of children assessed, low-SES schools		**325**

Julia Baldwin Elementary	5	39
Ben Painter Elementary	5	56
Windmill Springs Elementary	6	52
George Shirakawa Elementary	7	89
Subtotal of children assessed, middle-SES schools		**236**
Ramblewood Elementary	8	62
Bertha Taylor Elementary	9	55
Carolyn Clark Elementary	10	81
Tom Matsumoto Elementary	10	85
Subtotal of children assessed, high-SES schools		**283**

Source: *Kindergarten Observation Form (*2013); California Department of Education (data for 2010-2012 accessed multiple times during 2012 and 2013). Note: N=844 overall; 325 low-SES, 236 middle-SES, 283 high-SES.

A NOTE ABOUT HOW TO INTERPRET THE DATA IN THIS REPORT

The school readiness assessment sample was purposive, drawn so that it would be equally stratified across the three API-rank levels that are the neighborhood SES proxy (low, ranked 1-3; medium, ranked 4-7; and high, ranked 8-10). Thus there are some demographic differences from county-wide statistics. There are more low-income families (approximately 20% compared to 10% in the county), more families who speak a language other than English at home (approximately 60% compared to 50% in the county), and an ethnic imbalance (47% Latino and 7% White compared to 27% Latino and 34% White in the county) (county figures from U.S. Census, 2012). The information presented in this report describes only the students and families assessed. As a result, **although the data may provide some insight into the broader picture of readiness county-wide, the findings cannot be extrapolated to draw conclusions about county-level population-wide school readiness.**

The questions in the survey of preschool directors were drawn from reputable sources (NCES, 2005; NECTC, 2009; NAECY, 2009; First 5 California, 2012; NAECY, 2012; ASR, 2014). However, data regarding the characteristics of preschools are self-reported survey information from preschool directors themselves, and not independently verified. Though every attempt was made to reduce response bias during the framing of the survey purpose, the order in which questions were asked, and the wording of questions, the limitation of self-reported data should be kept in mind when dimensions of preschool quality are discussed.

Part 1: Profile of School Readiness in 2013

Contents of this Chapter:

This chapter presents a comprehensive portrait of students involved in the Fall 2013 Santa Clara County school readiness assessment, including a variety of dimensions reflecting their readiness for successful transition to kindergarten:

- Demographic characteristics of kindergarteners assessed, including health and well-being, and early care and education experiences.
- A profile of their families, including a description of household composition, economic indicators, family activities, and sources of parenting support.
- Students' scores on each of the 24 readiness skills measured by the Kindergarten Observation Form, and their average scores across the four Basic Building Blocks (BBB) of readiness.
- Percentage of students in each of the four groupings or portraits readiness: Strong in All Domains, Needs in All Domains, Socially/Emotionally Strong, and Academically Strong children.
- Percentage of students with readiness levels in Kindergarten Academics and Self-Regulation that are shown to be predictive of third grade academic success.
- Regression analyses that explore relationships between child- and family-factors and school readiness.

Key Findings:

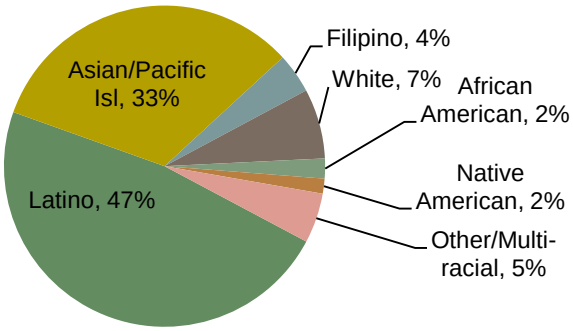
- Fifty-two percent of students had attended preschool in the year prior to kindergarten entry, based on teacher or parent report.
- Almost half (45%) of all families reported earning less than $35,000 per year.
- Parents read to their children an average of 4.4 times per week. The average was higher in high-SES neighborhoods (5.0) than in low-SES neighborhoods (4.0).
- Children generally appeared healthy to teachers, although about one-quarter of students were reported as appearing tired, sick, or hungry on at least "some" days.
- Thirty-eight percent of students were Strong in All Domains of readiness.
- Children in high-SES neighborhoods scored substantially higher (3.16) on overall readiness than children in low-SES neighborhoods (2.74).
- Twenty-four percent of students had the readiness scores in Self-Regulation and Kindergarten Academics that are predictive of later academic success by third grade.
- The average HTKS score was 20.18 on a 0-40 scale. Scores differed widely by neighborhood SES (16.0 in low-SES vs. 25.4 in high-SES neighborhoods).
- The strongest individual-level predictors of higher readiness scores include:
  - Being older;
  - Having no special needs;
  - Being a girl;
  - Participating in kindergarten transition activities; and
  - Mother's education level.

A Portrait of Kindergartners and Their Families

GENERAL CHARACTERISTICS OF THE SAMPLE

Of the 844 students assessed, 52% were boys and the rest were girls. Children ranged in age from 57 months (almost 5 years) to 79 months (6½ years), with an average age of about 5 years, 4 months. Children belonged to a wide variety of ethnicities, with largest proportion being Latino (48%); see the figure below for details.

Figure 4: **Ethnicity**



Source: *Kindergarten Observation Form 2013; Parent Information Form 2013.* Note: N= 839. Percentages may not sum to 100 due to rounding.

LANGUAGE AND LANGUAGE DEVELOPMENT

English was the preferred language of almost two-thirds of children assessed (64%). One quarter of children primarily spoke Spanish. The remaining children spoke other languages including Vietnamese and Chinese.

Figure 5: **Students' Preferred Languages, Santa Clara County, 2013**

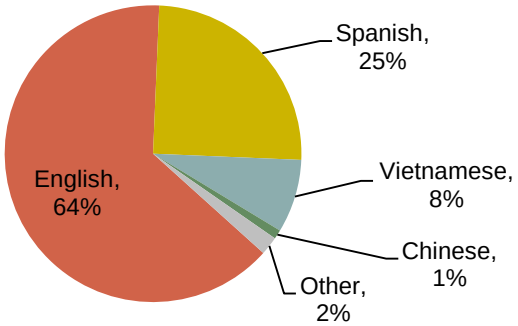
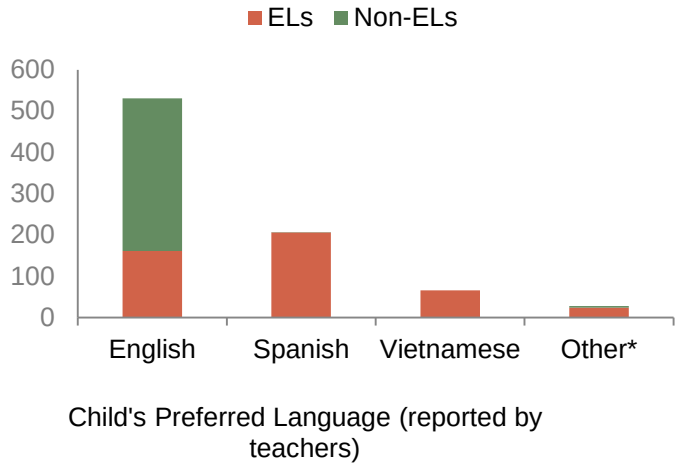


Figure 6: **English Learners by Preferred Language , Santa Clara County, 2013**



Source for both charts: *Kindergarten Observation Form 2013*. Note: N=832-844. * Other comprised less than 10 students each, including Chinese, Hindi, Tagalog, etc.

A majority (56%) of the students were English Learners (ELs). Interestingly, 30% of children whose preferred language (as reported by their teachers) was English were categorized as English Learners. The parents of over half of these reported speaking Spanish or Vietnamese at home with their children.

PRESCHOOL ATTENDANCE

Preschool attendance information was accessed through teacher and parent report via the *Kindergarten Observation Form*, *Parent Information Form*, and *Preschool Experience Form*. Names of child care centers attended by children were verified against lists of licensed child care centers. Fifty-two percent of students had preschool experience in the year prior to kindergarten, according to teacher and/or parent report. An additional three percent of children attended a licensed family child care home. According to teacher and parent report, 24% also participated in a short-term summer Pre-K program. Preschool attendance is explored further in Part 2 of this report, regarding preschool quality and its effect on school readiness.

HEALTH, WELL-BEING, AND SPECIAL NEEDS

Ten percent of children were identified by their teachers and/or parents as having special needs or an Individualized Education Plan (IEP). However, this figure may be low; only 36% of parents who completed the PIF reported that their children had received a developmental screening, and the true prevalence of special needs may be higher.

Teachers were asked to report how often children were hungry, tired, sick, absent, or tardy. While the majority of children were reported by teachers to indicate these various well-being dimensions "rarely" or "almost never," teachers reported 28% of children having one or more of these various indicators on at least "some days."

SOCIO-ECONOMIC INDICATORS

Annual Family Income

According to the *Parent Information Form*, almost half of families earned less than $35,000 per year, while nearly one-quarter earned more than $100,000 per year. These proportions suggest that there is considerable income inequality in the county. The chart below shows self-reported income by neighborhood socioeconomic status (SES), which for this study was defined based on API level (1-4 = low SES, 5-7 = middle SES, 8-10 = high SES. Over 70% of families in low and high SES neighborhoods do indeed self-report low (or high) income. While

the composition of middle SES neighborhoods may be somewhat less clear, in fact, all differences in family income by neighborhood SES are statistically significant ($p < .001$).

Figure 7: **Household Income, Santa Clara County, 2013**

Annual Family Income	Families Overall	Families in Low-SES Neighborhood	Families in Middle-SES Neighborhood	Families in High-SES Neighborhood
$0-$14,999	18%	31%	19%	5%
$15,000-$34,999	27%	43%	32%	8%
$35,000-$49,999	12%	17%	14%	6%
$50,000-$74,999	9%	6%	15%	9%
$75,000-99,999	9%	2%	6%	17%
$100,000+	25%	1%	13%	55%

Source: *Parent Information Form* (2013). Note: N=663 overall, 240 in low-SES, 176 in middle-SES, 247 in high-SES neighborhoods.

Mother's Education

Mother's education has been shown in past research (Duncan & Magnuson, 2005; March Augustine, Cavanagh & Crosnoe, 2009) to be strongly associated with school readiness. Nearly 60% of mothers in the sample had at least some college education (see figure 9 below). Mother's education and neighborhood SES are highly correlated; far more mothers in high-SES neighborhoods have a Bachelor's degree or higher than mothers in low- or middle-SES neighborhoods; all differences in mothers' education by neighborhood SES are statistically significant ($p < .001$).

Figure 8: **Highest Level of Education Completed by Mothers, Santa Clara County, 2013**

Education level	Mothers Overall	Mothers in Low-SES Neighborhood	Mothers in Middle-SES Neighborhood	Mothers in High-SES Neighborhood
Middle school or less	10%	18%	9%	2%
High school or GED	31%	48%	37%	9%
Some college/Associate's degree	31%	29%	40%	26%
Bachelor's degree or higher	29%	5%	13%	64%

Source: *Parent Information Form* (2013). Note: N=708. Percentages may not sum to 100 due to rounding.

PRACTICES IN THE HOME

Family Activities

To better understand the home environment of entering kindergartners in Santa Clara County, the *Parent Information Form* asked about the frequency with which parents engaged in a variety of activities (e.g., reading, story-telling, sports, etc.) with their children in a typical week. The most frequent activity was reading, while the least frequent was doing arts or crafts together. Families from high-SES neighborhoods read with their children significantly more often than families from middle- or low-SES neighborhoods. Families from low- and middle-SES neighborhoods played a sport or exercised with their children significantly more often than families from high-SES neighborhoods.

Figure 9: **Frequency of Family Activities, Santa Clara County, 2013**

Family activity	Overall average times/week	Families in Low-SES Neighborhood	Families in Middle-SES Neighborhood	Families in High-SES Neighborhood
Read for more than five minutes	4.4	4.0	4.2	5.0**
Tell stories or sing songs together	4.3	4.1	4.4	4.5
Involve child in household chores	4.3	4.3	4.5	4.1
Play games or do puzzles with child	3.8	3.7	4.0	3.7
Play a sport or exercise together	3.7	3.9	3.9	3.3**
Do arts or crafts with child	2.7	2.6	2.9	2.6

Source: Parent Information Form (2013). Note: N=689-700. Percentages may not sum to 100 due to rounding. ** p < .01 compared to other-SES neighborhoods.

Amount of Screen Time

According to the American Academy of Pediatrics, young children should watch no more than one to two hours of television a day (AAP, 2001). However, a Nielsen study found that children between the ages of two and five watch an average of 4.57 hours of television a day (Gold, 2009).

To determine how much "screen time" children in the study were watching, parents were asked to report the total amount of time per day their child watches television or videos, or plays video or computer games. There was wide variation in the amount of screen time children had (see chart above). On average, children spent nearly two hours a day in front of the television or computer screen, an amount that is just barely within the American Academy of Pediatrics' guidelines. Screen time of children from families in high-SES neighborhoods was significantly less than for children from families in low- or middle-SES neighborhoods.

Figure 10: **Daily Screen Time, Santa Clara County, 2013**

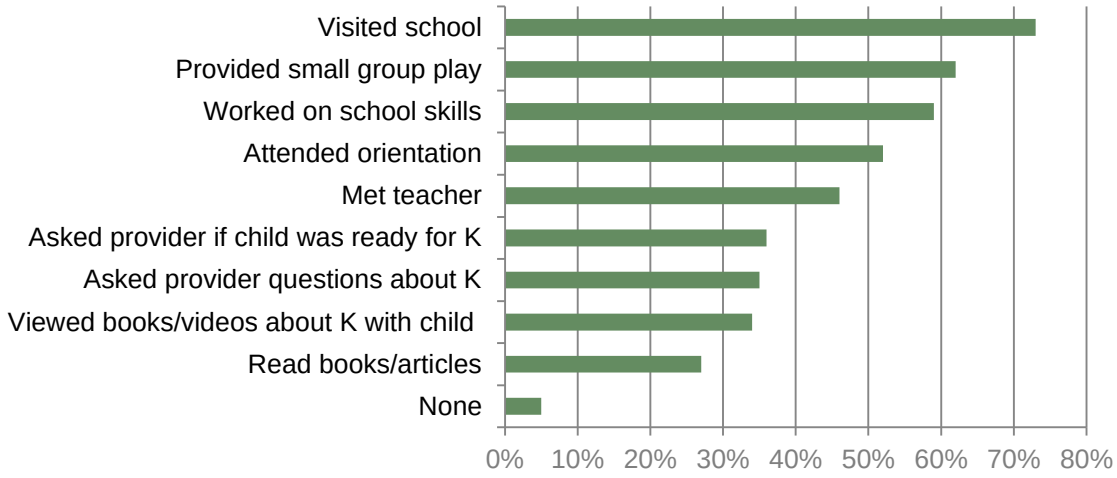
Screen time overall	Screen time of children in Low-SES Neighborhood	Screen time of children in Middle-SES Neighborhood	Screen time of children in High-SES Neighborhood
1 hour, 56 min.	2 hours, 3 min.	2 hours, 2 min.	1 hour, 44 min.**

Source: Parent Information Form 2013. Note: N=712. ** p < .01 compared to other-SES neighborhoods.

Parent Activities to Prepare for Transition to Kindergarten

Parents were asked to identify whether or not they engaged in a number of activities in preparation for their child's transition to kindergarten. The most frequently-reported activities were visiting the school with their children prior to the school year, and providing small group play. The least frequently-reported activities were reading books and articles about the transition, and reading books or watching videos about the transition with their child. Less than half of parents reported that they met with their child's kindergarten teacher prior to the start of school or that they asked their child care provider about kindergarten.

Figure 11: **Kindergarten Transition Activities, Santa Clara County, 2013**



Source: Parent Information Form 2013. Note: N=740. Percentages sum to more than 100 because parents could select multiple responses.

Of the list of possible kindergarten preparation activities above, on average, parents engaged in less than five activities. Families in high-SES neighborhoods engaged in an average of more than five activities, significantly more than families in low- and middle-income neighborhoods.

Figure 12: **Average Number of Kindergarten Transition Activities, Santa Clara County, 2013**

Average # of activities overall	Families in Low-SES Neighborhood average # of activities	Families in Middle-SES Neighborhood average # of activities	Families in High-SES Neighborhood average # of activities
4.5	4.0	4.2	5.4***

Source: Parent Information Form 2013. Note: N=740. *** p < .001 compared to other-SES neighborhoods.

USE OF PARENTING PROGRAMS AND SERVICES

The *Parent Information Form (PIF)* collected information about families' utilization of family and parenting services and supports. As seen in the table below, the type of support most commonly accessed by parents included medical checkups while pregnant (67%) and the Women, Infants and Children (WIC) program (41%). Other resources included parenting information from child care providers, parenting classes, and support received via extended family, friends and neighbors. Of the five percent of parents who indicated that they utilized services other than those listed, the most common sources of support were books and magazines. Overall, 13% of parents reported that they did not access any parenting programs or services.

A significantly larger percentage of families in high-SES neighborhoods received regular medical check-ups while pregnant (76%), compared to families in low- or middle-SES neighborhoods (65% and 58% respectively). Note that it was families in middle-SES neighborhoods that were least likely to obtain regular prenatal care. A significantly greater percentage of families in both low- and middle-SES neighborhoods received services from a community clinic compared to families in high-SES neighborhoods. Finally, a significantly greater percentage of families in low-SES neighborhoods reported receiving home visits from a nurse or other provider compared to families in middle- or high-SES neighborhoods.

The following five parenting supports were significantly different across high-, middle-, and low-SES neighborhoods: WIC, help from extended family, help from neighbors/friends, playgroups, and parenting

websites. For all except WIC, the proportion of families who reported receiving/using the support was highest among those in high-SES neighborhoods, and lowest among those in low-SES neighborhoods. For WIC, this pattern was reversed. Help from extended family was reported twice as often, and help from neighbors/friends was reported over three times as often, among families in high-SES neighborhoods than families in low-SES neighborhoods.

A significantly larger percentage of families in high-SES neighborhoods received information from their child care provider (36%), compared to families in low- or middle-SES neighborhoods (16% and 23% respectively), while twice as many families in low-SES neighborhoods attended parenting classes as did families in middle-SES neighborhoods (16% versus 8% respectively).

Nearly one in five families from middle-SES neighborhoods reported using none of the listed or other parenting programs, services, or supports; this proportion was significantly higher than for families in either low- or high-SES neighborhoods.

