

**Chesapeake Multicultural Resource Center
(ChesMRC)
Afterschool Initiative:
FY2017 Interim Evaluation**

A 21st Century Learning Center Grant (MSDE #144796)

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Chesapeake Multicultural Resource Center (ChesMRC) Afterschool Initiative: FY2017 Interim Evaluation

Executive Summary

Overview of Program

The Hispanic population was growing at a quicker rate in Talbot County than the rest of Maryland, and no special programs had been designed to improve the educational level of the immigrant Hispanic families. Almost all Hispanic students at Easton Elementary School (EES) lived in low income families, and low family income has been found to be associated with low levels of proficiency in reading and mathematics. The Chesapeake Multicultural Resource Center initiated an afterschool program in September of 2012, and was awarded a five-year 21st Century Community Learning Center grant by the Maryland State Department of Education (MSDE) beginning in school year 2013-2014 (FY2014). This report summarizes the first four years of the program and provides detailed evaluation of the fourth year of the grant program.

Student Program

The ChesMRC afterschool program planned for 105 students at Easton Elementary School (EES) in year 1, 120 in year 2, and 135 in years 3-5. Enrollment hit 135 in the first year and 140 in years 2-3. Enrollment dropped to 100 in year 4 (FY2017) substantially below the planned enrollment. (See **chart**). A total of 297 students experienced the afterschool program during one of the first four years: 51% attended one year, 30% attended two years, 16% attended three years, and 4% attended all four years. However, 35% of the first and second grade students who attended the afterschool program in FY2014 and who were still attending EES in FY2017, attended afterschool during all four years. Ten of the FY2014 first graders have the possibility of attending all five years if they return to EES in FY2018 as fifth graders.

School year	Number of program days	Number of students enrolled	Average daily attendance	Percent attending 90+ days
2013-2014	99	135	82	19%
2014-2015	101	140	83	22%
2015-2016	107	140	88	35%
2016-2017	105	100	78	30%

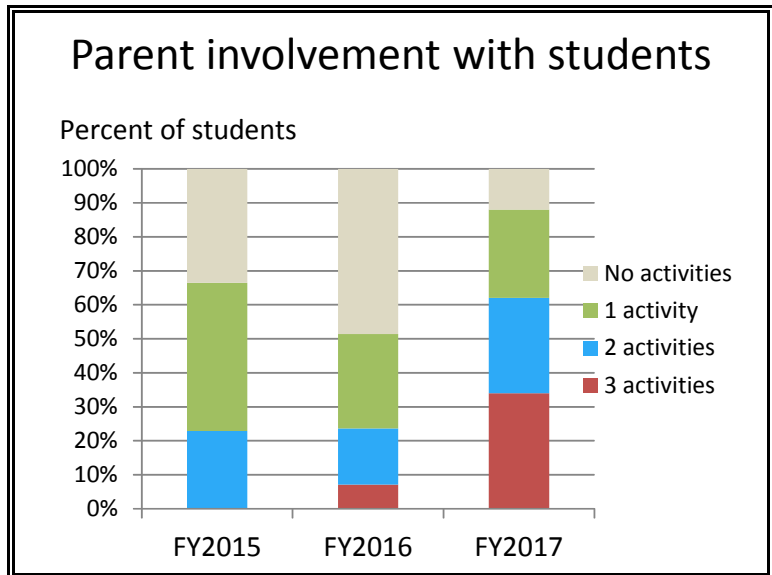
Daily attendance increased during the first three years, but decreased in the fourth year. The percent of students who attended 90 or more days similarly increased from 19% to 35% in the first three years and then decreased to 30% in the fourth year. Attendance generally declined during the fall and then increased during the spring. Students attended an average of 40% of the

days they were eligible for during the four years. Students in elementary school during all of the four years of the grant attended 30% of the days for which they were eligible. First grade students in FY2017 attended 78% of the days during the one year they were eligible.

Almost all (96%) of the afterschool students came from low income households and received Free And Reduced-price Meals (FARM), and three-fourths of the participants were Hispanic. All of the students attending all four years received FARM and were Hispanic. Girls outnumbered boys during the four years. First graders outnumbered fifth graders in every year. One-third of the students received English Language Learner services from the school, and one-tenth received special education services.

