

EXECUTIVE SUMMARY

KINDERGARTEN READINESS IN ALAMEDA COUNTY

First 5 Alameda County (First 5) supports an integrated early childhood system with the goal of ensuring all children arrive at school ready to learn and are free from abuse and neglect. Every two years, First 5 partners with Applied Survey Research (ASR) to assess kindergarten readiness in Alameda County.

The kindergarten readiness assessment identifies and measures some factors that predict a child's readiness for school. At every assessment period, concrete needs, such as arriving at school healthy, well-rested, and well-fed are top factors predicting kindergarten readiness. Since 2015, formal early childhood education (ECE) participation, is also a top factor. This longitudinal study conducted in 2018, analyzing the relationship between kindergarten readiness and later achievement, reveals the impact of concrete needs on children's outcomes is long-term and ECE participation alone will not address the achievement gap.

WHAT IS THE CONNECTION BETWEEN KINDERGARTEN READINESS AND LATER ACHIEVEMENT IN ALAMEDA COUNTY?

For the current study, ASR looked at children's trajectories from kindergarten through elementary school in Alameda County in order to better understand the predictive nature of kindergarten readiness and to inform investment, policy, and program decisions. Kindergarten readiness data for a total of 1,168 students, attending 40 different schools in kindergarten, were pooled from prior kindergarten readiness studies in Hayward Unified and Oakland Unified School Districts in 2010, 2011, and 2013, and then matched to data from at least one grade level (third, fourth, fifth, and sixth) of English Language Arts (ELA) and Math Smarter Balanced Assessment Consortium (SBAC) tests. Kindergarten data were collected using Kindergarten Observation Forms (KOFs) completed by teachers and Parent Information Forms completed by parents or primary caregivers. This report focuses on third grade outcomes, as a growing body of research has documented the importance of third grade proficiency in predicting outcomes over the life course,ⁱ and the most robust sample size was available for this grade.

FINDINGS

- Skill gaps observed in kindergarten between different subgroups generally persisted into third grade and even widened for some children
- The strongest predictors of third grade proficiency included:
 - When entering kindergarten:
 - Being healthy, well-rested, and well-fed
 - Coming from a family with higher socioeconomic status
 - Being proficient in English
 - Regularly attending school in third grade
- Consistent with longitudinal research conducted by ASR in Santa Clara, San Mateo, and San Francisco Counties,ⁱⁱ the findings indicate that children's kindergarten readiness skills, particularly *Self-Regulation* and *Kindergarten Academics*, are important drivers of later achievement

RECOMMENDATIONS

Findings point to the importance of efforts to:

- Address families' basic needs
- Improve children's health and well-being
- Use policy and systems change to reduce inequities, structural racism, and implicit bias
- Encourage consistent school attendance
- Strengthen children's kindergarten readiness skills by improving access to high quality ECE and supporting parents' capacity to offer enriching early experiences at home

FIRST 5 ALAMEDA COUNTY POLICY PRIORITIES

Consistent with study results, First 5 Alameda County's policy priorities include:

- Sustaining programs and investments with proven results for kindergarten readiness
- Addressing inequity and childhood poverty
- Supporting family engagement, leadership, and community well-being

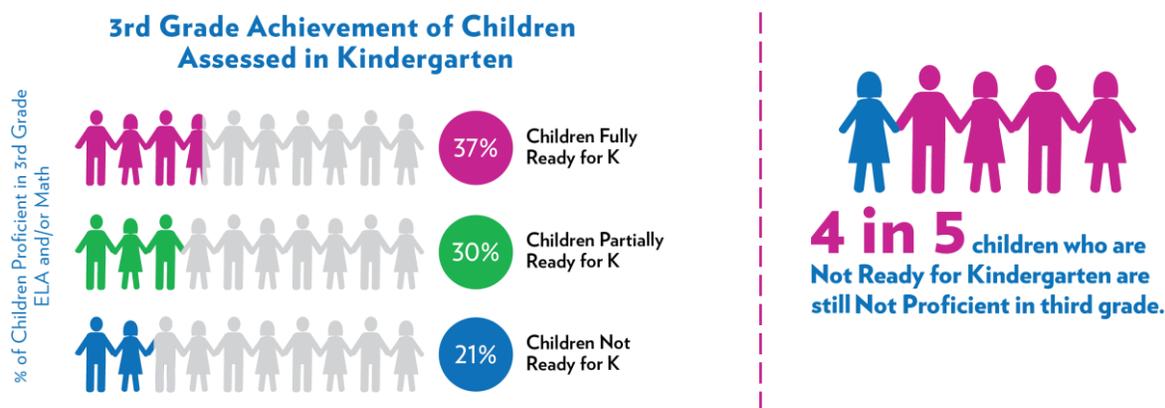
Overview of Findings and Recommendations