Figure 13: **Parents' Usage of Programs and Services, Santa Clara County, 2013**

Parenting programs, services, and supports	Percent of Families Overall	Families in Low-SES Neighborhood	Families in Middle-SES Neighborhood	Families in High-SES Neighborhood
Regular medical check-ups while pregnant	67%	65%	58%	76%**
WIC (Women, Infants, and Children)	41%***	72%	37%	11%
Help from extended family	39%**	27%	38%	54%
Information from child care provider	25%	16%	23%	36%**
Help from neighbors/friends	24%*	12%	21%	38%
Playgroups	19%**	8%	19%	30%
Information or programs at church/religious orgs	14%	14%	12%	14%
Parent education classes	12%	16%*M	8%	12%
Parenting websites	7%*	2%	7%	13%
Other parenting resource not listed	6%	4%	5%	8%*L
Home visits from a nurse or other provider	5%	9%**	4%	2%
Services from community clinic	5%	7%	6%	2%**
Local radio shows about parenting	2%	1%	1%	2%
None of the above	13%	11%	19%*	10%

Source: Parent Information Form 2013. Note: N=738. * p < .05 compared to other-SES neighborhoods, ** p < .01 compared to other-SES neighborhoods, *** p < .001 compared to other-SES neighborhoods. A letter (L, M, H), if any, indicates which single other neighborhood is being compared. When statistical significance indicators are in the "overall" column, all neighborhoods differ from each other.

HOUSEHOLD STRESSORS

A number of questions answered by parents assessed the degree to which they were facing challenging family circumstances. On a 3-point scale ranging from "Not a concern" to "A big concern," parents rated the extent to which several household issues were a concern for them. The figure below shows the proportion of parents indicating "A big concern" over the past year. The greatest number of families had concerns with money, while the fewest had concerns with their relationships. The proportions of families in low- and middle-SES neighborhoods with concerns about money/bills, work-related problems, or food access were significantly higher than the proportions of families in high-SES neighborhoods with those concerns, while the proportions with concerns about health/healthcare or relationship problems differed significantly only between families in low- and high-SES neighborhoods, not middle-SES neighborhoods.

Figure 14: **Proportion of Families Indicating "A Big Concern" Over the Past Year, Santa Clara County, 2013**

Household concern	Overall sample	Families in Low-SES Neighborhood	Families in Middle-SES Neighborhood	Families in High-SES Neighborhood
Money and paying the bills	18%	24%	21%	10%**
Health or health care issues	10%	13%	10%	6%*L
Work-related problems	10%	14%	12%	5%*
Access to food or ability to feed your child/family	6%	9%	6%	2%*
Problems with your spouse or partner	4%	6%	5%	2%*L

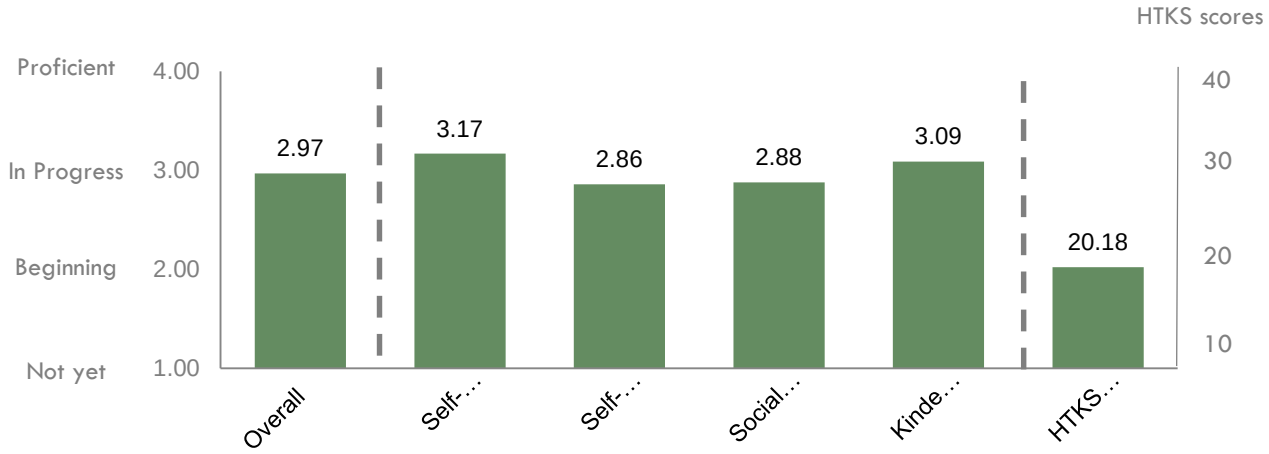
Source: Parent Information Form 2013. Note: N=700-709. * p < .05 compared to other-SES neighborhoods, ** p < .01 compared to other-SES neighborhoods. A letter (L, M, H), if any, indicates which single other neighborhood is being compared.

Overall Levels of Readiness

Readiness Scores

For each individual readiness skill, children were scored on a scale from *Not yet* (1) to *Proficient* (4). As the figure below shows, scores for overall readiness – as well as the *Basic Building Blocks* and *HTKS* – are between the *In Progress* (3) and *Proficient* (4) levels. Students' scores are highest in the *Self-Care & Motor Skills* area (3.17), followed by the domain of *Kindergarten Academics* (3.09) and they have the greatest room to grow in their *Self-Regulation* and *Social Expression* skills (average scores = 2.86 and 2.88, respectively), as well as HTKS (average score = 20.18).

Figure 15: Mean Scores Across Domains, Santa Clara County, 2013



Source: *Kindergarten Observation Form 2013.* Note: N=823-844. Average scores range from 1 (indicating a score of "Not yet") to 4 (indicating a score of "Proficient").

Performance across the Individual Skills

The figure on the following page shows the percentage of children scoring at the *Not Yet, Beginning, In Progress,* and *Proficient* levels across all 24 readiness skills. The figure on the page after that displays the average (mean) score for each item and ranks the items by mean score.

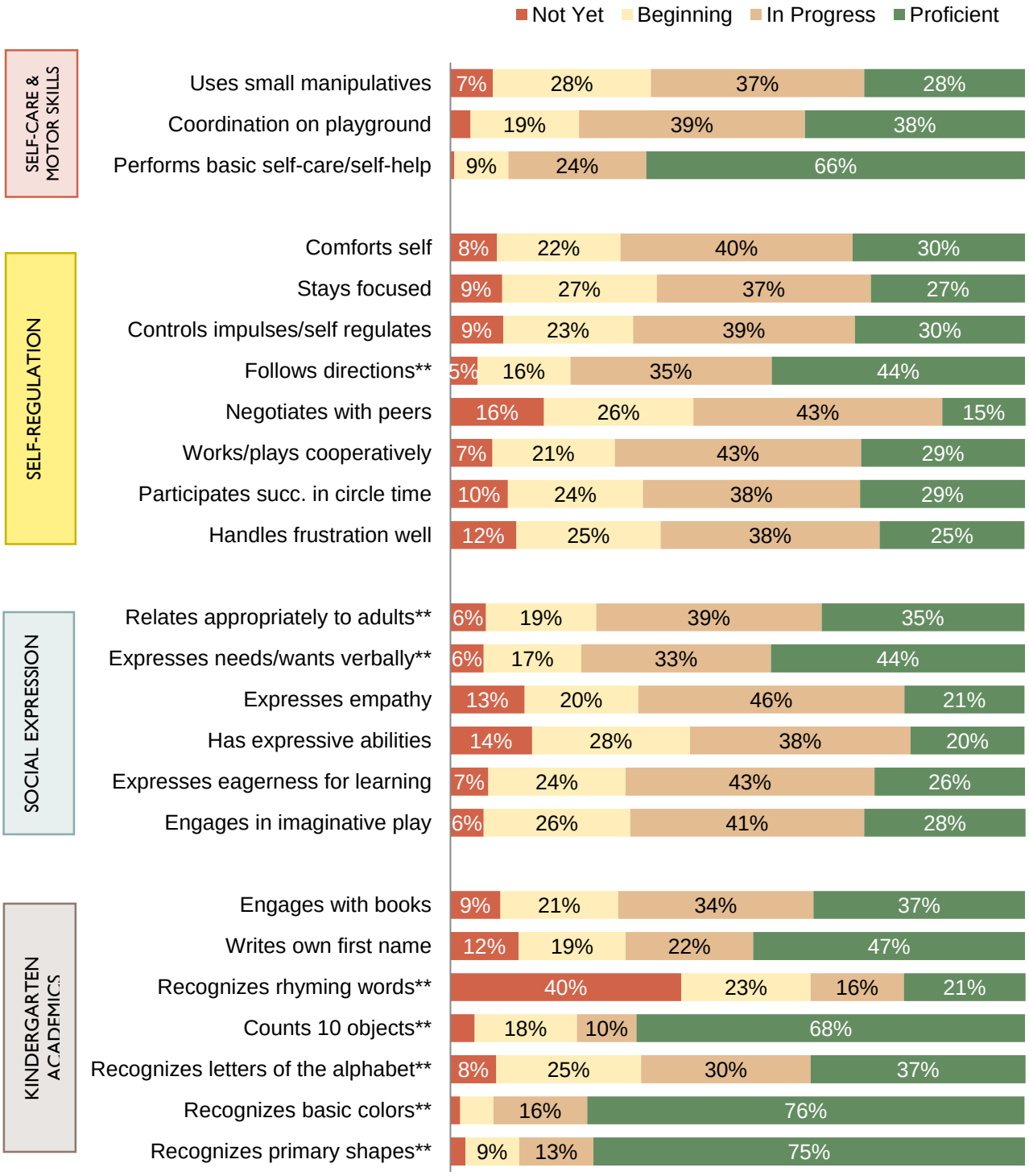
The greatest numbers of children were *Proficient* in the following three skills, all of which fell in the *Kindergarten Academics* cluster:

- Recognizes basic colors (76%)
- Recognizes primary shapes (75%)
- Can count ten objects (68%)

Far fewer children were *Proficient* in the following four areas which span 3 of the 4 readiness blocks:

- Negotiates with peers (only 15% score at the *Proficient* level)
- Has expressive abilities (only 20%)
- Recognizes rhyming words (only 21%)
- Expresses empathy (only 21%)

Figure 16: **Percentage of Children at Each Proficiency Level Across Readiness Skills, Santa Clara County, 2013**



Source: Kindergarten Observation Form 2013.

Note: N=643-843. Scores range from 1 (Not yet) to 4 (Proficient). Proportions of less than 5% are not labeled. ** Language dependent item: Scores were omitted for students for whom language barriers were a concern.

The following table lists the average mean score of each readiness item assessed, sorted in descending order.

Figure 17: **Mean Scores for Individual Readiness Skills in Descending Order, Santa Clara County, 2013**

Ranking	Individual Skill	Mean
1	Recognizes basic colors	3.67
2	Recognizes primary shapes	3.60
3	Performs basic self-help / self-care tasks	3.55
4	Counts 10 objects correctly	3.41
5	Follows one- to two-step directions	3.18
6	Appropriately expresses needs and wants verbally in primary language	3.15
7	Has general coordination on playground	3.12
8	Writes own first name	3.05
9	Relates appropriately to adults other than parent/primary caregiver	3.04
10	Engages with books	2.99
11	Recognizes letters of the alphabet	2.96
12	Works and plays cooperatively with peers	2.93
13	Comforts self, using adult guidance when appropriate	2.92
14	Engages in symbolic / imaginative play with self or peers	2.91
15	Expresses curiosity and eagerness for learning	2.89
15	Controls impulses and self-regulates	2.89
17	Uses small manipulatives	2.86
18	Participates successfully in circle time	2.85
19	Stays focused / pays attention during activities	2.82
20	Handles frustration well	2.77
21	Expresses empathy or caring for others	2.75
22	Has expressive abilities	2.64
23	Negotiates with peers to resolve social conflicts	2.56
24	Recognizes rhyming words	2.18

Source: *Kindergarten Observation Form 2013.*
Note: N=643-843. Means can range from 1 (*Not yet*) to 4 (*Proficient*).

Portraits of Readiness

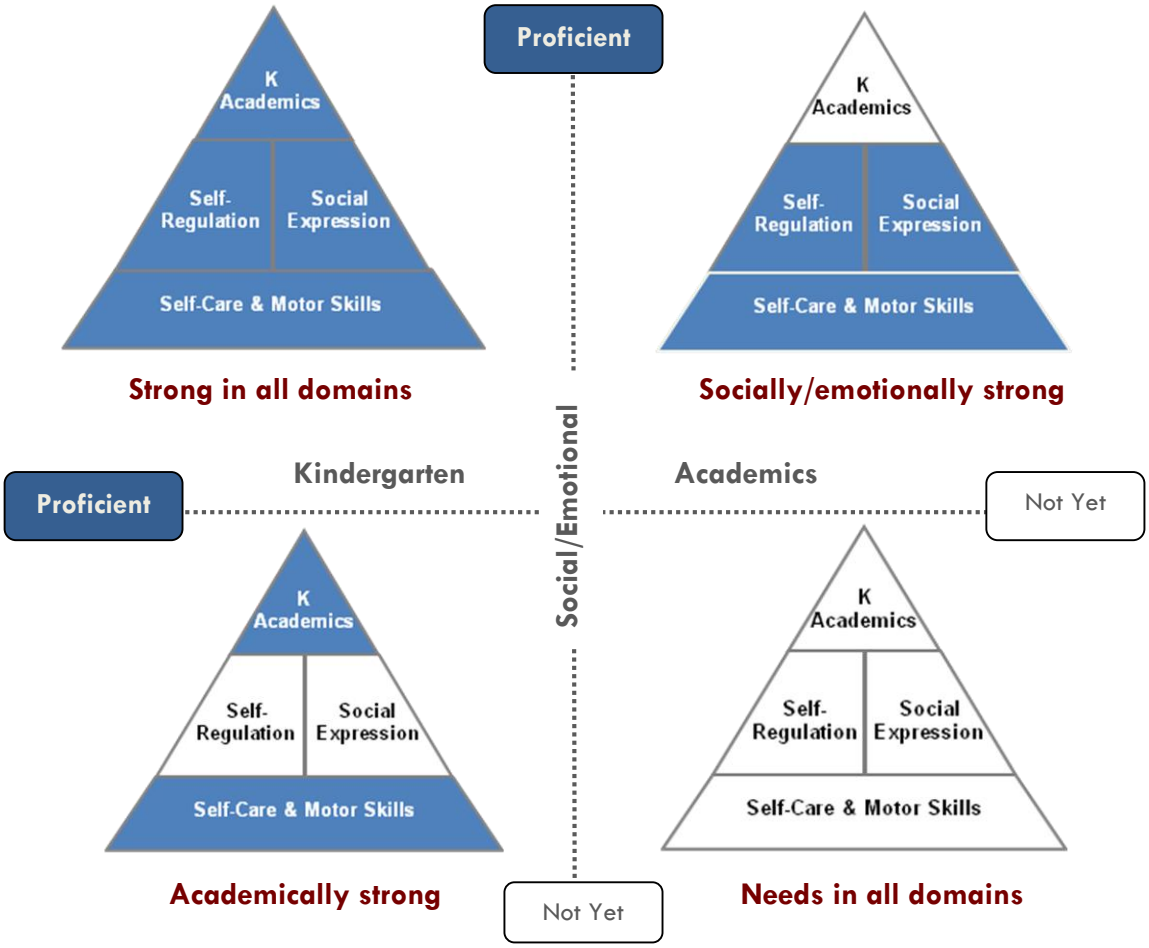
The overall readiness data presented thus far provides a broad picture of children's strengths and challenges as they enter kindergarten. However, children's skills, abilities, and experiences vary widely at this age. In an effort to better describe the diversity of children entering school, ASR developed a technique to identify different groupings of children based on their patterns of readiness across the *Basic Building Blocks*.

INTRODUCING THE READINESS PORTRAITS

Using cluster analysis, four *Readiness Portraits* were developed to provide a richer understanding of readiness patterns (see figure below). The cluster analysis demonstrates that children sort into a pattern consistently found in other counties across several years of implementation.

Each portrait reflects a different pattern of developmental strengths and challenges, as depicted below. A more detailed discussion of the attributes of each portrait follows.

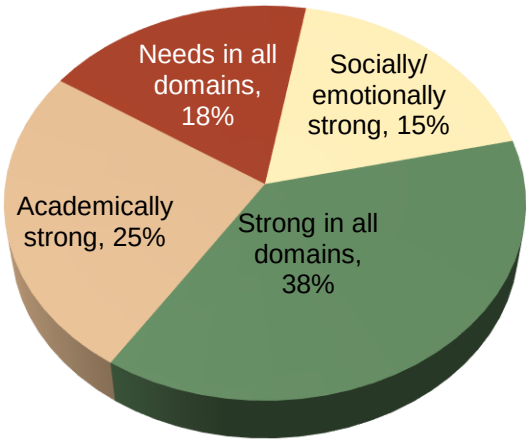
Figure 18: **The Readiness Portraits**



READINESS PORTRAIT AMONGST SANTA CLARA COUNTY KINDERGARTNERS

The figure below shows the distribution of students who were among each of the four readiness portraits. Over one-third of children fell into the *Strong in all domains* profile, entering kindergarten well-rounded across the four dimensions of readiness (38%). Fifteen percent of entering kindergarten students were *Socially/emotionally strong;* solid on their social-emotional skills but with some progress to make in their *Kindergarten Academics*. About one in four kindergartners manifested the opposite pattern of readiness and so were part of the *Academically strong* group. These children were solid in their *Self-Care & Motor Skills* and their *Kindergarten Academics,* but they had needs in the social-emotional dimensions of *Self-Regulation* and *Social-Expression.* And finally, 18% of children fell into the *Needs in all domains* profile; these children had readiness needs across all *Basic Building Blocks.*

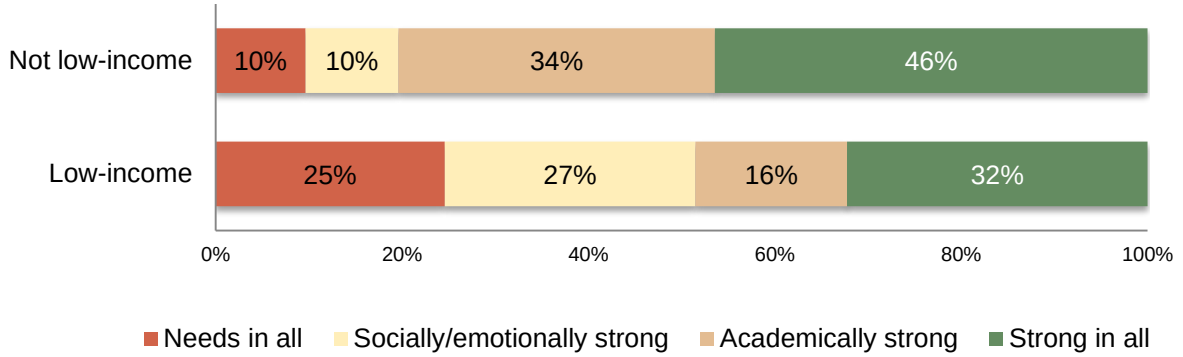
Figure 19: **The Prevalence of Each Portrait, Santa Clara County, 2013**



Source: *Kindergarten Observation Form 2013.* Note: N=844.

