

San Joaquin County Head Start Child Outcomes Bulletin 2013



Nurturing Children, Proving Results

During the 2011-2012 school year, the San Joaquin County Head Start and Early Head Start programs served more than 3,000 low-income children — 430 of which were infants or toddlers.

These children were not only cared for in a high-quality learning environment, but provided with access to medical care and dental care. Their parents were provided with parenting advice and other individualized supports, including help getting groceries on the table or getting enrolled in a GED class.

Each child's developmental progress is assessed continually using a research-based assessment tool that provides a comprehensive view of a child's development. Children are evaluated not just in academic areas like Mathematics and Literacy, but in a broad range of areas including Social-Emotional, Language, Physical, and Cognitive development.

For anyone unfamiliar with the world of early education, assessing a toddler's math skills may seem strange. But, of course, toddlers are not propped up at desks with #2 pencils and asked to complete multiple choice tests. Rather the assessments are the result of teachers systematically gathering observations and evidence over a period of time. This approach differs from K-12 standardized tests by providing educators the opportunity to base their assessments upon real-world observations instead of the artificial environment of an exam.

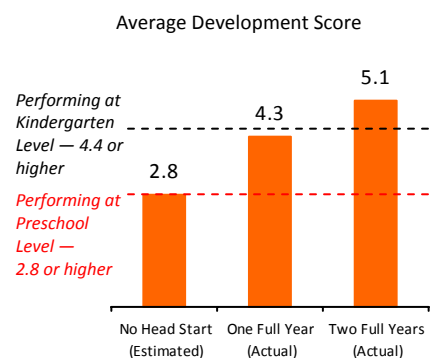
These assessments allow teachers to individualize activities and to ensure each child is growing.

The wealth of data generated by these assessments allows us to answer a fundamental question: Do the child and family support services that Head Start provides actually help children? Not to spoil the anticipation, but the answer is absolutely yes.

In Figure 1, we look at children about to enter Kindergarten. We compare estimates for children without Head Start to the actual scores for children with one year and two years of Head Start. Average developmental scores for children with no Head Start were extrapolated based on the relationship between age and developmental scores for newly enrolled children. On average, for same aged children, those with two years of Head Start are matriculating to Kindergarten already performing at the Kindergarten level. Those with one year of Head Start, while meeting expectations for Preschool, fall just short of the Kindergarten level. Children with no Head Start are just meeting preschool expectations.

Figure 1. Literacy Actual and Estimated Average Development Scores in Spring 2012

Includes Only Children Entering Kindergarten in the Fall 2012



Closing the Achievement Gap and Making Children School Ready

Do all these child and family supports truly help children?
The answer is absolutely yes!

What's better than one year of Head Start? Two years of Head Start. Children with one year of Head Start in the year before Kindergarten are better prepared for school than children without Head Start. But children lucky enough to have attended Head Start for two years prior to Kindergarten show a distinct advantage.

In Figure 1 (front page) the data show the average scores in Literacy for children in the Spring before matriculating to Kindergarten. Looking at the Literacy results over-time, Figure 2 highlights the disadvantage Head Start eligible children face entering Kindergarten without those two years — scores in Literacy are almost 50% lower than those with two years of Head Start. The analysis was conducted in the areas of Mathematic, Social-Emotional, Language, Physical, and Cognitive development with similar findings.

Figure 3 illustrates not only the significant positive impact Head Start has on a child's readiness to enter Kindergarten, but also shows that many children need two years of Head Start in order to be prepared for Kindergarten. Only children who will matriculate to Kindergarten in the fall

of 2012 are shown. For example, in the area of Social-Emotional development, 62% of children who had enrolled in Head Start only in the past few months were at or above the expected developmental range for their age. Meanwhile, of the four-year-olds enrolled the entire school year in Head Start, 77% were at or above the expected developmental range. However, 99% of four-year-olds who were completing their second year of Head Start were at or above expectations.