The findings suggest several opportunities for programs and policies, particularly those that increase access to and utilization of supports and community resources that address families' basic needs, improve child health and well-being, and encourage school attendance. Given the finding that achievement gaps generally do not close between kindergarten and third grade, it is imperative that these interventions take place early in the child's life, thereby setting them up for later success.

EVALUATION QUESTIONS AND WHAT WE LEARNED

1. What is the relationship between kindergarten readiness and later achievement in elementary school? What academic paths were taken by the most- and least-ready kindergarteners?

Students who were more prepared for kindergarten had higher achievement in third grade. Of all **third grade students** enrolled in the two school districts during the study years, just over **1 in 4** were proficient in ELA and fewer than **1 in 3** were proficient in Math. For children in the subgroup of third graders who were assessed in kindergarten and were "fully ready," 37% were proficient in ELA and/or Math in third grade, compared to only 21% of children who were "not ready" in kindergarten.



Although overall readiness predicted third grade outcomes, two domains of kindergarten readiness, *Kindergarten Academics* and *Self-Regulation*, most strongly predicted performance on ELA and Math standardized tests taken 3 ½ years later. In addition, kindergarten readiness continued to predict later academic outcomes in fourth, fifth, and sixth grades.

- 1a. At the time of kindergarten entry, readiness gaps were observed between subgroups. Did these gaps narrow or widen later in elementary school?

Disparities in kindergarten readiness generally did not close by third grade, and widened for some children.

By third grade:

- The gap identified in kindergarten widened for:
 - Children who came to kindergarten tired, sick, or hungry
 - African-American and Latino children
 - Children from households earning less than \$50,000 annually

- A non-significant gap during kindergarten between English Learners and their peers increased to significance in ELA
- The gap first identified in kindergarten between boys and girls narrowed for the overall sample by third grade. However, the gender gap favoring girls persisted in ELA among African American and Latino students

1b. By third grade, some students “beat the odds” by demonstrating proficiency in third grade when they were not ready in kindergarten, and some “fell behind” in third grade even though they were fully ready in kindergarten. How were these children different from their peers?

Factors associated with those who “beat the odds” and those who “fell behind”

We explored whether child and family characteristics and experiences (e.g., child’s age and gender, family income, attendance at a formal early care and education program) and available data on school characteristics predicted a child’s trajectory from kindergarten to third grade. Some potential factors contributing to children’s trajectories such as family stressors, parent engagement at school, and curricula could not be examined in this study. The results were only marginally significant, with the exception of ***school characteristics***.

Schools where children “beat the odds”

The characteristics of schools with a higher than average percentage of children who “beat the odds” in third grade were:

- More socioeconomically advantaged, as measured by the proportion of students enrolled in the Free or Reduced Price Lunch Program
- Higher performing in math as measured by average scores on the SBAC assessments