The figure below shows the distribution of students among each of the four readiness portraits based on whether or not they are from low-income families. Nearly half (46%) of children who are not from low-income families were *Strong in all domains* as compared to less than one-third of children from low-income families (32%). The proportion of low-income students who fit the *Academically strong* portrait is less than half that of students who are not low-income (16% vs. 34%). One-quarter of students from low-income families had *Needs in all domains*. The differences between children from low- and higher-income families are statistically significant ($p < .001$).

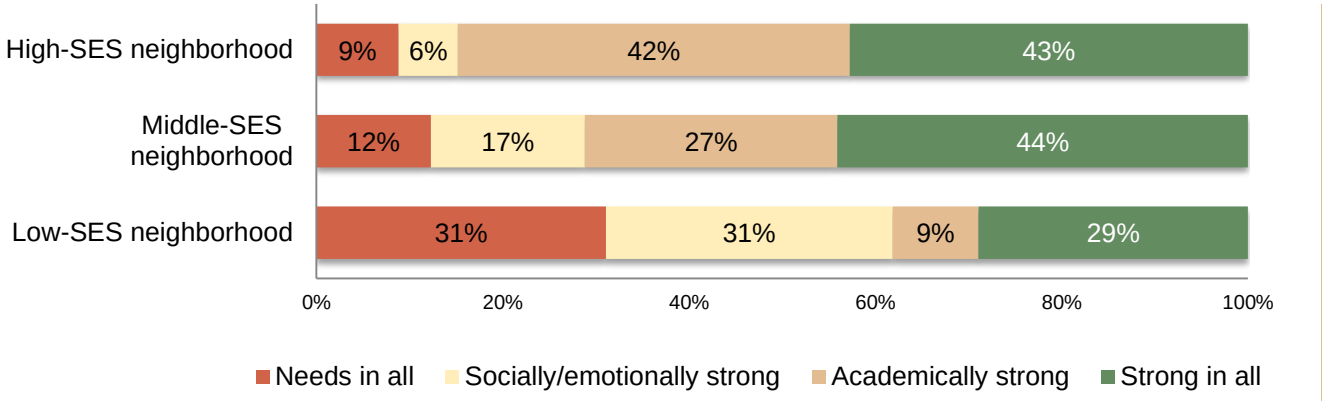
Figure 20: **Proportion of Students in Each Readiness Portrait, by Family Income, Santa Clara County, 2013**



Source: *Kindergarten Observation Form, Parent Information Form, Preschool Experience Form* (2013). Note: N=301 low-income students, 362 not low-income. Percentages may not sum to 100 due to rounding.

The figure below shows the distribution of students among each of the four readiness portraits based on neighborhood SES. Children from low-SES neighborhoods were overrepresented among those who had *Needs in all domains* (31%, compared to 12% in middle- and 9% of high-SES neighborhoods), and correspondingly underrepresented among those who were *Strong in all domains* (29%, compared to 43-44% for middle- and high-SES neighborhoods). There was more variation in the proportions of students who fit the *Academically strong* portrait (9% in low-income neighborhoods, versus 27% in middle-income neighborhoods, and 42% in high-income neighborhoods). All differences in proportional readiness portrait representation among neighborhoods are statistically significant ($p < .001$).

Figure 21: **Proportion of Students in Each Readiness Portrait, by Neighborhood SES, Santa Clara County, 2013**



Source: *Kindergarten Observation Form, Parent Information Form, Preschool Experience Form* (2013). Note: N=325 low-SES neighborhood students, 236 middle-SES neighborhood students, 283 high-SES neighborhood students. Percentages may not sum to 100 due to rounding.

How Ready are Students for Later Success?

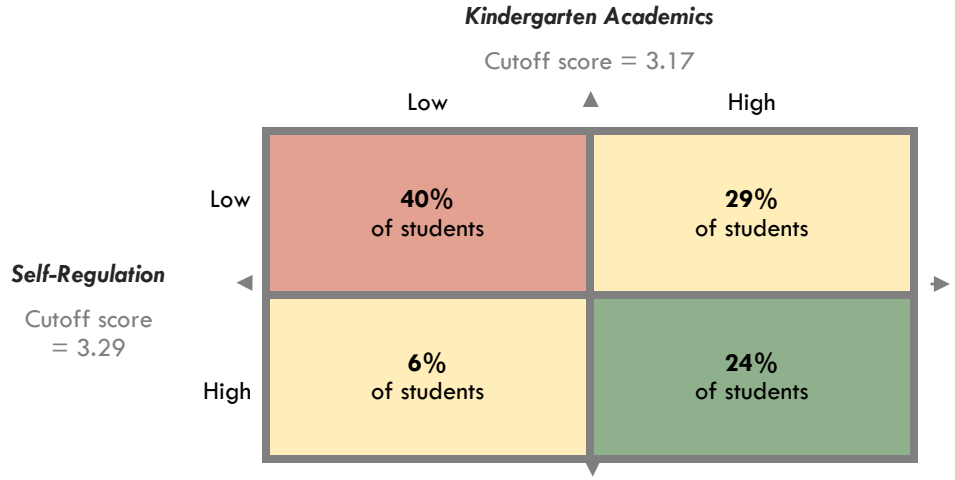
Among the assessed students, one-third, or 285 out of 844 students, were rated as *Proficient* across 20 or more of the 24 skills on which they were assessed. Forty-four percent (374 students) scored at the *Proficient* level in 5 or fewer of the 24 skills. On average, students were rated as *Proficient* on 8 of the 24 items.

Knowing what children's skill levels are is informative, but without additional information about where those skills should be, our ability to understand children's readiness is limited. This section discusses the readiness levels of students in the assessment using a research-based benchmark for readiness.

READINESS BENCHMARK FOR LATER ACADEMIC SUCCESS

While all of the domains of readiness matter for school success, research highlights the importance of having strong skills in both *Kindergarten Academics* and *Self-Regulation*. A recent study[5] in San Mateo and Santa Clara Counties found that the *Kindergarten Academic* and *Self-Regulation* skills that students possessed at the start of kindergarten strongly predicted their academic performance three and a half years later. More specifically, 68 percent of students who had strengths (i.e., scored above the mean) in both *Kindergarten Academics* and *Self-Regulation* in kindergarten went on to perform at *Proficient* or *Advanced* levels on both their English Language Arts and Mathematics CSTs at third grade. These students were more than three times as likely as their peers who scored low (i.e., scored below the mean) on both these domains in kindergarten to be performing at grade-level three and a half years later.

Figure 22: **Percentage of Students Sorting Into High and Low Kindergarten Academics and Self-Regulation Levels, Santa Clara County, 2013**



Source: *Kindergarten Observation Form 2013.* Note: N=841. Students were divided into high and low levels of *Kindergarten Academics* and *Self-Regulation* based on whether they were above or below the San Mateo and Santa Clara Longitudinal Study mean score on each. Mean scores are called "Cutoff scores" in the figure.

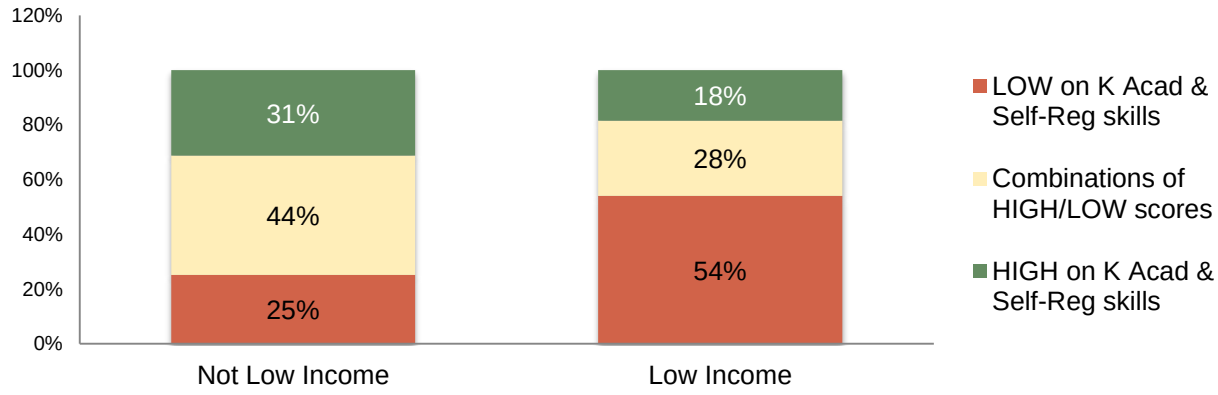
[5] Applied Survey Research. (2010). School readiness and student achievement: A longitudinal analysis of Santa Clara and San Mateo County students. Report can be downloaded at www.appliedsurveyresearch.org.

Based on this finding, a benchmark cutoff score was created by using San Mateo and Santa Clara County students' mean scores on *Kindergarten Academics* and *Self-Regulation* to define a student's score as high or low in *Self-Regulation* and *Kindergarten Academics* and applied to the readiness data collected in Santa Clara County. The figure above shows the proportion of students with high scores in both domains (strongly predictive of later academic success), low scores in both domains (indicating a one out of five likelihood of later academic success); and mixed patterns of readiness (no clear predictive pattern).

Longitudinal Standard relative to Income

The figure below that follows shows the proportion of children from low-income families compared to those not from low-income families who had scores meeting various levels of the longitudinal standard. Less than one in five children from low-income families (18%) had the readiness levels that were most predictive of third grade academic success as compared to nearly one-third (31%) of children not from low-income families. The differences between children from low- and higher-income families are statistically significant ($p < .001$).

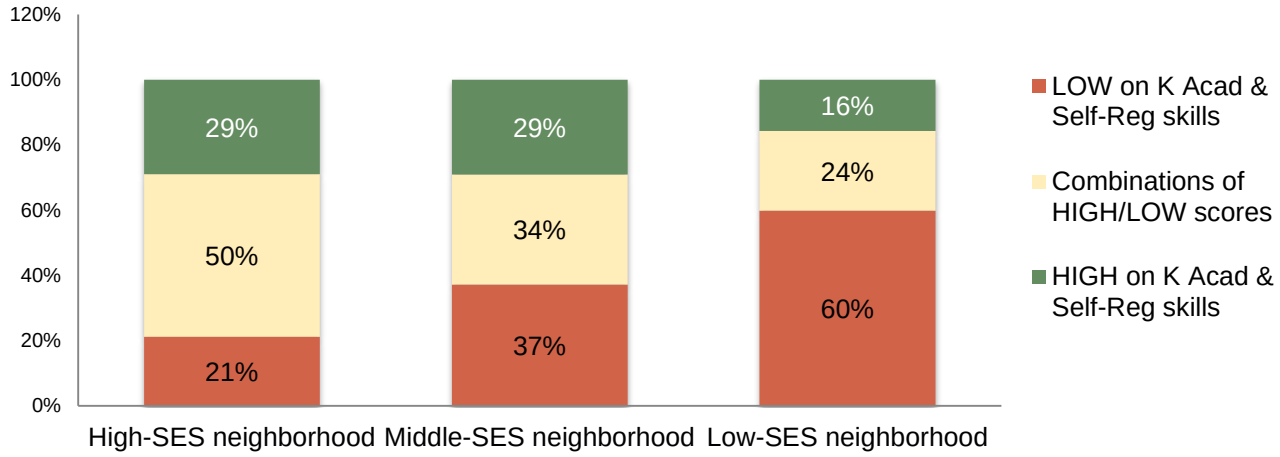
Figure 23: **Proportion of Students with Scores Predictive of Third Grade Success, by Family Income, Santa Clara County, 2013**



Source: *Kindergarten Observation Form* (2013) Note: N=660 (298 low income and 362 not low-income students). Percentages may not sum to 100 due to rounding. Children were classified as scoring high on *Kindergarten Academics* and *Self-Regulation* skills if they scored above the 2008 longitudinal study mean score in these domains (3.29 for *Self-Regulation*; 3.17 for K Academics).

The figure below shows a comparison of the proportions of children from low-, middle-, and high-SES neighborhoods who had scores meeting various levels of the longitudinal standard. About one in six children from low-SES neighborhoods (16%) had the readiness levels that were most predictive of third grade academic success as compared to over one-quarter (29%) of children from middle- or high-SES neighborhoods. All differences among children on this measure of the longitudinal standard by neighborhood are statistically significant ($p < .001$). Note that almost all of the children in high-SES neighborhoods who had a combination of high and low scores against the longitudinal standard met the *Kindergarten Academics*, but not the *Self-Regulation*, portion of the standard.

Figure 24: **Proportion of Students with Scores Predictive of Third Grade Success, by Neighborhood SES, Santa Clara County, 2013**



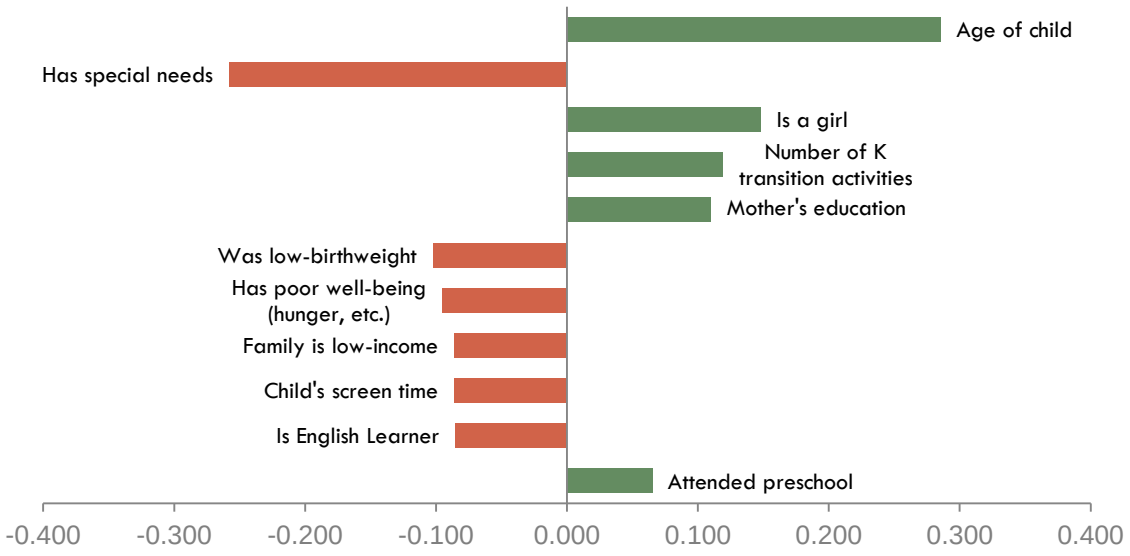
Source: *Kindergarten Observation Form* (2013) Note: N=841 (324 low-SES, 234 middle-SES, and 283 high-SES neighborhood children). Percentages may not sum to 100 due to rounding. Children were classified as scoring high on *Kindergarten Academics* and *Self-Regulation* skills if they scored above the 2008 longitudinal study mean score in these domains (3.29 for *Self-Regulation*; 3.17 for K Academics).

What Factors are Associated with School Readiness?

The figure below shows the results of a comprehensive linear regression analysis. Depicted are those factors that were found to be significantly associated with overall kindergarten readiness after taking into account other child- and family-level background characteristics. [6]

Each bar in the figure below represents the size of a "beta coefficient," which is a measure of the strength of association between each factor and overall readiness, over and above all of the other variables in the model. It is essential to keep in mind that these are correlational — not causal — analyses. In other words, it is not possible to state from these data that a specific variable *causes* improved school readiness. Rather, these data indicate an association between the factors listed in the figure below and overall school readiness levels. The variables listed to the right of the Y axis have a positive association with readiness, while the variables listed to the left have a negative relationship with readiness.

Figure 25: **Relative Strength of Child and Family Factors Significantly Associated with Overall School Readiness, Santa Clara County, 2013**



Sources: *Kindergarten Observation Form, Parent Information Form, Preschool Experience Form* (2013).
Note: Values for each factor listed above represent standardized beta coefficients that were significant at $p < .10$; $F = 22.55$, $p < .001$, explaining 33 percent of the variance in kindergarten readiness ($R^2 = .34$; Adj. $R^2 = .32$); N=594.

Some child-level factors appear to have a powerful and independent association with school readiness. For example, children who were older when they entered school, and children who did not have special needs

[6] **Child-level variables entered into regression model:** Child's age at assessment, number of days from start of school to date of assessment, gender, low-birthweight, well-being measure (mean frequency of being hungry, tired, sick, tardy, and absent), special needs status, English Learner status, preschool attendance, neighborhood SES, and daily screen time. **Family-level variables entered into regression model**: Family income, mother's education level, number of kindergarten transition activities families engaged in.

began kindergarten at higher readiness levels. Families were important, too. While family income was a factor, its impact could be overcome by elements over which families have more control. For example, children whose families limited their screen time and engaged in kindergarten transition activities with greater frequency demonstrated higher levels of overall readiness. These findings suggest that the more learning opportunities families can provide for their children, both inside and outside of the home, the more ready children will be for school. Neighborhood SES did not have a significant impact, over and above family income.

The previous figure shows the factors that were associated with overall readiness scores. To see how each individual school readiness dimension was related to the different factors, the same regression model was applied to each of the school readiness dimensions. The figure below identifies the factors that emerged as at least marginally significant predictors of each, and it displays how much of the variation in the readiness dimensions were explained by each of the predictors (as indicated by the R^2 statistics at the bottom of the table). The beta weights shown in the table can be interpreted as expressing the amount of change in the readiness variable that can be expected to occur per unit change in the factor listed after holding all of the other factors in the regression model constant. For example, a child's mother having a Bachelor's degree instead of an Associate's degree increases that child's overall readiness by about one-tenth (.11) of a point.