The data clearly suggest that Head Start has a substantial positive impact on child development, that children are more likely to be school ready thanks to Head Start, and that many children need two years of Head Start in order to meet common developmental expectations. The issue with this interpretation is that the data may contain selection bias — meaning that children with higher developmental levels are more likely to enroll earlier in Head Start. For this reason, to calculate the impact of the program, we use Regression Discontinuity Design (RDD), which allows us to control for selection bias. Unfortunately, due to the limitations of the available data, the RDD can only be used to assess the impact of the three-year-old Head Start experience. (see page 3)

Figure 2. Literacy Scores Over Time

Actual and Estimated Average Development Scores Based on Length of Time in Head Start
 Includes Only Children Entering Kindergarten in the Fall 2012

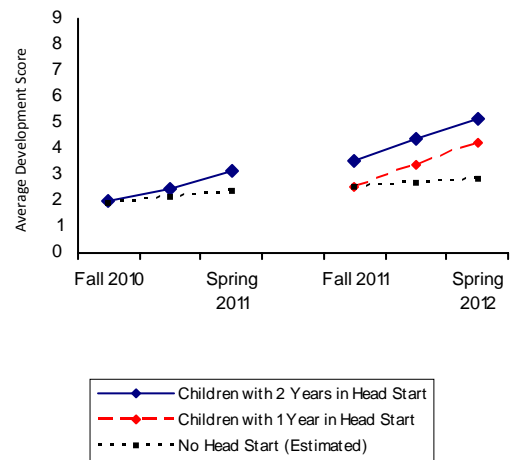
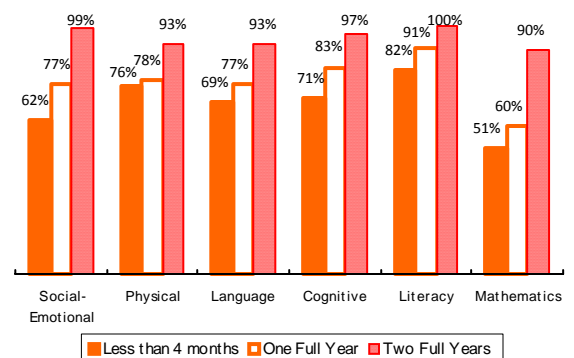


Figure 3. Percentage of 4 Year-Old Children At Or Above Expectations as of the Spring 2012

Developmental Area and Length of Time in Head Start



99% of 4 year-olds completing their 2nd year of Head Start scored 'above expectations' in socio-emotional skills like participating in group activities cooperatively and constructively.



93% of 4 year-olds completing their 2nd year of Head Start scored 'above expectations' in physical skills like holding a pencil in a 3 finger grip or maintaining balance in complex situations.



93% of 4 year-olds completing their 2nd year of Head Start scored 'above expectations' in language skills like telling stories from another time or place.



97% of 4 year-olds completing their 2nd year of Head Start scored 'above expectations' in cognitive skills like classifying objects by material or size.

San Joaquin County Head Start Program Demonstrates a Significant Positive Impact on Development

Results Show Medium to High Impact in all Areas of Development, exceeding most National Head Start Studies

Given large sample sizes (the RDD was based on samples of between 658 and 762 children) the Regression Discontinuity Design (RDD) is nearly as rigorous as a randomized control group experiment.

The results showed that participating in the San Joaquin County Head Start program as a three-year-old had a statistically significant positive impact on growth in all areas of development. The size of the impact is shown using Effect Size. An effect size is the ratio of the program's impact to the standard deviation of the control group. Figure 4 shows the Effect sizes of the San Joaquin County Head Start program for 3 year olds. In the area of Mathematics, Head Start was estimated to help a child grow by 0.675 levels, while the standard deviation of the control group was 0.991. $0.675 / 0.991 = 0.68$. The effect size is 0.68. One way to read the effect size is that Head Start helped to advance children 0.68 standard deviations in Mathematics.