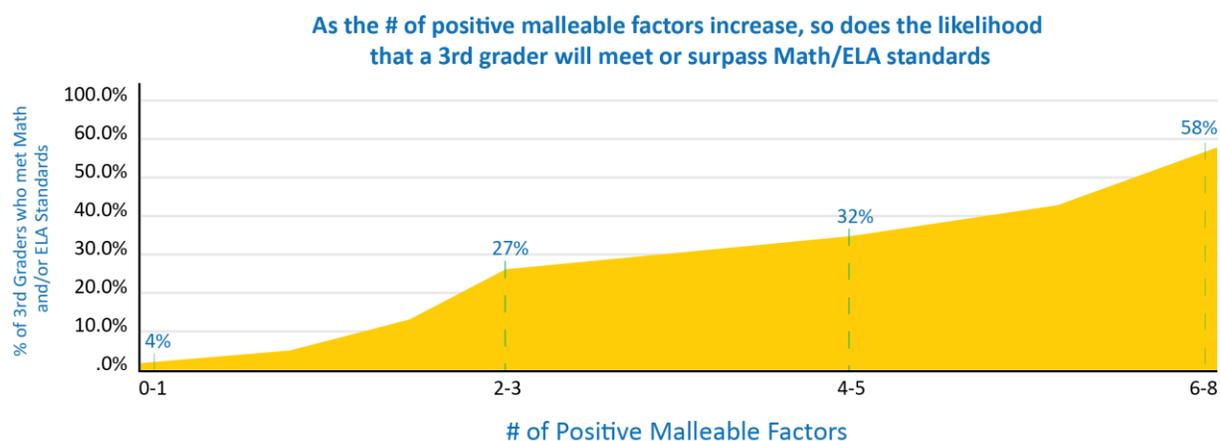
2. What child, family, and kindergarten readiness factors predict later academic outcomes? Are there cumulative effects of protective factors?

We also explored the child and family characteristics linked to third grade achievement, controlling for other factors, including kindergarten readiness. The following factors accounted for about 25% of the variance in children’s third grade achievement scores:

- The less frequently a child demonstrated **well-being** concerns in kindergarten, the higher he or she scored on third grade standardized assessments.
- Being **proficient in English** at kindergarten entry was also positively associated with ELA and Math achievement.
- **Higher socioeconomic status** (mother had at least a high school education OR household income was more than \$50,000) in kindergarten predicted higher ELA scores, but not Math scores.
- **Regular attendance** in third grade was significantly associated with higher ELA and Math scores. Notably, well-being in kindergarten was significantly related to attendance in third grade.

Next, we examined whether there were cumulative effects of having multiple positive malleable factors (i.e., those responsive to intervention) on the likelihood of third grade success. The figure that follows displays the

relationship between third grade academic outcomes and the number of positive malleable factors influencing a child, such as having attended formal early care and education, having a parent who used community resources, and being read to at home. As the chart illustrates, **the more positive malleable factors** influencing a child, **the more likely he or she was to meet standards** in math and/or ELA. For example, just 4% of children who had no more than one positive malleable factor were proficient in third grade, while 58% of children who had six to eight positive malleable factors met or exceeded standards in math and/or ELA.



CONSIDERATIONS

The factors measured in the current study account for about a quarter of what contributes to children’s third grade achievement. This is typical for social science research, simply because it is impossible to isolate and measure all the factors that influence outcomes. Information about other factors, including children’s experiences inside and outside of the classroom between kindergarten and third grade, was not available. It should also be noted that the study sample was drawn from lower-performing schools relative to the two school districts and the county as a whole.

This study demonstrates the correlation between the socioeconomic realities of families and student achievement. Research has shown that children of color and those from lower income households have less exposure to high-quality early care settings and often attend schools in neighborhoods with fewer resources and less experienced teachers, leading to a cycle of poorer school performance; in addition, lower income children of color may experience the negative effects of structural racism and implicit bias leading to differential treatment in the classroom (e.g., differences in teaching and discipline practices).^{iii,iv,v,vi} Furthermore, the ill effects of poverty on children’s brain development,^{vii} and exposure to stressors and toxins in the environment, can contribute to poorer school performance.^{viii} It is also well-documented that children who are healthy, food secure, and well-rested have significantly higher levels of academic achievement,^{ix} likely because improved health and well-being leads to better cognitive performance, particularly in memory and the ability to focus, as well as consistent school attendance.^x