Parent Involvement

The afterschool program encouraged parents to become involved in their children’s afterschool activities. These included the resource center and scouts in FY2015-FY2017, and the addition of soccer in FY2016 and FY2017. Seven-eighths (88%) of the students in FY2017 had parents involved with them in their afterschool activities, substantially more than the 51% in FY2016 or the 66% in FY2015. (See **chart**.)



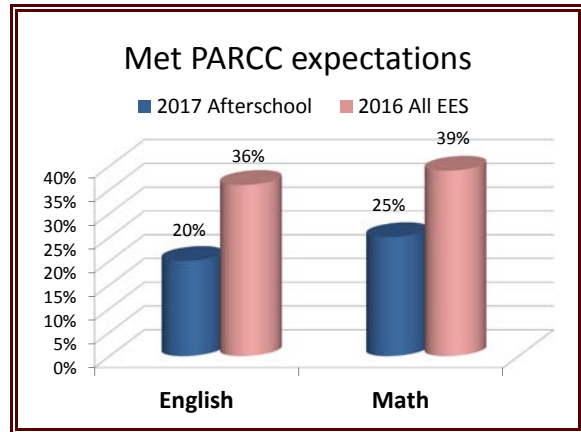
Parents were also involved in more activities in FY2017 compared to the prior year, with the greatest increase being in Girl Scouts (35% to 84% of girls’ parents). Half (56%) of the children in the afterschool program during any of the four years had parents recorded as involved in their activities.

The English of more than three-fourths of the FY2017 mothers and fathers we tested at the beginning of the school year, and about two-thirds of both were at the low beginner ESL level. A third or more of the mothers (40%) and fathers (33%) took ESL classes. Mothers’ English level and classes appear to be more important for the students than the fathers’ English level and classes. During the four years, 78% of the children had mothers tested for their English level, 36% had mothers who took ESL classes, and 29% had mothers who increased their English skills by at least one level.

Parent involvement in their students’ activities affected student afterschool attendance. Parental involvement in scouting in FY2017 increased boys’ attendance by 24 days and girls’ attendance by 29 days. This followed the pattern since FY2015 when parental involvement data was first collected.

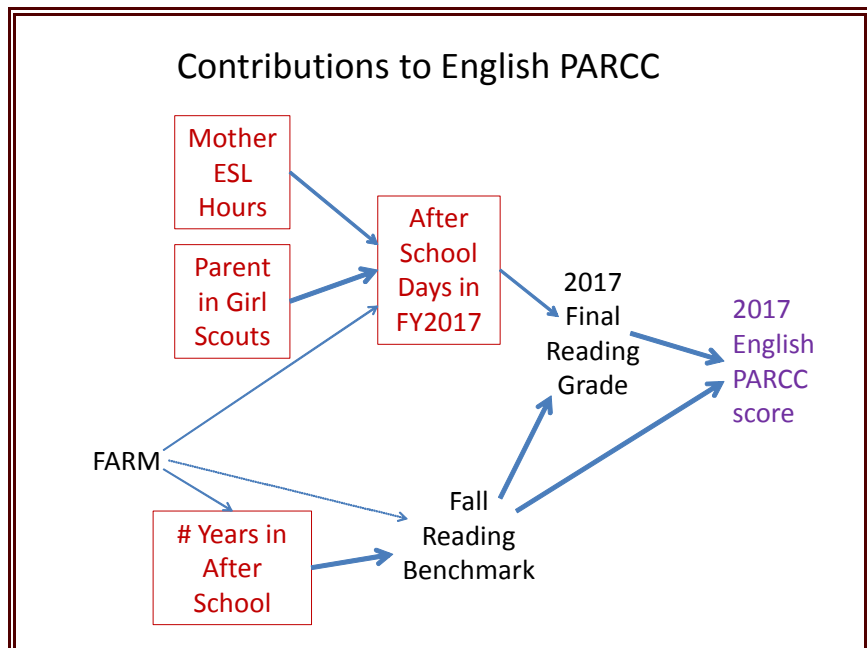
Academic Outcomes

One-fifth of the afterschool students met or exceeded expectations (levels 4-5) on the PARCC English and Language Arts test (**chart**). One-fourth met or exceeded expectations on the PARCC Math test. While these were improvements over the achievements of afterschool students in the previous year, they still did less well on both tests than all Easton Elementary School students did in the previous year. This is also substantially below the year four program objective of helping 60% of the afterschool students achieve academic proficiency.