Figure 26: **Beta Weights of Child and Family Factors Significantly Associated with School Readiness, Santa Clara County, 2013**

Predictors	Overall Readiness	Self-Care & Motor Skills	Self-Regulation	Social Expression	Kindergarten Academics	HTKS (other Self-Reg.)
Child is older	.29	.25	.23	.27	.24	.17
Child not Special Needs	.26	.18	.26	.22	.17	.17
Child is a girl	.15	.11	.18	.12	.06	.07
Number of kindergarten transition activities	.12	.11	.08	.09	.12	--
Mother has more education	.11	--	.09	--	.17	.19
Child not low-birthweight	.10	.09	.08	.09	.08	--
Child well-being	.10	.10	.13	--	.08	.12
Family income is higher	.09	--	--	.08	.15	.13
Child has less daily screen time	.09	.08	.07	.09	.07	.12
Child not English Learner	.09	--	--	.16	.08	.09
Child attended preschool	.07	--	--	--	.16	--
Higher neighborhood SES	--	.19	-.09	--	.19	--
Overall R^2/Adjusted R^2	.34/.32	.26/.24	.23/.21	.21/.19	.47/.46	.26/.24

Source: Kindergarten Observation Form, Parent Information Form, Preschool Experience Form (2013). Note: Factors with a beta weight listed were at least marginally significant ($p<0.10$) predictors of readiness when all other variables were simultaneously entered into the model. All regression models shown were statistically significant.

As shown in the figure above, children without special needs, children who were older, girls, and children whose parents reported they had less daily screen time demonstrated greater levels of proficiency across all the

readiness measures. Children who were not low-birthweight and/or whose families engaged in more transition activities prior to kindergarten tended to have higher *Basic Building Blocks* scores (i.e., all but HTKS). Average teacher ratings of the frequency with which students had poor well-being measures (tired, hungry, sick, absent, tardy) is a consistently strong predictor of school readiness with the exception of *Social Expression.* Children who were proficient in English or who were not from a low-income family tended to have higher *Social Expression, Kindergarten Academics,* and HTKS (skill-based self-regulation) scores. Mother's education levels were linked to variation in children's *Kindergarten Academics*, *Self-Regulation*, and HTKS scores. Higher neighborhood SES, over and above family income, accounted for stronger readiness in the *Self-Care* and *Kindergarten Academics* domains, but lower readiness in *Self-Regulation*.[5] Preschool experience appeared to be most strongly related to increases in readiness in the area of *Kindergarten Academics*. The demographic and child factors found to be significant here (e.g., age, income, and special needs) are consistently identified as predictors of readiness in the research literature (Maxwell & Clifford, 2004) and across school readiness studies conducted by ASR.

Part 2: Preschool Quality and Its Effect on School Readiness

Contents of this Chapter:

This chapter describes the early child care and educational experiences of children in the assessment, provides a portrait of the network of preschools from the assessment sample region, and examines how specific elements of preschool quality are associated with school readiness across the region.

Key Findings:

- Although 52% of all incoming kindergarteners in the assessment sample attended preschool or licensed child care, preschool attendance rates differed considerably by neighborhood. In high-SES neighborhoods, 65% of children attended a licensed preschool or child care center, as compared to 47% in medium-SES and 44% in low-SES neighborhoods.
- One quarter of students (24%) participated in a short-term summer pre-k program. However, students in medium-SES neighborhoods were significantly less likely to have participated (12%), compared with students from low and high-SES neighborhoods.
- Children that were least likely to have attended preschool were:
    - Hispanic/Latino or Filipino;
    - English Learners; and
    - From low-income families or lived in low-/medium-SES neighborhoods.
- In all, 83 different preschools had been attended by 352 children in the sample.
- On average, these preschools' classes held 20 children, with an average of eight children per teacher.
- Sixty-three percent of lead preschool teachers had at least 10 years of experience.
- Children who attended preschool were significantly more ready for school than were children who did not (3.08 vs. 2.83 on the KOF).
- The preschool characteristics most strongly associated with readiness were the frequency with which teachers asked parents to do educational activities at home, the number of hours of formal training received by teachers, and, for low-income students only, the lead teacher's years of experience.
- Each of the high-, middle-, and low-SES neighborhoods across the sample region contained multiple preschools with at least one of these "quality factors."

Early Care and Education Experiences

As described previously, preschool attendance information was accessed through teacher and parent report via the *Kindergarten Observation Form*, *Parent Information Form*, and *Preschool Experience Form*. Names of child care centers attended by children were verified against lists of licensed child care centers. Fifty-two percent of students had preschool experience in the year prior to kindergarten, according to teacher and/or parent report. An additional three percent of children attended a licensed family child care home. According to teacher and parent report, 24% also participated in a short-term summer Pre-K program.

Since we are interested in how neighborhood socioeconomic status interacts with preschool experience and preschool quality, the chart below shows students' early care experiences by their neighborhood SES.

Figure 27: **Students' Early Care Experiences in the Year Prior to Kindergarten, by Neighborhood SES, Santa Clara County, 2013**

Type of Child Care Arrangements	% of Children Overall	% of Children in Low-SES Neighborhood	% of Children in Medium-SES Neighborhood	% of Children in High-SES Neighborhood
Licensed child care center	52%	44%	47%	65%*
Family child care home	3%	3%	3%	3%
Transitional Kindergarten or repeating kindergarten	4%	2%	6%	4%
Short-term summer Pre-K program	24%	28%	12%***	30%

Source: *Kindergarten Observation Form*; *Parent Information Form*; *Preschool Experience Form* (2013). Note: N=844 overall, 297-325 in low-SES, 219-236 in middle-SES, 269-283 in high-SES neighborhoods. Percentages sum to more than 100 because more than one source of care could be selected. * p < .05 compared to other-SES neighborhoods, ** p < .01 compared to other-SES neighborhoods, *** p < .001 compared to other-SES neighborhoods.

As shown, a significantly higher percentage of students in high-SES neighborhoods attended a licensed child care center (65%) than in low- or middle-SES neighborhoods (44-47%).

Interestingly, the percentages of students from low- and high-SES neighborhoods who participated in a short-term summer Pre-K program were similar (28-30%), while significantly fewer participated from middle-SES neighborhoods (12%). However, nearly one-third (30%) of children who attended summer pre-K from low-SES neighborhoods did not attend regular-year pre-K, while this was true of less than 4% of summer pre-K children from middle- and high-SES neighborhoods, a statistically significant difference ($p < .05$).

Data regarding preschool experience was represented through a combination of parent-reported and teacher-reported information. A child was considered to have had preschool experience if at least one of the following conditions was satisfied: 1) the kindergarten teacher indicated that the child had participated in a licensed home- or center-based program; and/or 2) parents listed a preschool (in the PIF or PEF) that was validated as a licensed family child care home or licensed child care center. Using this definition, the proportion of students with preschool experience was 55%. Students for whom preschool attendance data were not available were not included in these analyses. In this section, information about the association between preschool experience and readiness is explored in order to provide a more complete picture of how preschool relates to readiness and how its influence may be moderated by preschool center quality. The following figure describes the demographic characteristics of these students.

Figure 28: **Student Characteristics by Preschool Attendance, Santa Clara County, 2013**

Child Characteristics	Had Attended Preschool	Had Not Attended Preschool
Age of child at date of kindergarten assessment		
Less than 5 years	52%	48%
5 years to 5 ½ years	60%	40%
5 ½ years to 6 years	58%	42%
More than 6 years	58%	42%
Gender		
Girl	55%	45%
Boy	61%	39%
Teacher and/or parent report Special Needs		
Yes	52%	48%
No	59%	41%
Child is an English Learner		
Yes	53%	47%
No	65%***	35%
Ethnicity		
Hispanic/Latino	49%**W,A	51%
White	70%	30%
Asian/Pacific Islander	70%	30%
Filipino	53%*A	47%
Other^	59%	41%
Preferred Language		
English	64%	36%
Spanish	43%**E,V	57%
Vietnamese	68%	32%
Other	54%	46%
Child is from low-income family		
Yes	59%	41%
No	69%**	31%
Family's neighborhood socio-economic status		
Low	49%	51%
Middle	55%	45%
High	72%**	28%

Source: *Kindergarten Observation Form* (2013) and *Parent Information Form* (2013). Note: N=428-490 students who attended preschool and 235-352 students who did not attend preschool. Percentages may not sum to 100 due to rounding. ^ Other includes African American, Alaskan Native/American Indian, and multi-racial. Percentages of each of these are too small to present separately. * p < .05, ** p < .01, *** p < .001 compared to other category(ies). A letter (W, A, E, V), if any, indicates which other category(ies) is/are being compared. When no letter appears, the indicated category significantly differs from the other(s) in its section.

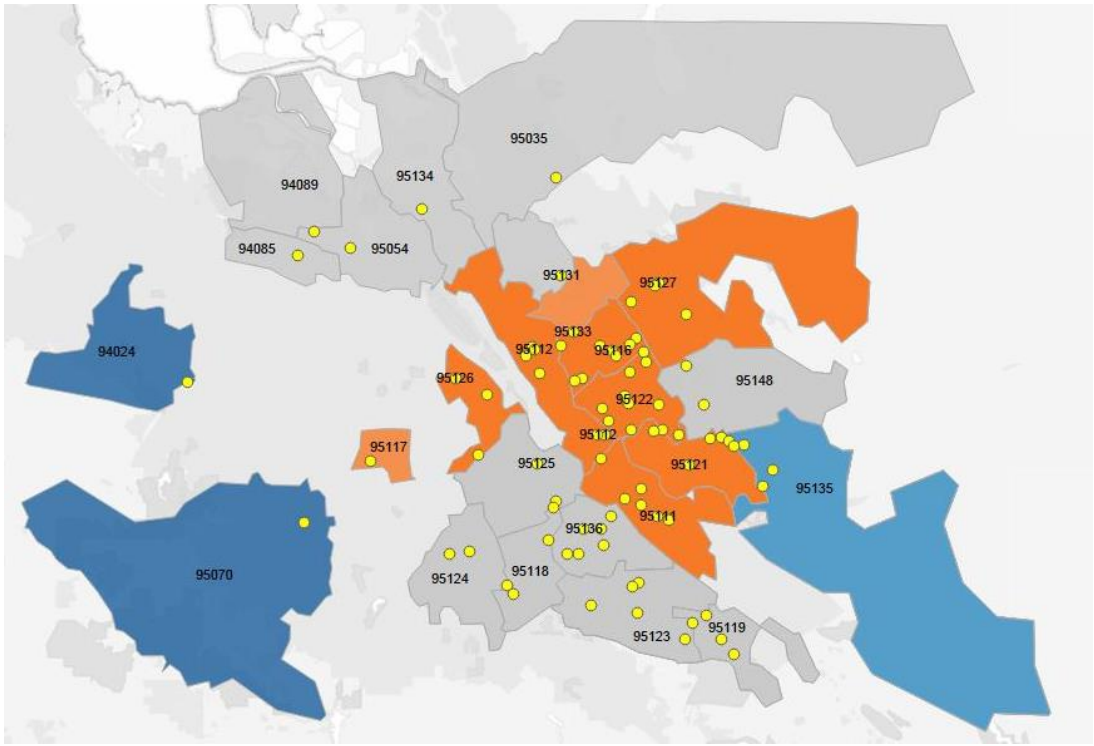
The table above indicates that children who are English Learners, who are from low-income families, or whose families live in low- or middle-SES neighborhoods attend preschool in significantly lower proportions than their counterparts. Hispanic/ Latino and Filipino children attend preschool in significantly lower proportions than those who are Asian/ Pacific Islander, and Hispanic/Latino children also attend in significantly lower proportions than White children. Finally, children whose preferred language is Spanish attend preschool in significantly lower proportions than children whose preferred language is English or Vietnamese.

A Portrait of Preschools

ASR conducted a survey of a sample of licensed child care centers and licensed family child care homes in Santa Clara County during 2013. Details of the sample and the survey may be found in the forthcoming report on preschool quality in Santa Clara County.

As noted, 52% of children in the school readiness assessment sample attended a licensed child care center and another 3% attended a licensed family child care home in the year prior to kindergarten, according to teacher and/or parent report. For ease of reference, in this report we will call these two types of facilities "preschools." Together, the preschooled population in the sample totals 461 children. Of these, 362 (nearly 80% of preschooled children) attended a preschool that received a quality score. There were 83 of these "feeder" preschools, which are included in the portrait here. The map below shows the location of each of these preschools (shown as yellow circles) by zip code area, in which the zip code areas are colored based on median income (U.S. Census 2010).

Figure 29: **Location of Feeder Preschools by Zip Code Area Median Income, Santa Clara School Readiness Assessment Sample, 2013**



Median Income Range

$0-$40,000 $40,001-80,000 $80,001-120,000 $120,001-160,000 >$160,000

The largest feeder preschools, those sending at least 1% of sampled children (8 or more) to one or more of the sampled elementary schools) are listed below. Facilities are listed in order of the number of sampled children they sent.

Figure 30: **Feeder Preschools, Santa Clara School Readiness Assessment Sample, 2013**

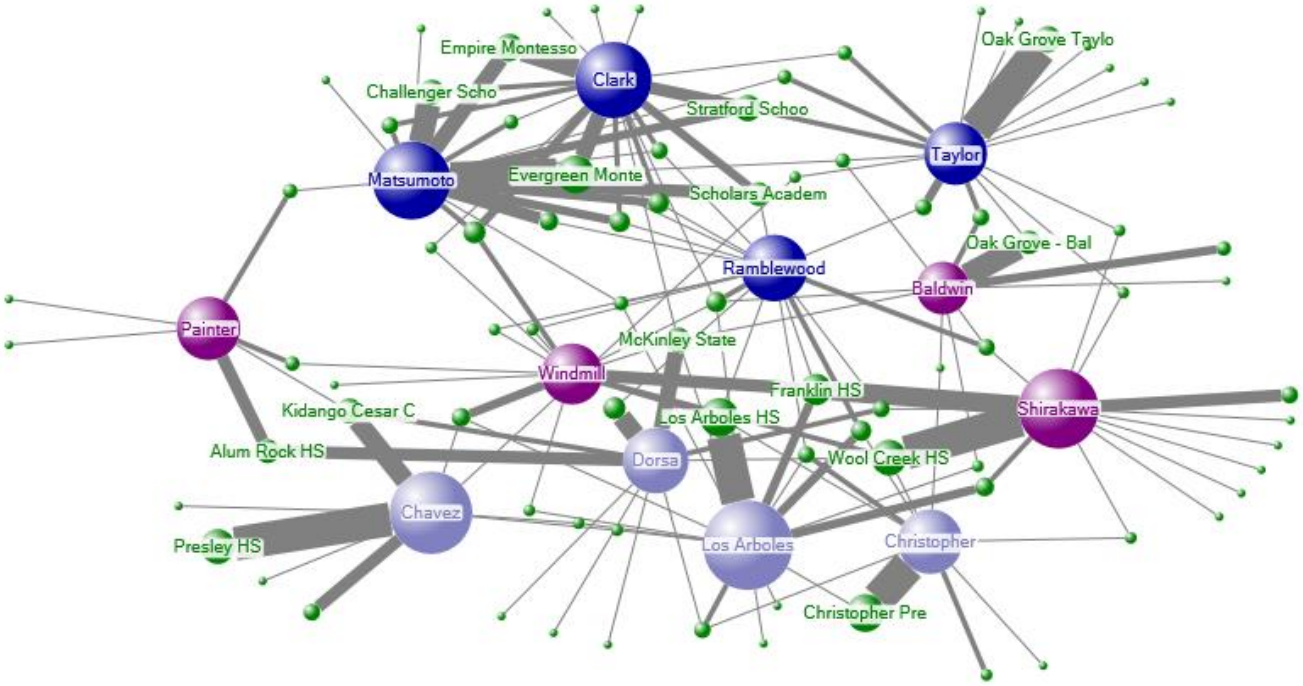
Facility name	# children sent	Nearest sampled elementary school(s)
Los Arboles Head Start	21	Los Arboles
Christopher Elementary Pre-K*	20	Christopher K-8
Evergreen Montessori School	20	Tom Matsumoto & Carolyn Clark
Wool Creek Head Start	18	G. Shirakawa
Presley Head Start	17	Cesar Chavez
Franklin Head Start	14	G. Shirakawa & Windmill Springs
Empire Montessori Preschool Bilingual Chinese	11	Tom Matsumoto & Carolyn Clark
Oak Grove Taylor	10	Bertha Taylor
Stratford School**	10	Julia Baldwin
Kidango Cesar Chavez	9	Cesar Chavez
Challenger School**	9	Bertha Taylor
McKinley State Preschool/Head Start	9	A.J. Dorsa & Cesar Chavez
Alum Rock Head Start	8	Ben Painter
Oak Grove – Baldwin Child Care Center	8	Julia Baldwin
Scholars Academy**	8	Ramblewood & Windmill Springs

Source: Kindergarten Observation Form, Parent Information Form, Preschool Experience Form (2013).

Note: * Christopher Pre-K is the only non- licensed center that was included in the preschool quality survey, because almost all of the sampled students at Christopher Elementary attended Christopher Pre-K. ** Note, despite the elementary schools in their proximity, these preschools sent the largest number of sampled students to Tom Matsumoto and/or Carolyn Clark Elementary.

The chart below shows the entire network of 83 preschools that sent any students to the 12 elementary schools in the study. Elementary schools are labeled and shown in purple, while the sending preschools are shown in green. The darker the purple, the higher the elementary school's API rank (the proxy for neighborhood socioeconomic status). The spheres representing the preschools are sized based on the total number of children the preschool sent to any of the 12 elementary schools, while those representing the elementary schools are sized based on the total number of children assessed at that school. The lines between the preschools and the elementary schools are each sized based on the number of children that preschool sent to that elementary school with which it is linked.

Figure 31: **Network of Preschools Feeding into the Sampled Elementary Schools, Santa Clara County, 2013**



The biggest feeder preschools are labeled in the network map above and shown as having the thickest gray lines between themselves and one or more of the elementary schools. For example, the feeder preschool that has thickest line joining it to Shirakawa Elementary is Wool Creek Head Start; Wool Creek sent 18 students to Shirakawa. Wool Creek also sent students to Windmill Springs, Dorsa, and Christopher Elementary Schools, though in smaller numbers than it sent to Shirakawa.[7]

While the biggest senders (feeder preschools) are listed in the previous table in terms of the number of students they sent to the elementary schools, the network map shows that Clark was the elementary school recipient of the largest number of senders[8], receiving students from the most early care facilities (18), followed closely by Los Arboles, Matsumoto, Ramblewood, and Taylor (17 facilities each). Of these five elementary schools that received students from the greatest number of different feeder preschools, four (all but Los Arboles) are ranked as high API (i.e., high neighborhood SES).