SUMMARY AND POLICY IMPLICATIONS

This longitudinal look at a sample of children who participated in earlier kindergarten readiness assessments and their third grade achievement showed a pattern whereby those children who began fully ready in kindergarten were more likely to succeed in third grade and beyond compared to their less ready peers. **Persistent achievement gaps may be explained by the consequences of long term community disinvestment, structural racism, and poverty. First 5 makes strategic investments that recognize the interplay between equity, place, health and child well-being and is committed to implementing targeted policies and practices to sustain programs and investments with proven results for kindergarten readiness.** This includes addressing inequity and childhood poverty and supporting programs and policies that promote family engagement, leadership, and community well-being. By implementing these policies, we may see an increase in the impact of positive, cumulative effects of interventions that promote the well-being of all children in our county.

ⁱ Fiester, L. (2010). *Early warning! Why reading by the end of third grade matters. KIDS COUNT Special report*. Baltimore, MD: Annie E. Casey Foundation; Lesnick, J., Goerge, R. M., & Smithgall, C. (2010). *Reading on grade level in third grade: How is it related to high school performance and college enrollment?* Chicago, IL: Chapin Hall at the University of Chicago.

ⁱⁱ Applied Survey Research. (2010). *School readiness and student achievement: A longitudinal analysis of Santa Clara and San Mateo County students*; Applied Survey Research. (2017). *San Francisco school readiness longitudinal study 2017*.

ⁱⁱⁱ Fryer, R. G., & Levitt, S. D. (2005). *The black-white test score gap through third grade* (Working paper No. w11049). Cambridge, MA: National Bureau of Economic Research; Rothstein, J., & Wozny, N. (2013). Permanent income and the black-white test score gap. *The Journal of Human Resources, 48*(3), 509-544.

^{iv} Kalogrides, D., Loeb, S., & Beteille, T. (2013). Systematic sorting teacher characteristics and class assignments. *Sociology of Education, 86*(2), 103-123.

^v Casteel, C. A. (1998). Teacher-student interactions and race and integrated classrooms. *Journal of Educational Research, 92*, 115-120; Gregory, A., Skiba, R. J., & Noguera, P. A. (2010). The achievement gap and the discipline gap: Two sides of the same coin?. *Educational Researcher, 39*(1), 59-68.

^{vi} Duncan, G. J., & Murnane, R. J. (2016). Rising inequality in family incomes and children's educational outcomes. *RSF Journal of the Social Sciences, 2*(2), 142-158.

^{vii} Noble, K. G., Houston, S. M., Brito, N. H., Bartsch, H., Kan, E., Kuperman, J. M., ... & Schork, N. J. (2015). Family income, parental education and brain structure in children and adolescents. *Nature Neuroscience, 18*(5), 773.

^{viii} Evans, G. W., Brooks-Gunn, J., & Klebanov, P. K. (2011). Stressing out the poor. *Pathways, 22*-27.

^{ix} Ickovics, J. R., Carroll-Scott, A., Peters, S. M., Schwartz, M., Gilstad-Hayden, K., & McCaslin, C. (2014). Health and academic achievement: cumulative effects of health assets on standardized test scores among urban youth in the United States. *Journal of School Health, 84*(1), 40-48.

^x Alaimo, K., Olson, C. M., & Frongillo, E. A. (2001). Food insufficiency and American school-aged children's cognitive, academic, and psychosocial development, *Pediatrics, 108*(1), 44-53; Curcio, G., Ferrara, M., & De Gennaro, L. (2006). Sleep loss, learning capacity and academic performance. *Sleep Medicine Reviews, 10*(5), 323-337; Kleinman, R. E., Hall, S., Green, H., Korzec-Ramirez, D., Patton, K., Pagano, M. E., & Murphy, J. M. (2002). Diet, breakfast, and academic performance in children. *Annals of Nutrition & Metabolism, 46*(suppl 1), 24-30; Taras, H. (2005). Nutrition and student performance at school. *Journal of School Health, 75*(6), 199-213.