Is 0.68 high? Often researchers adopt a standard of 0.2 to 0.3 being a "small" effect, around 0.5 as a "medium" effect and higher than 0.8 as a high effect. These are only rough benchmarks, but show San Joaquin County's Head Start program as having medium to high impacts. The effect sizes found here are

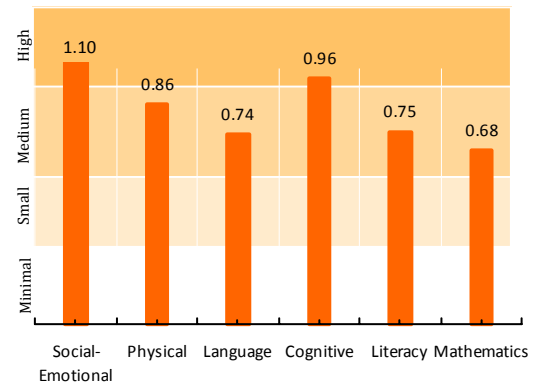
significantly higher than those found in most national Head Start studies which have tended to find small effect sizes.

More on the Methodology

The RDD works by comparing three-year-olds (the control group) enrolled in Head Start to four-year-olds who are returning to Head Start (the experimental group) for their second year (they were enrolled the previous year in Head Start). Four-year-olds who are new to Head Start are not included in the analysis. This methodology eliminates the issue of selection bias because both the control group and the experimental group made the decision to attend Head Start as three-year-olds. Regression is used to control for the difference in age between the two groups. The analysis is based on the assessment results in the fall of 2011. For the three-year-old group, this assessment represents their developmental level upon entering Head Start. For the returning four-year-olds, this assessment represents their assessment after having attended Head Start the previous year (when they were three-year-olds).

RDD has been used increasingly over the past decade to assess preschool programs. For more information on the methodology, please see the "California Head Start Child Outcomes 2011 Methodology" paper posted here: www.childcareresults.com/Outcomes2011.

Figure 4. Impact of Head Start on 3 year-Old Children.
Effect Size By Developmental Area Based on Regression Discontinuity



100% of 4 year-olds completing their 2nd year of Head Start scored 'above expectations' in literacy skills like following stories and participating in read aloud conversations about story plots.



90% of 4 year-olds completing their 2nd year of Head Start scored 'above expectations' in mathematical skills like counting to 20 and organizing sets of objects by size and number.

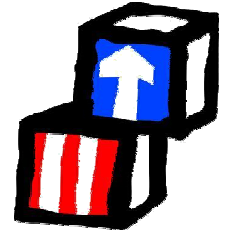


0.68 San Joaquin County Head Start produces medium to high impacts. The effect sizes found here are higher than those found in most national Head Start studies which have tended to find small effect sizes.



Regression Discontinuity Design (RDD) allows us to assess the impact of the Head Start program without denying a group of eligible children the Head Start experience.

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San Joaquin County Head Start

For More Information about this Report and the San Joaquin County Head Start Program contact:

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The analysis was conducted by: Child Care Results in fall 2012.

For more information about Regression Discontinuity Design methodology, please visit www.childcareresults.com/ChildOutcomes2011

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www.childcareresults.com

English Language Learners Thrive in Head Start

Nearly 50% of San Joaquin County Head Start Children are English Language Learners

Children for whom English is not their home language represent nearly half of the children served by the San Joaquin County Head Start program. These children face an additional hurdle in preparing for Kindergarten. Fortunately, the data show that English language learners (ELL) are benefiting greatly from Head Start.

Figure 5 tracks all ELL children (not just three and four year-olds, but infants and toddlers too) throughout the 2011-2012 school year. At the beginning of the year, 73% of these children were below expectations in Mathematical development. By the spring of 2012, only 30% were still below expectations and the percentage of children above expectations had grown from 2% to 14%. The results were similar across all areas of development for English Language Learners. Children showed dramatic improvement in cognitive development, language and literacy skills, social-emotional, and physical development.

Figure 5. Percentage of English Language Learning Children By Expectation Level in Mathematics

Includes Only Children Assessed in All Three Time Periods — All Age Groups Are Included