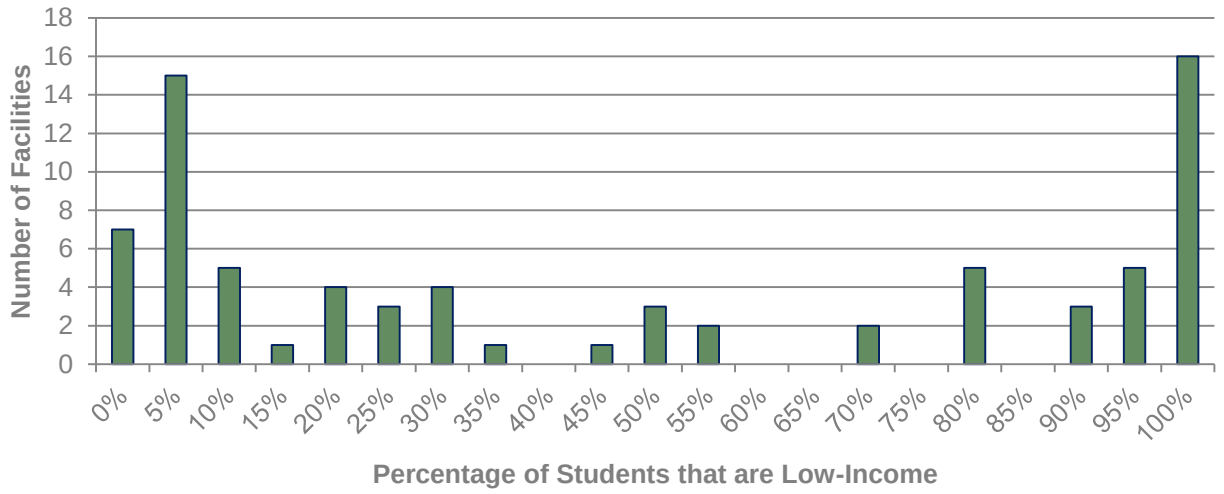
Forty-one percent of the 83 feeder preschools only had one or two classrooms, and less than 15% had more than six classrooms. On average, there were 20 children per classroom; however, this varied widely (standard deviation was 6.49). The mean teacher-to-child ratio was one to eight, with a standard deviation of 2.78.

[7] Note that these are numbers of assessed students; Wool Creek may have sent larger numbers of students to the various elementary schools, but not all students in each school were assessed.

[8] There may have been more preschools sending students to Clark and/or the other elementary schools, but of the students who were assessed across all 12 elementary schools, the students at Clark came from the greatest number of different early care facilities that participated in the preschool directors' survey.

In the Santa Clara sample, 45% of children came from low-income families. In comparison, about one-third of preschools reported that 80-100% of their families were low-income (defined as receiving TANF/other public assistance), while about half surveyed said that less than one-third of their families are low-income.

Figure 32: Percentage of Preschool Population that is Low-Income,2013



Source: *Preschool Directors Survey* 2013-14. Note: N=77.

Preschool directors were also asked about the ethnic make-up of their preschool. About one-third said they had a majority Latino student population. About half of the preschools had a preschool student population of less than 5% White. Similarly, about half of preschools reported that 80% or more of their students spoke a language other than English at home.

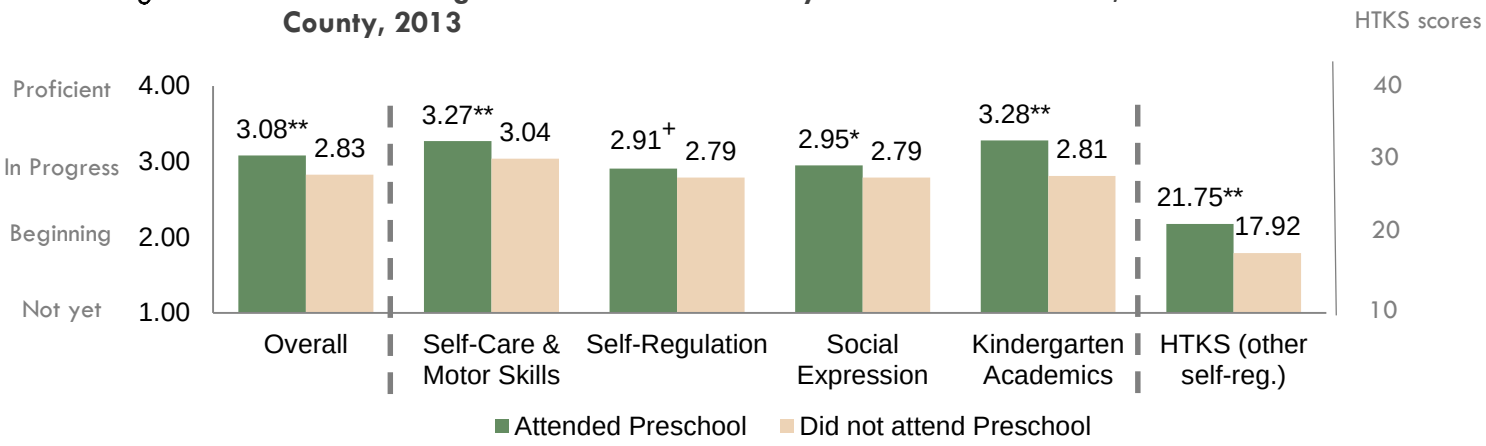
Among children in the Santa Clara sample, about 10% were Special Needs students. In comparison, the preschools on average reported having about 5% Special Needs students. One-quarter of preschools reported having none, while about one-eighth reported having more than 10% Special Needs students.

Does Preschool Matter?

PRESCHOOL FACTORS ASSOCIATED WITH SCHOOL READINESS: SIMPLE ANALYSES

The figure below shows students' readiness levels by preschool attendance. Preschool attendees' readiness levels were significantly higher than those of non-attendees in all domains, including the HTKS (the skills-based assessment of self-regulation). Readiness levels among preschool graduates were highest in Kindergarten Academics and lowest in *Self-Regulation.* Note that entering kindergarteners with preschool experience scored about the same on the HTKS as in the San Francisco "Preschool for All" sample, where preschooled kindergarteners' scores were 21.44 (ASR, 2013). Santa Clara County sampled children who had not been preschooled scored somewhat higher than non-preschooled children in San Francisco's control group (17.92 for Santa Clara versus 15.41 for San Francisco (ASR, 2013)).

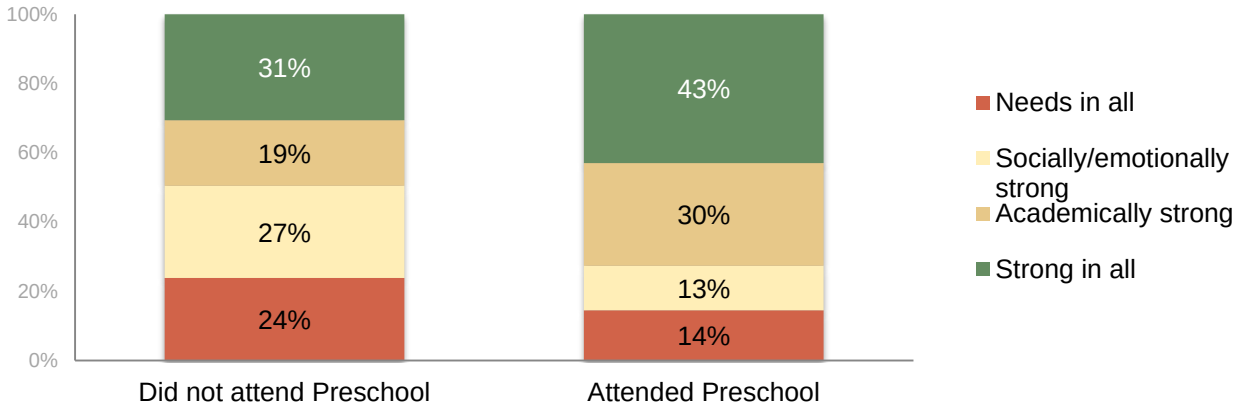
Figure 33: **Mean Kindergarten Readiness Scores by Preschool Attendance, Santa Clara County, 2013**



Source: *Kindergarten Observation Form, Parent Information Form, Preschool Experience Form* (2013). Note: N=478-491, Preschool attendees; N=333-353, Non-attendees. +=significant difference at p<.05, *=significant difference at p<.01, **=significant difference at p<.001.

The figure below shows the percentage of students whose skills fell into the four readiness portraits, according to prior preschool attendance. Forty-three percent of preschool graduates were *Strong in all domains* as compared to less than one-third of non-attendees (31%). A larger proportion of preschool graduates also fit the *Academically strong* portrait (30%) compared to non-attendees (19%). Nearly one-quarter (24%) of children who had not attended preschool fell into the *Needs in all domains* group. The differences between children who attended preschool and those who did not attend are statistically significant ($p < .001$).

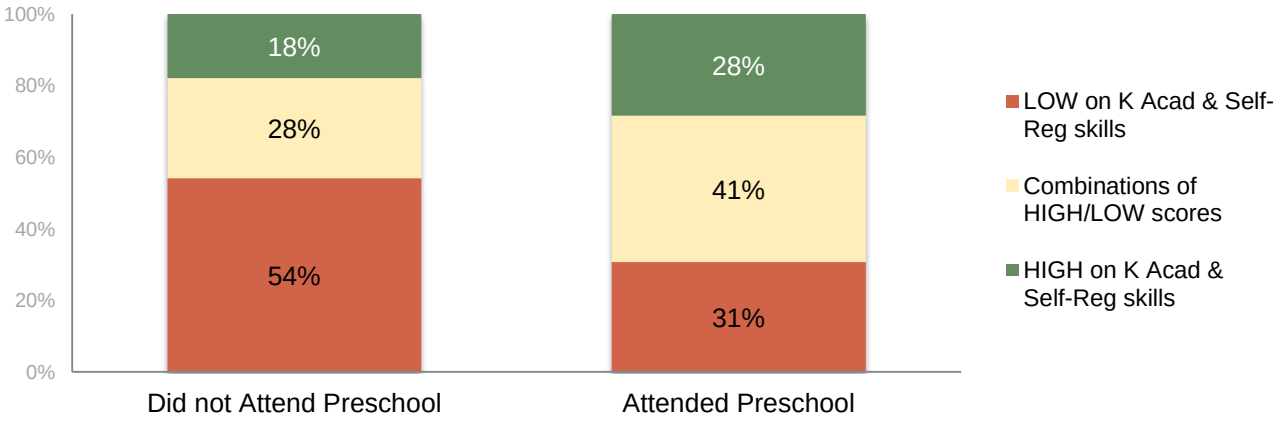
Figure 34: **Proportion of Students in Each Readiness Portrait, by Preschool, Santa Clara County, 2013**



Source: *Kindergarten Observation Form, Parent Information Form, Preschool Experience Form* (2013). Note: N=491 Preschool attendees, 353 non-attendees. Percentages may not sum to 100 due to rounding.

The figure below shows the proportion of preschool attendees and non-attendees with high scores in both *Kindergarten Academics* and *Self-Regulation* (shown to be strongly predictive of later academic success), low scores in both domains (indicating a one out of five likelihood of later academic success); and mixed patterns of readiness (no clear predictive pattern). Over one-quarter (28%) of preschool graduates had the readiness levels that were most predictive of third grade academic success as compared to less than one in five of non-attendees (18%). All differences in proportional readiness portrait representation among neighborhoods are statistically significant ($p < .001$).

Figure 35: **Proportion of Students with Scores Predictive of Third Grade Success, by Preschool, Santa Clara County, 2013**



Source: *Kindergarten Observation Form* (2013) Note: N=841 (488 Preschool attendees and 353 non-attendees). Percentages may not sum to 100 due to rounding. Children were classified as scoring high on *Kindergarten Academics* and *Self-Regulation* skills if they scored above the 2008 longitudinal study mean score in these domains (3.29 for *Self-Regulation*; 3.17 for K Academics).

Why Does Preschool Matter?

DEFINING PRESCHOOL QUALITY: A COMPARISON ACROSS FRAMEWORKS

The specific indicators of quality used in this study were based on crosswalk created by Applied Survey Research of leading frameworks such as those used by the Race to The Top program, Educare, and First 5 California's Child Signature Program 2. ASR then created a survey instrument to measure the most research-based indicators of quality, including class ratios, full- versus part-day attendance, teacher & preschool director years of experience, teacher & preschool education, annual hours of training in various formats, type of curriculum, levels of parent engagement of various types, whether meals are provided, use of the ECERS, the CLASS, and the frequency with which each of these was administered. The full set of questions used in the Preschool Director Survey can be found in Appendix 2.

Figure 36: Crosswalk of Criteria relatd to Preschool Quality

Domains/Criteria	Educare	RTT	CSP #2
General criteria:			
1. Licensure/legal compliance		x	x
2. Ratios & class sizes	x	x	x
3. Full day/full year instruction	x		wrap-around day; not full year
4. Transition plan (TP)/continuity of care (CC)/activity transitions (AT)	TP & CC only	TP only	TP & AT only
5. Target population (incl. marketing/outreach strategies)			x
6. Fee structure			x
7. NAEYC accreditation			
Administration/management/governance:			
8. Program administrators/directors/leaders qualifications & on-going PD		x	no on-going PD
9. Policies/procedures in place, communicated to staff, parents, partners			x
10. Mission/philosophy in place & communicated to program partners			x
11. QI, strategic plan, goals/objectives in place			x
Staff/teachers:			
12. Staff qualifications	x	x	x
13. Staff PD	x	x	x
14. Effective teacher-child interactions	x	x	x
15. Reflective practice among staff, supervisors	x	only lead teachers	only teachers
16. Interdisciplinary practice	x		x
Early learning & development standards (curriculum):			
17. Focus on language & literacy	x	x	x
18. Focus on socio-emotional development	x	x	x
19. Focus on problem-solving & numeracy	x	x	x
20. Integration of the arts	x		
21. Physical activity required			x
22. Plan for engaging dual language learners			x
Data/assessment:			
23. Effective data practices	x	x	x

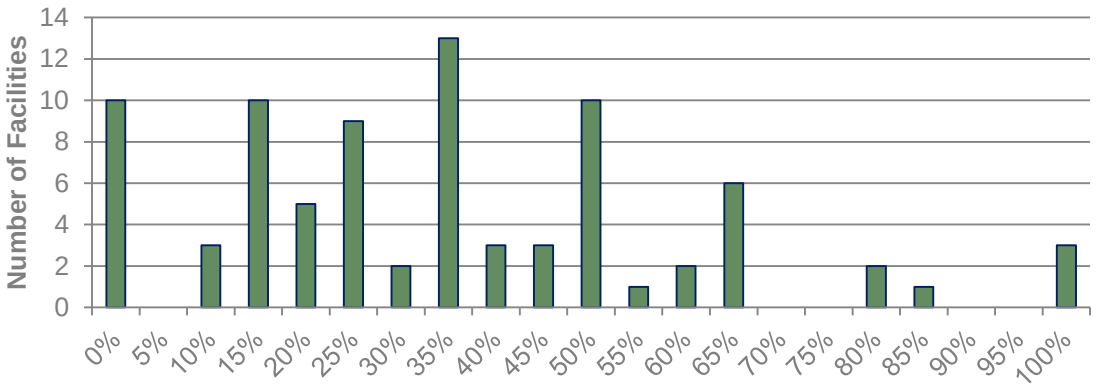
Domains/Criteria	Educare	RTT	CSP #2
24. Comprehensive assessment system	x	x	x
25. Continuous improvement/adaptation	x		x
Work with families:			
26. Health promotion practices	x	x	x
27. Family engagement	x	x	x
28. On-site family support services	x	referrals only	x
29. Resources are linguistically & culturally appropriate			x
Work with communities:			
30. Community engagement & community partnerships	x		x

WHAT FACTORS MATTER MOST IN THE LARGER BODY OF RESEARCH?

While child and family factors such as child's age at entry to kindergarten, preschool attendance, mother's education, and family income play the largest role in school readiness, the quality of the preschool experience for children who do attend preschool also plays an important role. There have been a few prior attempts to identify dimensions of preschool quality that are associated with school readiness (e.g., Peisner-Feinberg et al., 2001; Mashburn et al., 2008). Once child and family factors are held constant, a small number of key quality dimensions stand out in the prior studies.

The first key quality dimension is **teacher education**. Some research has shown that higher preschool quality may be associated with teachers' having a Bachelor's degree (Darling-Hammond, 2000; Barnett, 2004; Mashburn et al., 2008). Children who attended a preschool class in which their teacher had at least a Bachelor's degree had slightly higher social competence at kindergarten entry (Mashburn et al. 2008). Two reviews of a variety of studies (Greenwald et al., 1996; Barnett, 2004) also linked teacher education to school readiness, while a review of seven other studies (Early et al., 2007) found mixed results regarding the effect of teacher education on school readiness. In the present study, there was substantial variation among the feeder preschools regarding the percent of lead teachers with a Bachelor's degree or higher. However, as described in the later section regarding multivariate analyses, consistent with the research above, teacher education level was not found to have an independent relationship with school readiness.

Figure 37: **Percentage of Lead Teachers with B.A. or Higher, 2013**



Source: *Preschool Directors Survey* 2013-14. Note: N=83.

The second dimension of quality is **classroom practices,** often measured with the ECERS instrument. In Peisner-Feinberg, et al. (2001), children who attended preschool classes with higher-quality classroom practices exhibited more advanced academics and socio-emotional skills over the next several years of school. The third dimension is the quality of the **teacher-child interactions,** measured using the CLASS or STRS instruments. In Mashburn et al. (2008), children who attended preschool classes with higher teacher-child interaction scores had slightly higher social competence and slightly lower problem behaviors than children in preschool classes with lower teacher-child interaction scores.

WHAT FACTORS MATTERED MOST IN THIS STUDY? MULTIVARIATE ANALYSES

In order to understand which preschool characteristics are most closely linked to children's school readiness ASR matched students in the assessment to their feeder preschools, and linked their readiness data with that reported by their preschool directors. Next, ASR conducted regression analyses and identified the key dimensions of preschool quality most related to school readiness.[9] The variables identified below were statistically related with at least one of the school readiness domains, including HTKS.

The unstandardized estimates shown in the table can be interpreted as expressing the amount of change in the readiness variable that can be expected to occur per unit change in the factor listed, holding all of the other factors in the model constant. For example, for a low-income child, their preschool teacher having 10-20 years of experience instead of 0-9 years of experience increases that child's overall readiness by nearly two-tenths (.18) of a point. Note that estimates for the model for HTKS are larger because the HTKS range of scores is wider (0-40 points rather than 1-4 points for the other readiness measures).

Figure 38: **Coefficient Estimates of Variables Significantly Associated with School Readiness, Santa Clara County, 2013**

Predictors	Overall Readiness	Self-Care & Motor Skills	Self-Regulation	Social Expression	Kinder. Academics	HTKS (other Self-Reg.)
Child-level factors						
Child is a girl	.15	.09	.24	.17	--	--
Child is older	.02	.02	.02	.03	.03	--
Family income is higher	.19	.17	--	.24	.15	--
Child not English Learner	.15	--	--	.29	.15	2.70
Child well-being	.89	.84	1.15	.78	.77	13.76
Higher neighborhood SES	--	.20	-.12	--	.17	1.93
Preschool-level dimensions						
Mean (lead) teacher years of experience	--	--	--	-.13	--	--
Mean annual hours of formal training (PD) for teachers	.006	.006	.005	.007	.004	.080
Percent of (lead) teachers with B.A.	--	--	--	--	--	--
Percent low-income students	--	--	-.003	--	--	-.058

[9] Additional dimensions, while theoretically contributing to preschool quality, were not found to be significantly associated with kindergarten readiness in this particular study. (These other quality dimensions, and data on all 328 of the preschools in the study - rather than just those 83 preschools that sent a student who was in the school readiness assessment - are discussed in the Preschool Profile report prepared for FIRST 5 Santa Clara County.)

Predictors	Overall Readiness	Self-Care & Motor Skills	Self-Regulation	Social Expression	Kinder. Academics	HTKS (other Self-Reg.)
Teachers ask parents to do ed activity at home with child almost every day	--	--	--	--	.22	--
Interaction of teacher years of experience + low-income family	.18	.19	.27	.20	--	-3.78
Overall Adjusted R^2	.23	.21	.16	.10	.36	.23

Source: Kindergarten Observation Form, Parent Information Form, Preschool Experience Form, Head-Toes-Knees-Shoulders task (2013), Preschool Directors Survey (2013-14). Note: Variables with an estimate listed were at least marginally significant ($p<0.10$, one-tailed) predictors of readiness when all other variables were simultaneously entered into the model. All multi-level models shown were statistically significant.

When multi-level mixed-effects models were estimated for each of the KOF's readiness domains and HTKS, the **mean annual hours of formal training received by teachers** had a very small but statistically significant effect on school readiness across every domain (note that while the effect was not significant for the *Self-Regulation* building block, it was significant for HTKS, the skill-based measure of self-regulation). However, this effect dissipates as the proportion of low-income students at a facility increases.

Also significant, and with a larger effect, was the interaction of lead teachers' **average years of experience** with the child-level indicator of income status. This means that while there is no impact of a teacher's years of experience on the school readiness of children from middle- or high-income families, children from low-income families who are taught by teachers with greater years of experience significantly improve their level of school readiness in every area of school readiness except Kindergarten Academics, where this effect is negligible. Finally, children's Kindergarten Academics scores increase significantly – by nearly one-quarter of a point – when they attend preschools or centers where **teachers ask parents to do an educational activity with their child at home almost every day.** Appendix 11 shows these key quality dimensions for each preschool (names have been replaced with ID's to preserve confidentiality).

Thus, the three preschool quality dimensions that were significant predictors of school readiness were:

- **hours of teacher professional development,**
- **frequency of requesting parents engage in home learning activities,** and
- **years of teaching experience held by lead teacher** (for children of low-income families)

Children who attended higher-quality preschools (i.e. that were higher on these key quality dimensions) were significantly more ready in all dimensions of kindergarten than children who attended lower-quality preschools.[10] The following pages more fully explore the variables that emerged as having a significant relationship with school readiness, and examine students' readiness levels by the key preschool quality dimensions.

YEARS OF TEACHER EXPERIENCE

One of the elements of preschool quality is teachers' years of experience. While more years of experience do not necessarily make for a good teacher, they may certainly be an indicator that teachers have the experience necessary to do a good job (Greenwald et al., 1996; National Institute of Child Health and Human Development, 2002). As shown below, nearly two-thirds of the lead teachers in the sending preschools had ten or more years of experience.

[10] Note that because of the more distal nature of the potential effect of preschool quality on school readiness compared to child- and family-level factors, significance levels (i.e., p-values) are given a wider range in analyses containing preschool quality dimensions.

Figure 39: **Years of Lead Teacher Experience, Reported by Preschool Directors, 2013**

Lead teachers' years of experience	Facilities
Less than 10 years	37%
10-19 years	51%
20 or more years	12%

Source: *Preschool Directors Survey* 2013-14. Note: N=83.

TEACHER PROFESSIONAL DEVELOPMENT

Other research (Zaslow & Martinez-Beck, 2006; Pianta et al., 2008) suggests that teacher professional development may be associated with higher quality preschools. The amount of time per year that teachers received formal professional development (i.e., classes or workshops) to improve their credentials and competencies varied substantially.

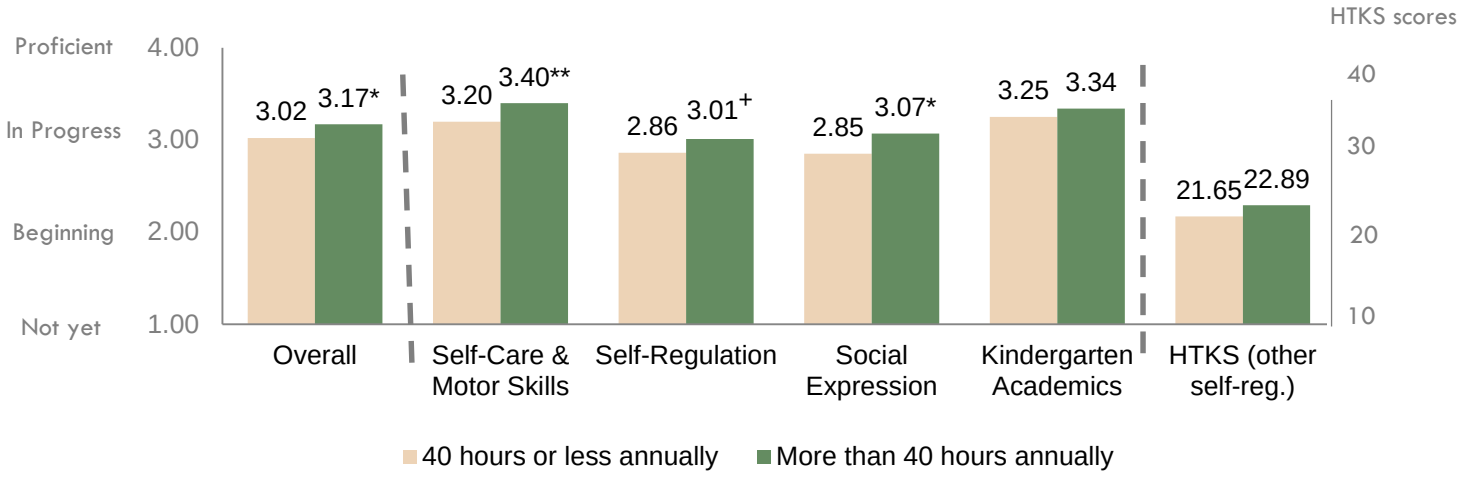
Figure 40: **Teachers' Hours/Year of Formal Training, Reported by Preschool Directors, 2013**

Hours per year	Facilities
None	4%
One day (1-8 hours)	19%
Two days (9-16 hours)	17%
Three days (17-24 hours)	17%
Four days (25-32 hours)	14%
Five days (33-40 hours)	9%
Five to ten days (41-80 hours)	13%
More than ten days (>80 hours)	6%

Source: *Preschool Directors Survey* 2013-14. Note: N=70. Percentages may not sum to 100 due to rounding.

As seen in the figure below, students whose preschools provided more hours for teachers professional development had higher readiness scores than students from preschools where less teacher development was provided.

Figure 41: **Mean Kindergarten Readiness Scores by Preschool Quality Dimension: *Annual Hours of Formal Training for Teachers*, Santa Clara County, 2013**



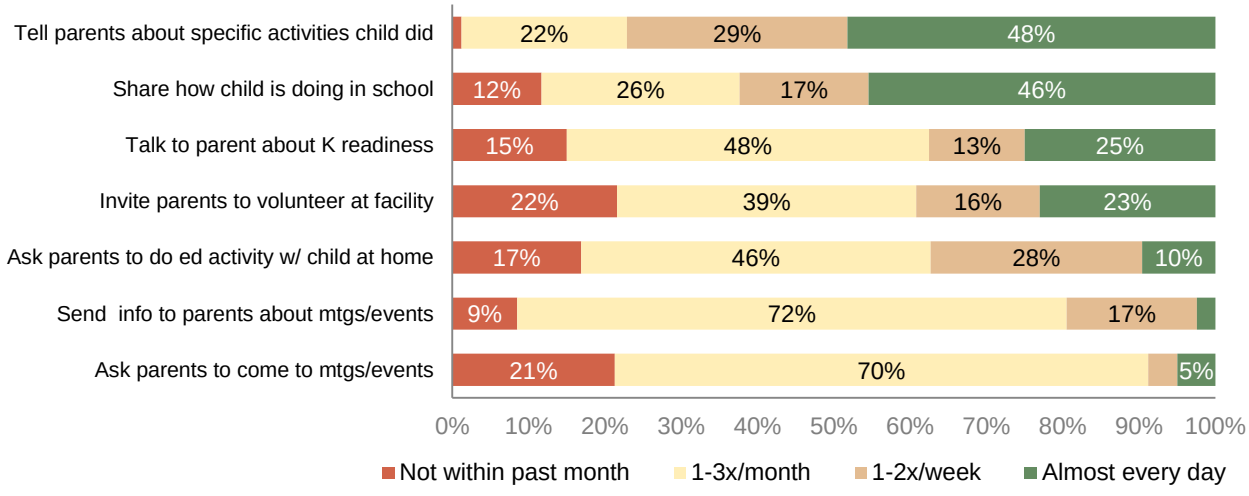
Source: *Kindergarten Observation Form* (2013), *Parent Information Form* (2013). Note: N=82-83, 40 hours or less annually; N=245-251, more than 40 hours annually. +=significant differences at p<.10, *=significant difference at p<.05, **=significant difference at p<.01, all one-tailed.

PARENT ENGAGEMENT WITH READINESS ACTIVITIES

Research (Kim & Hill 2013, Park & Holloway 2013) suggests that parental engagement is related to student academic achievement, and that parental engagement at preschool impacts school readiness and later achievement (Reynolds et al., 1996).

In this study, preschool directors were asked a variety of questions about parent engagement, including how often teachers talk to parents about school readiness, and how often they ask parents to do an educational activity at home with children. The figure below shows that teachers frequently spoke with parents about the specific activities their child did and how their child is doing academically, socially, and behaviorally, but less likely to invite parents to meetings/events.

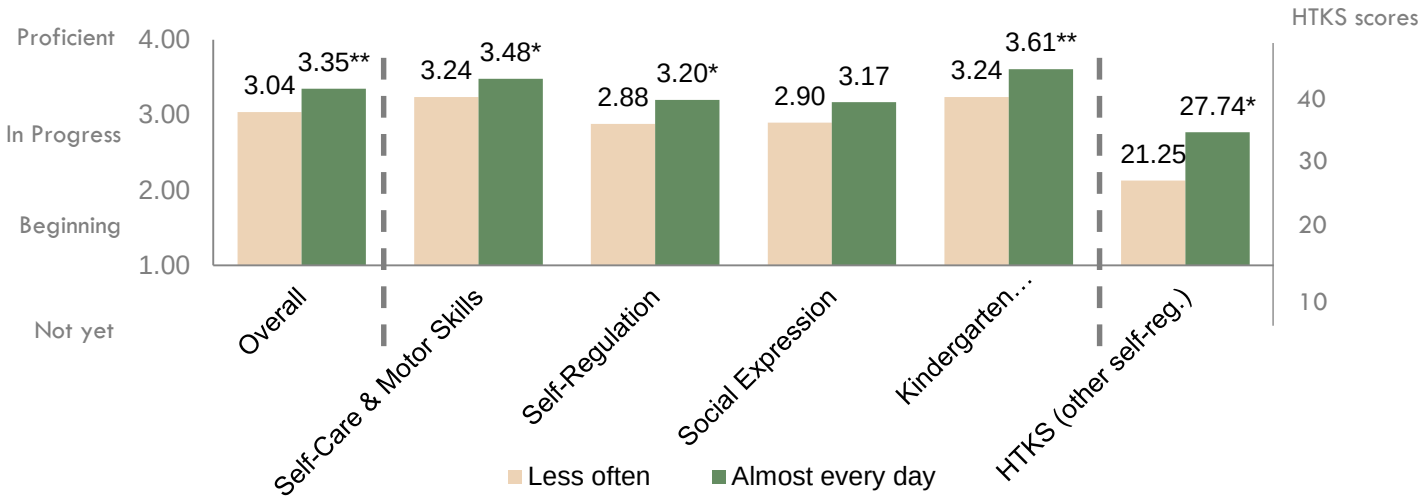
Figure 42: **Reported Frequency of Parental Engagement Activities, 2013**



Source: *Preschool Directors Survey* 2013-14. Note: N=73-74. Proportions of less than 5% are not labeled.

The figure below presents the school readiness scores of students whose preschools frequently engaged parents with take-home activities, compared to preschools who did so less often.

Figure 43: **Mean Kindergarten Readiness Scores by Preschool Quality Dimension: *Frequency of Educational Activity to Do at Home with Child*, Santa Clara County, 2013**



Source: *Kindergarten Observation Form* (2013), *Parent Information Form* (2013). Note: N=331-339, do not ask almost every day; N=23, ask almost every day. +=significant difference at p<.10, *=significant difference at p<.05, **=significant difference at p<.01.

TREATING THE SIGNIFICANT PREDICTORS AS A QUALITY "INDEX"

To summarize, the three preschool quality dimensions that were significant for school readiness were:

- hours of teacher professional development,
- frequency of requesting parents engage in home learning activities, and
- years of teaching experience held by lead teacher (for children of low-income families)

To more precisely estimate the strength of the relationship between the three quality indicators and schools readiness, ASR identified minimum "thresholds." Preschools in the sample had to meet at least one of (a) or (b), and those with 50% or more low-income students must also meet (c) to be considered "high-quality" for the purposes of this study:

(a) More than 24 hours of formal professional development for teachers annually;

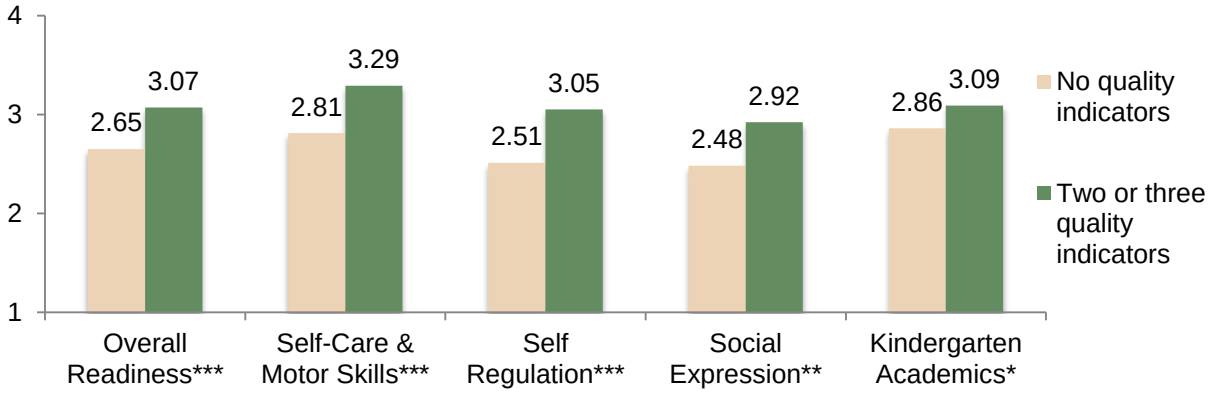
(b) Teachers ask parents almost every day to do an educational activity at home with their child;

(c) Preschool has 50% or more children from low-income families and lead teacher has 10 or more years of experience.

Next, we created an index of the three variables. To ensure a fair comparison of readiness scores, ASR used ANCOVA analyses to iron out any demographic differences in the student populations between sites with more markers and sites with no markers.

As seen in the figure below, children who had attended preschools that had at least two of these three markers of quality were significantly more ready for kindergarten than children who attended preschools that did not have these factors, even when accounting for neighborhood and child-level socioeconomic factors commonly linked to readiness. In other words, quality makes a difference, over and above family and neighborhood socio-economic status.

Figure 44: **Mean Kindergarten Readiness Scores of Low Income Students, by Number of Preschool Quality Indicators**



N=106 (45 children whose sites had no quality indicators, 61 from sites with 2 or 3 quality indicators). ANCOVA- means adjusted for wellbeing variable. ***p<0.001; **p<0.01; *p<0.05. Quality Indicators: PD >24 hours/year, Average years of teaching experience >10, Parent activity almost every day.

ARE HIGHER QUALITY PRESCHOOLS LOCATED IN HIGHER INCOME NEIGHBORHOODS?

The next analysis was to understand how these three quality dimensions are dispersed across preschools, and whether preschools with lower income students have more or less of these dimensions. As noted above, neighborhood SES did contribute to school readiness over and above all other factors. However, preschools that exhibited higher levels of the significant quality dimensions above were located in neighborhoods of high, medium-, and low-SES. We note in particular that near the four elementary schools located in low-SES neighborhoods (Chavez, Christopher, Dorsa, and Los Arboles), there were 11 preschools – including at least one in each neighborhood – that met the thresholds for at least one of the significant quality dimensions.[11] In other words, high-quality preschools can be found anywhere, in neighborhoods all along the SES continuum.

[11] Note that preschools in these neighborhoods may not have actually sent students to the elementary school nearest them – some sent students to elementary schools that were somewhat further away.

Figure 45: **Number of Preschools with Significant Quality Factors, by Neighborhood SES, Santa Clara County, 2013**

Neighborhood	2 quality factors (a+b)[12]	1 quality factor (a or b)[9]	No quality factor	Total number of preschools, by neighborhood
High-SES	1	5	9	15
Middle-SES	0	9	11	20
Low-SES	3	8	11	22
N/A[13]	1	5	20	26
All neighborhoods	5	27	51	83

Note: N=83.

SUMMARY

There are certainly areas in which further research is warranted, including the surprising finding that the skills-based measure of self-regulation (HTKS) is significantly lower for low-income children who are taught by teachers with greater experience. Further research is also recommended using the CLASS and ECERS or similar instruments, to better understand the more proximal factors of teacher-child interaction and the preschool environment.[14]

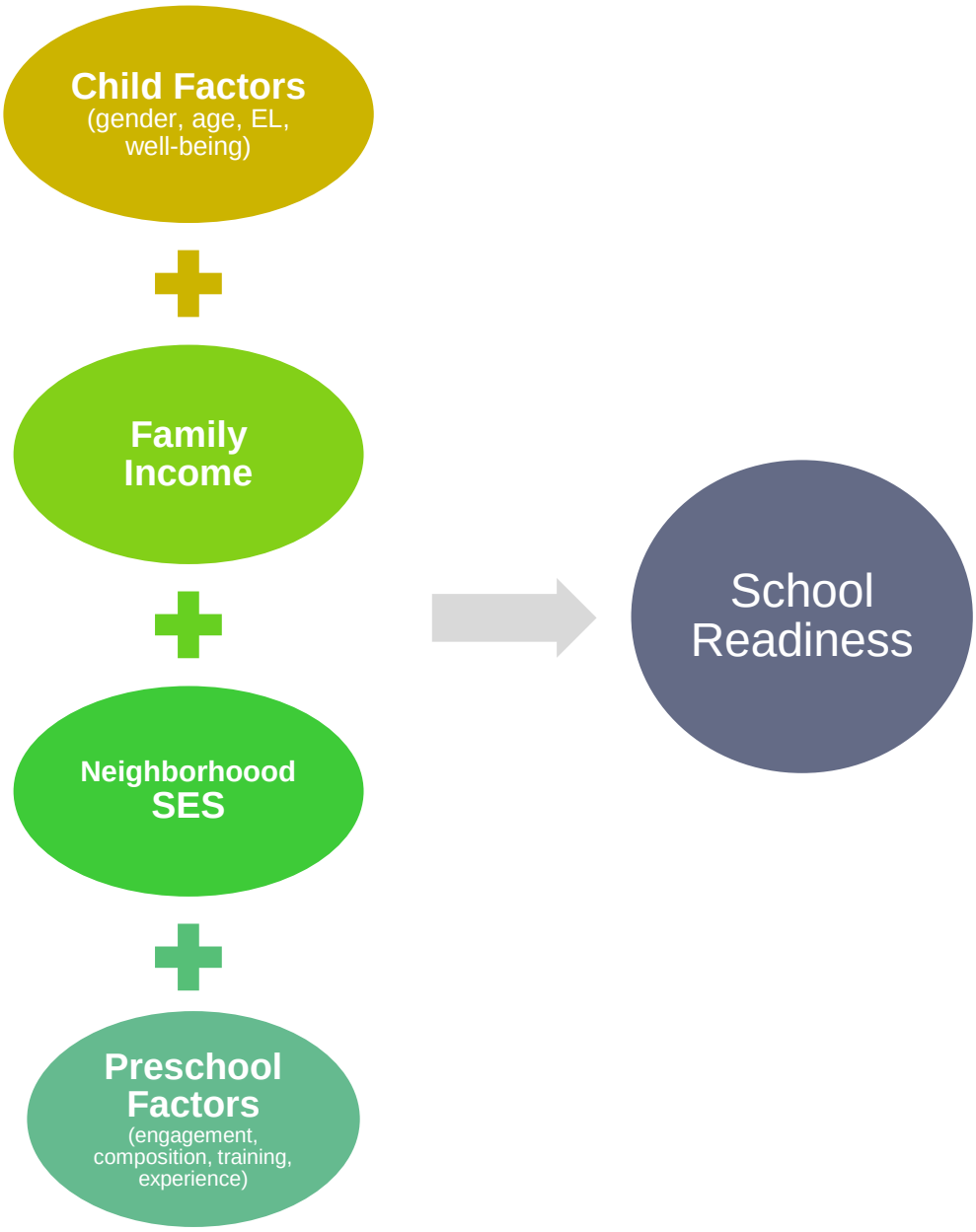
However, from this research we can see that a variety of measured factors, including certain key dimensions of preschool quality, do have an impact on school readiness. Children who go to preschools that are higher on key quality dimensions (including preschools where teachers receive more hours formal training, and where teachers engage parents almost every day in doing educational activities at home with their children) are more ready for school than children who go to preschools that are lower on these quality dimensions. For low-income children, a further measure of preschool quality (more years of teacher experience) also positively affects their levels of school readiness.

[12] If the preschool has 50% or more low-income students, it must also have factor c; preschools cannot have only c as their one factor.

[13] If neighborhood SES is "N/A," the preschool was not located in a Zip code containing one of the SRA elementary schools.

[14] Note that having a measure of these proximal factors, such as CLASS scores, might reduce the size of the effects of the quality dimensions that were significant in this study.

Figure 46: **Spectrum of Factors Impacting School Readiness, Santa Clara County, 2013**



Part 3: The Relationship Between Income, Preschool Quality and Readiness

Contents of this Chapter:

This section takes a closer look at whether (and how) preschool experiences differ for low-income students and their higher-income peers. The following questions are examined:

- Does income matter?
- Do low-income students in this sample get the same amount of benefit from preschool as the higher-income students do?
- Do preschool sites with high proportions of low-income students have the same practices and staffing as preschool sites with very few or no low-income students?
- Are the preschool quality variables that promote readiness for low-income students the same ones that promote readiness for higher-income students?

Key Findings:

- The effects of preschool experience tend to be larger for low-income than middle-to-high-income students, even after adjusting for other differences between the two groups.
- There are many differences between preschools that primarily serve low-income students and those that serve higher-income students.
- **Frequent engagement in reflective practice** – meeting to review assessment data or classroom practices – is associated with stronger *Kindergarten Academics* scores for students at any income level.
- For lower income students, **speaking to them in their home language** a portion of the time -- sometimes or almost always -- is associated with better *Kindergarten Academics* scores.

Income, Preschool Quality and Readiness

As the previous report sections have shown, both family income and preschool play significant roles as predictors of children's school readiness levels. However, the results presented thus far have not explored in detail the ways that these factors may interact; i.e., to what extent is the preschool experience similar or different for low-income versus high-income students, and do any differences matter? Clearly, as the previous section on preschool quality showed, there is a great deal of variability in the practices, class sizes, and staffing of the 83 preschools that had served one or more students in the kindergarten readiness study.

Consequently, this section further examines whether there were any systematic differences in the preschool experiences of low-income students, as compared to higher-income peers. This question is of particular importance in light of research such as that of Hart and Risley (2004), which found that, compared to their higher-income peers, low-income children are exposed to 30 million fewer words by the age of four. Given this context, the need for effective preschool experiences to promote school readiness may be even more crucial for low-income children than for their higher income peers.

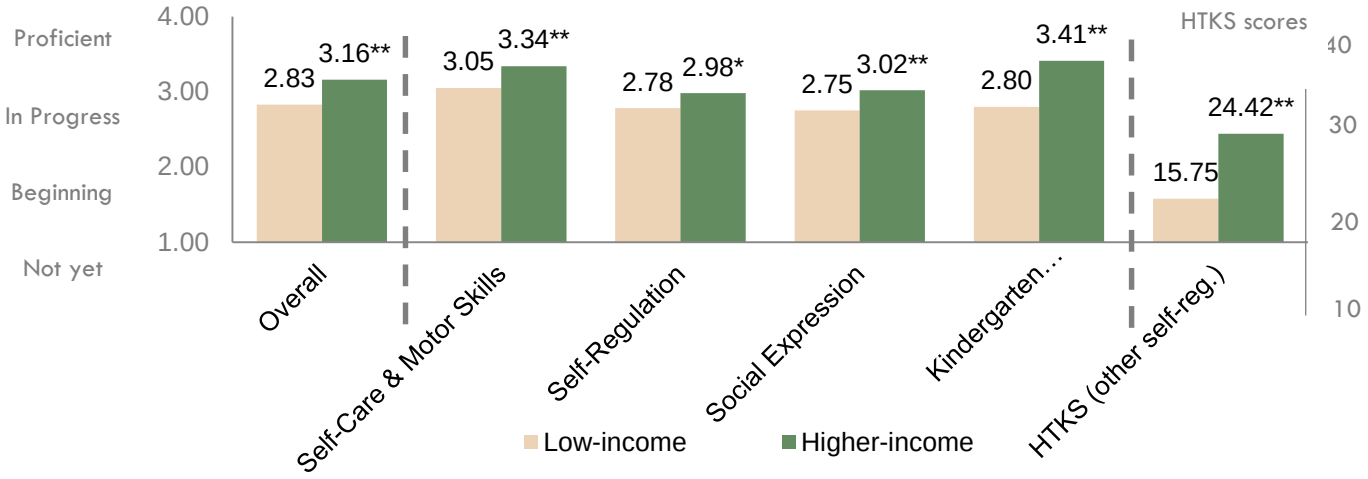
This section takes a closer look at whether (and how) preschool experiences differ for low-income students and their higher-income peers. The following questions are examined:

- Does income matter?
- Do low-income students in this sample get the same amount of benefit from preschool as the higher-income students do?
- Do preschool sites with high proportions of low-income students have the same practices and staffing as preschool sites with very few or no low-income students?
- Are the preschool quality variables that promote readiness for low-income students the same ones that promote readiness for higher-income students?

Does School Readiness vary according to Family Income and Neighborhood SES?

The figure below shows students' readiness levels by family income. Students from higher-income families had readiness levels that were significantly higher than those of students from low-income families in all domains, including the HTKS. The differences were most substantial in the domains of *Kindergarten Academics* (0.61, nearly two-thirds of a point) and the skills-based measure of *Self-Regulation,* the HTKS (8.67 of the 40-point scale, which could be seen as equivalent to 0.87 on a four-point scale, or almost nine-tenths of a point).

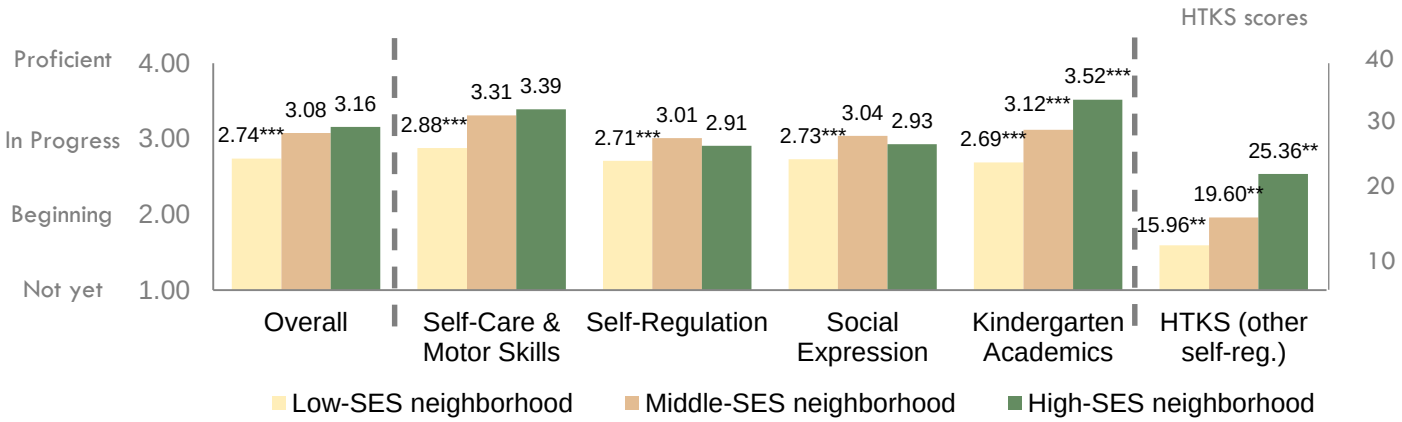
Figure 47: **Mean Kindergarten Readiness Scores by Family Income, Santa Clara County, 2013**



Source: *Kindergarten Observation Form* (2013), *Parent Information Form* (2013). Note: N=291-301, low-income students; N=349-362, high-income students. *=significant difference at p<.01, **=significant difference at p<.001.

The figure below shows students' readiness levels by neighborhood socioeconomic status (SES), which for this study was defined based on API level (1-4 = low SES, 5-7 = middle SES, 8-10 = high SES). Students in low-SES neighborhoods had readiness levels that were significantly lower than those of students in middle- and high-SES neighborhoods, in all domains including the HTKS. Interestingly, the only significant differences between students in middle- and high-SES neighborhoods were in the domain of *Kindergarten Academics* and the HTKS-specific self-regulation tasks, where students in high-SES neighborhoods scored substantially higher than students in middle-SES neighborhoods on average.

Figure 48: **Mean Kindergarten Readiness Scores by Neighborhood SES, Santa Clara County, 2013**



Source: *Kindergarten Observation Form* (2013). Note: N=306-325, low-SES neighborhood students; N=226-236, middle-SES neighborhood students; N=275-283, high-SES neighborhood students. ** p < .01 compared to other-SES neighborhoods, *** p < .001 compared to other-SES neighborhoods.

Do low-income students in this sample get the same amount of benefit from preschool as the higher-income students do?

As noted above, research suggests that low-income students may enter preschool with less developed school skills than their peers, which suggests that these students may benefit more from exposure to preschool content than their higher-income peers. Alternatively, if preschools are not providing these students with instruction and guidance that is appropriate for their current developmental levels, then low-income students may not gain as many skills as higher-income students. The following table compares the gains experienced by preschool attendees for low-income versus higher income students.

The figure below shows the readiness scores for those who did and did not attend preschool, separated according to whether students were low-income or not. As the green bolded cells in the figure show, in three domains (overall readiness, *Self-Care & Motor Skills,* and *Kindergarten Academics*), low-income students who had attended preschool were performing significantly better than low-income students who had not attended preschool. For middle- to-high-income students, the only significant difference between those with and without preschool experience was in *Kindergarten Academics*.

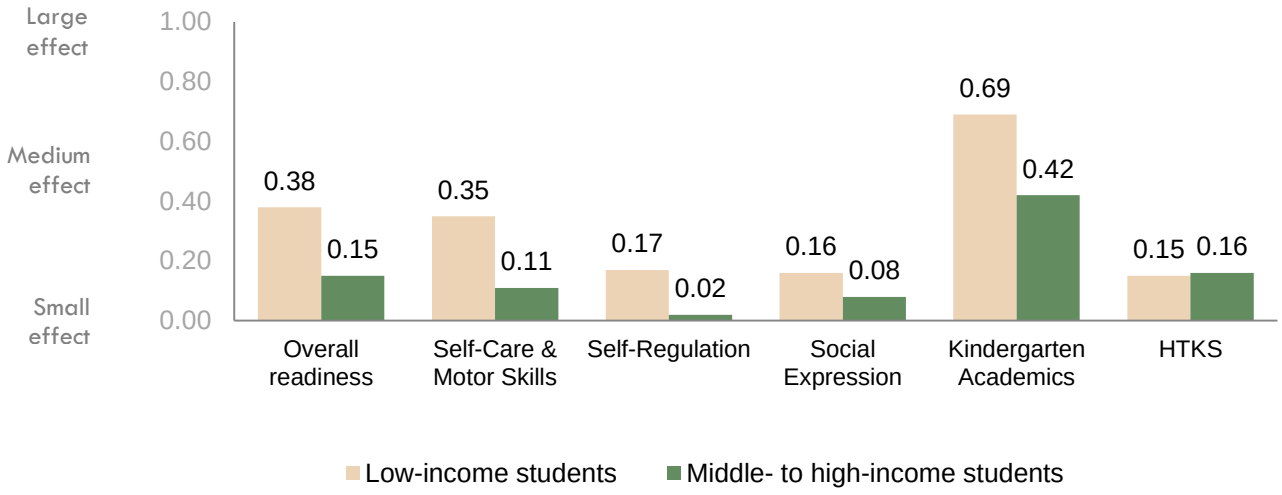
Figure 49: **Average Kindergarten Readiness Scores as a Function of Preschool Experience and Income Level**

	Low-income students		Middle- to high-income students	
Readiness domain	Attended preschool	Did not attend preschool	Attended preschool	Did not attend preschool
Overall readiness	**2.93**	**2.68**	3.19	3.10
Self-Care & Motor Skills	**3.16**	**2.91**	3.36	3.29
Self-Regulation	2.84	2.70	2.98	2.99
Social Expression	2.80	2.67	3.04	2.97
Kindergarten Academics	**3.00**	**2.51**	**3.49**	**3.24**
HTKS	16.51	14.56	22.72	25.10

Source: Kindergarten Observation Form (2013). Note: for low-income students: N=171-178 (preschool) and 117-123 (no preschool). For middle-to high-income students: N=245-150(preschool) and 105-112 (no preschool). **Red bolded** cells indicate significant t-test differences at $p < .05$ or better.

Another way to understand the amount of "boost" received from preschool attendance is to look at the effect sizes for preschool attendance for each group of students. An effect size (expressed as Cohen's d) describes the magnitude of difference between two groups – in this case, between preschooled and non-preschooled students. Effect sizes are typically described as being small when they are close to 0.2, medium when they are close to 0.5, and large when they are 0.8 or higher (Cohen, 1988). By comparing effect sizes for low-income versus middle- to high-income students, as in the figure below, we can see whether the amount of preschool impact is the same or different for students with different family income levels.

Figure 50: **Comparing Preschool Effect Sizes for Low-Income vs. Middle- to High-Income Students**



Source: Kindergarten Observation Form (2013). Note: for low-income students: N=171-178 (preschool) and 117-123 (no preschool). For middle-to high-income students: N=245-150(preschool) and 105-112 (no preschool).

As the figure shows (and consistent with the previous figure's mean scores), preschool appears to have a larger effect on low-income students than it does on high income students. Preschool effect sizes for middle-to-high income students are negligible in all domains except *Kindergarten Academics*, where preschool's effect is approaching a "medium" effect size. For low-income students, however, preschool's effect is approaching the "medium" level for *Self-Care & Motor Skills* and overall readiness, and for *Kindergarten Academics,* the effect size is in the medium-to-large range. The figure also shows that within several of the readiness domains, preschool effect sizes for low-income students are two to three times those of higher-income students.

Importantly, these findings hold even when we account for other differences between these two groups. As the figure below shows, when you test whether preschool experience is a significant predictor of readiness after factoring out other differences between these two samples of children, preschool emerges as a significant predictor of readiness more readily for low-income students than for middle-to-high-income students.

Figure 51: **Was Preschool Experience a Significant Predictor of Readiness after Adjusting for Other Differences? Comparing Patterns for Low Income vs. Middle-to-High-Income Children**

Student Income	Overall readiness	Self-Care & Motor Skills	Self-Regulation	Social Expression	Kindergarten Academics	HTKS
Low-income	Yes	Yes	No	No	Yes	No
Middle- or high-income	No	No	No	No	Yes	No

Source: Kindergarten Observation Form (2013) and Parent Information Form (2013). Note: Table is based on a comparison of regression models with the following predictors (in addition to preschool): child age, gender, special needs status, well-being, English Learner status, neighborhood SES, maternal education level, screen time, and number of transition activities. "Yes" indicates that the R-sq change between the model without preschool and the model with preschool was marginally or statistically significant.

In sum, these results suggest that low-income students may get a bigger "boost" from preschool than middle-or-high-income students do – both in (1) the number of domains where there is a difference associated with preschool terms and (b) the magnitude of preschool's effect.

Do preschool sites with high proportions of low-income students have the same practices and staffing as preschool sites with very few or no low-income students?

If low-income students do experience a bigger benefit from preschool than higher income students, then a natural follow-up question is, "Why?" Are there systematic differences in the preschools that low income students attend, as compared with the preschools attended by higher-income students? Or are the preschools attended by students from different income levels similar, but the preschool experience is more helpful for lower-income children, who might have greater enrichment needs coming into preschool than higher-income children? These are not mutually exclusive possibilities, but some additional analyses of the preschool quality survey may shed light on the extent to which there are differences in preschools that typically serve different student populations.

To conduct these analyses, a simple comparison was made between key characteristics of the preschool sites in the readiness study that reported that *most of their students were low-income* versus those that reported that *few of their students were low-income.*

Figure 52: **Do Preschools Serving Mostly Low-Income Students Differ from Those Serving Middle-to-High Income Students?**

Preschool Characteristic	Most students are low-income	Few/no students are low-income
Overall class ratio	7.62	8.35
Percentage of students attending 5+ hrs/day	48%	62%
Percentage teachers who speak same language as students "always"***	21%	5%
Years of director experience+	25.14	19.95
Percent of directors with masters or PhD	39%	23%
Percent of teachers with a BA	31%	39%
Percent of teachers with a BA in ECE	26%	29%
Years of ECE experience (lead teachers)+	15.46	12.54
Teachers meet weekly or more to reflect on assessment data and class practices*	50%	18%
Staff receives more than 30 hours professional development on effective teacher-child interaction	16%	19%
Staff receives coaching from master teacher on-site more than 40 hours per year	13%	16%
Staff receives coaching from external consultant more than 40 hours per year+	28%	8%
Staff attends trainings/courses 40 hours or more per year+	40%	17%
Percent that provide parent education via…		
Workshops**	76%	39%
Print materials*	97%	77%
Referrals to other agencies*	97%	77%
Percent assessing parent needs regularly+	45%	25%
Percent asking parents weekly or more to do educational activities with child	36%	34%
Percent asking parents weekly or more to come to meetings/events	6%	10%
Percent sending flyers or emails weekly or more about meetings/events	15%	26%
Percent inviting parents weekly or more to volunteer +	48%	27%
Percent sharing child's progress with parents weekly or more	63%	64%
Percent telling parent about child's activities weekly or more	76%	77%
Percent talking to parents weekly or more about K readiness	30%	41%
Percent offering nutritious meal***	94%	61%
Percent using formal nutrition policies/guidelines	94%	93%

Source: Preschool Directors' Survey (2013). Note: Groups are divided according to whether directors reported that more than 50% of their students were low-income versus 50% or fewer were low-income. Statistical significance (chi-square or ttests, as appropriate) are indicated as follows: + p < .10; * p < .05; ** p < .01; *** p < .001.

In sum, the table shows that there are a number of differences that exist when comparing preschools that primarily serve low-income students with those that do not. However, the existence of differences such as these can be explained by many factors, and these differences may or may not translate into enhanced quality for one group or another. For example, differences in practices and staffing may reflect certain mandated standards imposed by state funding requirements. Differences in practice could also be a function of responding to different needs presented by lower versus higher income students. Given that there are meaningful differences in preschools as a function of the income of the children they serve, a final question is warranted: Do the preschool quality/experience factors that relate to enhanced readiness also vary as a function of the income of the students served by the preschools? This topic is examined in the next section.

Are the preschool quality variables that promote readiness for low-income students the same ones that promote readiness for higher-income students?

The previous analyses showed that:

(a) preschool is associated with higher readiness for low-income than higher-income students; and

(b) there are also several meaningful differences to be found in preschools serving primarily low-income versus primarily middle- and higher-income students.

Because both preschool experiences and outcomes tend to be different for children from different family income levels, a natural follow-up investigation would be to examine whether the preschool factors that predict readiness for low-income students are the same as those that predict readiness in higher-income students. Because the experiences of low- and higher-income students are so different, it may be more appropriate to analyze these two populations separately when looking at what – if any – preschool quality factors matter in promoting readiness.

This section describes the results of analyses that look at the association between preschool quality variables and student readiness, looking separately at outcomes for students who attend primarily low-income preschools versus those that serve mostly middle and higher income students.[15]

As the previous section showed, preschool experience was a significant predictor of readiness in only a subset of readiness dimensions. For low-income students, preschool experience was significantly related to readiness in the domains of *Self-Care & Motor Skills*, *Kindergarten Academics*, and overall readiness. For middle- and high-income students, preschool experience was associated with only enhanced *Kindergarten Academics*. Because only these areas showed a relationship with preschool, these will be the areas of focus for this examination of meaningful preschool quality factors.

[15] Because analyses in this section again focus on preschool-level phenomena, groups are constructed at the preschool level, looking at children attending preschools that self-reported that more than 50% of their students were low-income, versus those attending preschools that reported that 50% or fewer of their students are low-income.

The figure that follows summarizes results of a series of multi-level mixed-effects model analyses. In each analysis, the following was tested: (1) Does a model with a subset of key preschool quality-related variables meaningfully add to the prediction of readiness outcomes, above and beyond child-level variables and neighborhood SES? (2) Is so, which preschool-level variables are significantly related to readiness? (3) For the preschool-level variables that are significantly related to readiness, how can we quantify their association with readiness?

Figure 53: **Summarizing Preschool's Impact on Students' Readiness by Primary Income Level of Preschool**

Primary Income Level at Preschool	Readiness domain	Which preschool variables contribute significantly?	How much do the significant preschool variables affect readiness?
Mainly Low income	Kindergarten Academics	Frequency of speaking language of students	Increase of 1.18 points if staff speaks sometimes or almost always (versus either extreme – never/almost never or always)
		Frequency of reflective practice	Increase of 0.83 points if staff engages in reflective practice weekly or more (versus less often)
Mainly middle- or high-income	Kindergarten Academics	Class ratio	Increase of 0.71 points if student-teacher ratio is more than 5 (versus less than 5)
		Frequency of reflective practice	Increase of 0.40 points if staff engages in reflective practice weekly or more (versus less often)

Source: Kindergarten Observation Form (2013) and Preschool Directors' Survey (2013). Note: Column 3 ("Do measured preschool variables add to understanding of readiness domain?") is based on a statistical comparison of models with child-level and neighborhood SES factors only versus those factors PLUS preschool-level variables. Column 4 ("Which preschool variables contribute significantly?") shows variables that had statistically significant F values in the full mixed model. Column 5 ("How much do the significant preschool variables affect readiness?") reports the estimate of the mixed effect after recoding the variable in such a way that it could be understood clearly for this report.

Summary

The analyses described in Part 3 reveal the following key points:

- The effects of preschool experience tend to be larger for low-income than middle-to-high-income students, even after adjusting for other differences between these samples.
- There are also a number of differences between preschools that primarily serve low-income students and those that serve higher-income students.
- Frequent engagement in reflective practice – meeting to review assessment data or classroom practices – is associated with stronger *Kindergarten Academics* scores for students at any income level.
- For lower income students, speaking to them in their home language a portion of the time -- sometimes or almost always -- is associated with better *Kindergarten Academics* scores.
- For higher income students, counterintuitively (and perhaps due to an anomaly of this particular data set), the smallest class ratios (5 or fewer students per teacher) is associated with lower scores on *Kindergarten Academics* than when class ratios are higher.

Conclusions

This report described the school readiness of 844 children who entered kindergarten in 12 sampled schools in Santa Clara County in Fall 2013. Incoming kindergarteners' *Self-Care & Motor Skills*, *Self-Regulation* skills, *Social Expression* skills and *Kindergarten Academic* skills were assessed by their teachers, and additional self-regulation skills were measured by outside assessors.

Children who attended preschool were significantly more ready across all domains and measures than children who did not. Also, children from higher-income families and higher-SES neighborhoods were significantly more ready than children from low-income families, low-SES and, to some extent, middle-SES neighborhoods. Finally, children who attended higher-quality preschools were more ready than children who attended lower-quality preschools.

The answer to key question in this study, Can high-quality preschools in low-SES neighborhoods prepare children for kindergarten, is a qualified "Yes" – over and above family income and neighborhood SES, and controlling for other child-level factors, preschools that are higher-quality send children to school slightly more ready than do preschools that are lower-quality. When children are from low-income families, the impact of a higher-quality preschool, even in a low-SES neighborhood, in increasing children's readiness is substantial (one-fifth to one-quarter of a point on the four-point readiness scale) in all domains except *Kindergarten Academics* and skills-based self-regulation. Children from all families, regardless of income or neighborhood SES, receive a boost from higher-quality preschools in *Kindergarten Academics*.

Since the preschool quality data gathered in this study were self-reported by preschool directors, and thus less reliable than more objective measures might be, we recommend further research be done on preschool quality using direct measures of teacher-child interactions and the preschool environment, such as the CLASS and ITERS/ECERS instruments.

This section provides key findings and recommended actions that the school districts, FIRST 5, and other community stakeholders committed to improving school readiness in Santa Clara County might want to consider.

WHAT CAN BE DONE TO MAKE A DIFFERENCE IN SCHOOL READINESS?

Advancing High-Quality Preschool Experiences Should Be a Priority

As with all readiness studies conducted to date by ASR, preschool experience emerged as being associated with enhanced readiness. Forty-eight percent of students in this sample had not attended preschool, and differences in rates of preschool attendance were observed for students from different racial/ethnic backgrounds and income levels, among other characteristics. Districts and community partners should look for new opportunities to provide students with high-quality early education experiences – and to target children and families who are currently underrepresented among the ranks of preschoolers.

As preschool attendance increases, so does the need to ensure that programs that do exist are age-appropriate, are of high quality, and align with the expectations and practices of the elementary schools that their students will eventually attend. Findings indicated that when children attended higher-quality preschools, students entered kindergarten more ready. This was particularly true for children from low-income families, even those living in low-SES neighborhoods.

This study identified several key dimensions of preschool quality, including teachers' hours of formal training to build their credentials and competencies, and teachers' asking parents to do an educational activity at home with their child almost every day. We suggest that these results be shared with preschools and community-wide in an effort to increase awareness of these two important dimensions. The findings suggest two specific approaches that may increase preschool quality:

- Funding more formal professional development for preschool teachers; the study found that children were more ready overall and in the area of *Self-Regulation* when they had attended preschools that offered 40 or more hours of formal teacher training per year to build their credentials and competencies.
- Distributing home education activities and encouraging preschool teachers to assign such activities to parents almost every day; the study found that children were more ready overall and in the areas of *Kindergarten Academics* and *Self-Regulation* when teachers asked parents to do an educational activity at home with their child almost every day.

Development of Self-Regulation Skills Should Be a Focus

The skills in which students in this study had the greatest needs as they entered kindergarten in Fall 2013 were in the domain of *Self-Regulation*.

National research suggests that self-regulation (i.e., children's ability to pay attention, control impulses, and regulate their emotions) is highly predictive of school success. Self-regulation skills at school entry have been shown to be strongly predictive of higher reading and mathematics scores in kindergarten through sixth grade even after controlling for initial achievement levels and demographic factors such as IQ, age, ethnicity, and parent education level (McClelland & Cameron, 2011).

Recent local longitudinal research linking school readiness at kindergarten to longer-term (third grade) academic outcomes also suggests that early self-regulation skills may play an important role in later school success (ASR, 2010). Specifically, students with a combination of strong skills in both *Kindergarten Academics* and *Self-Regulation* performed better at third grade than students with lower readiness in these domains – including students who had strong skills only in *Kindergarten Academics*.

In Fall 2013, 40% of students scored below the benchmark levels of readiness in *Kindergarten Academics* and *Self-Regulation* that have been associated with third grade achievement.

Taken together, these findings suggest that emphasis needs to be placed on creating environments in the home and in early education contexts that promote children's social-emotional learning. Some research-based strategies for fostering Self-Regulation include: encouraging parent engagement and warm/responsive parenting practices; facilitating many opportunities for pretend play during which children tend to explore feelings and practice social/behavioral norms; using children's books as a way to discuss different ways of handling emotions; and giving children frequent opportunities to make choices/think ahead/plan activities/consider solutions to social problems during their daily lives (Berk, Mann, & Ogan, 2006; Boyd, Barnett, Bodrova, Leong, & Gomby, 2005; Greengrass, 2010). Despite the challenges associated with building *Self-Regulation* skills in children, it is a critical need. Coupled with strong skills in *Kindergarten Academics*, children can develop the skills necessary for long-term achievement.

Community Interventions Should Target the Factors That Are Most Strongly Associated with Enhanced Readiness Levels

The results of the regression analyses examining significant readiness predictors suggest several opportunities, in addition to advancing preschool quality, for potentially impactful community interventions.

Provide Support for Families' Basic Needs

Children's health and well-being were important factors in readiness. Analyses suggested that children's frequency of being tired, hungry, sick, absent, and tardy was strongly related to children's readiness levels (Murphy et al., 1998; Whitaker, Phillips, & Orzol, 2006). Related to this finding, children who had breakfast before school each morning were more prepared than their peers who did not have access to breakfast each morning. Further, the current study found that fully one-third of mothers did not receive regular pre-natal care, and that 11% of children were low-birthweight. These findings underscore the importance of ensuring that families' basic needs are being met. Programs and services that assist at-risk families in getting Medi-Cal or other healthcare and in putting food on the table may help parents provide home environments that foster their children's development. Partnering with the medical community to provide outreach/education that explains the importance of pre-natal care is also recommended.

Promote Families' Economic Security

The findings showed that the two most significant factors associated with children's readiness in the domain of Kindergarten Academics were family income and mother's education. There are many factors that impinge upon a family's ability to earn a higher income, some of which are quite difficult to impact. Often, making an impact requires larger public policy shifts; however, some strategies can be implemented at the local level. For example, community interventions to help improve the lives of low-income families could focus on connecting low-income parents to job training/coaching programs; providing assistance for parents to receive adult education opportunities (literacy, English fluency, GED); and ensuring low-income parents are aware of and enrolled in public benefit programs (e.g., WIC, TANF/CalWORKS, children's health insurance; Women's Economic Security Campaign, 2010). In many cases, one-on-one navigators, advocates, or coaches have been shown to be an important component in successful interventions for low-income parents (Berk, Mann, & Ogan, 2006).

Promote Participation in Kindergarten Preparation Activities

Results indicated that when families participated in more kindergarten preparation activities, students had higher levels of readiness. It is important that elementary schools reach out to parents even before their children enter kindergarten, to establish an early connection and ensure a smooth transition. Preschools can also contribute to this process by providing information to parents to help them prepare their children for the move to kindergarten. FIRST 5 may wish to convene a working group composed of early education and elementary school representatives to identify a variety of strategies for increasing parent engagement before kindergarten begins. These might include a "meet the teacher" time during teacher prep days in August, and inviting kindergarten teachers into preschool classrooms to meet students and speak with parents.

Support Universal Early Developmental Screening

Children who have special needs are often less ready for school than children without special needs. Despite this, of the children who were recognized by their teachers as having special needs (either already identified or believed to have special needs) and whose parents completed the *Parent Information Form*, only 36% were reported to have received developmental screening. Universal early developmental screening can help identify children who may have developmental problems or disabilities that could prevent them from realizing their potential. Information from such tests can help teachers determine which children might benefit from additional learning support and can trigger additional, more in-depth assessment (Greenspan & Meisels, 1996; Meisels & Atkins-Burnett, 2005).

Increase Outreach Around the Importance of Kindergarten Attendance

As above, analyses suggested that children's frequency of being absent and/or tardy was strongly related to children's readiness levels. A part of the recent longitudinal study in Santa Clara and San Mateo counties (ASR, 2010) found that children with even relatively small attendance issues in kindergarten and first grade are less successful in third grade than their peers with good attendance. It also found that children who were ready in kindergarten but have these attendance issues can lose their readiness gains, making them no more successful in third grade than their less-kindergarten-ready peers. Working with schools and districts to increase outreach that emphasizes the importance of attendance starting in kindergarten or even preschool can make a difference in this crucial area. Some districts across the nation are using various additional tools, including home visits by volunteers, to help families with attendance issues (Attendance Works, 2013; Boss, 2013).

RECOMMENDATIONS FOR FURTHER RESEARCH

As with any study, the researchers understand the limitations of the methodology used. If it were someday be replicated, improvements to this study might include:

- Leverage kindergarten enrollment forms to more systematically identify children's preschools of attendance. In this study, ASR had to survey parents in order to understand children's former preschool of attendance. A more systematic way is for schools to collect these data on their kindergarten enrollment forms, so that this information is available for every entering kindergartener.

- Direct assessment data from classrooms (CLASS, ECERS) in order to more precisely quantify the classroom environment. In Marin County, the CLASS has been shown to correlate with the KOF, and thus the same relationships could be expected here.

Secondly, the Quality Matters study has produced a rich and complex data set, of which many new questions can be asked. Preliminarily, ASR recommends:

- Further analysis of the interplay between the home environments of low income families, the neighborhood characteristics and the preschools their children attend

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