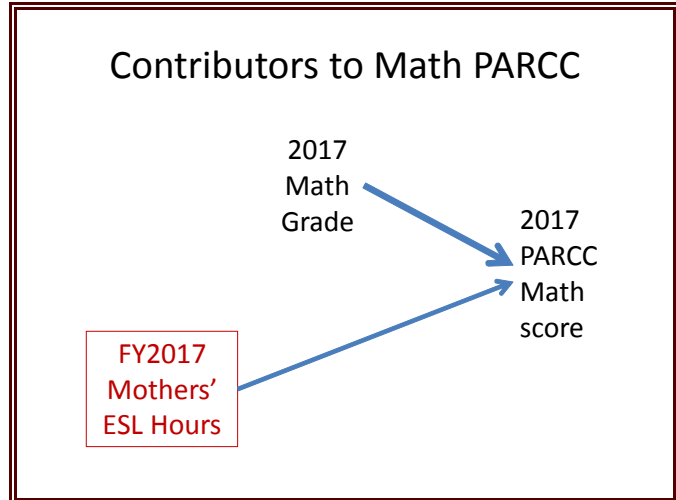


The two key predictors of students' English PARCC scores in 2017 were students' final classroom reading grade in 2017 and their reading skills as measured by their fall (2016) reading benchmark scores (**chart**). While aspects of the afterschool program (shown boxed in red) did not directly contribute to the English PARCC scores, they indirectly increased the scores as they affected both measures of reading skills. The more years the student attended the afterschool program, the higher their FY2017 fall reading benchmark assessment. This then translated into both higher reading grades and higher English PARCC scores. In addition, the more days the student attended the

afterschool program in FY2017, the higher their 2017 final reading grade. Students from low income families (receive FARM) attended slightly more years of the afterschool program, and more days during FY2017 than the students not receiving FARM, which help compensate for their lower fall reading benchmarks (lower shown by a dotted arrow) to indirectly increase their PARCC scores beyond what would have been expected without the afterschool program.



In math, the years of attending afterschool and the number of days attended in FY2017 did not have a direct effect on the 2017 math PARCC score, but unfortunately the 2017 fall math baseline score was not available for a control like it was in reading/English. However, the more hours of ESL classes taken by mothers in FY2017, the higher the scores their students achieved on the 2017 math PARCC, independent of their 2017 final math classroom grades. (See **chart.**)



Students whose mothers took a typical 40-hour ESL class scored an average of 12 points higher than students whose mothers did not take any ESL classes. This increase is also seen if the first available math benchmark is used and mothers' ESL hours are cumulated during four years. Mothers' English abilities identified at the first testing were not a factor.

Discussion

The ChesMRC afterschool program has demonstrated its ability to help elementary school students from low income, and Spanish-speaking families become more successful academically. However, the program has not met the specific objectives stated when the program was planned and funded nor can it provide positive answers to all the evaluation questions the evaluator initially proposed. There are three main reasons: 1) the goals and objectives were set unreasonably high; 2) the tests that were planned to measure aptitude and achievement changed and they apply to too few students for complete evaluation; 3) data collection focused on easily accessible information that could suggest program changes along the way rather than being tailored strictly for evaluative purposes.

The evaluator makes four recommendations for the final year of the grant program:

1. *Continue to recruit students for the final grant year's afterschool program, especially those who attended in prior years, particularly those rising to the fifth grade.*
2. *Continue to encourage parents, particularly mothers, to take ESL classes to improve their own English abilities and their children's math abilities.*
3. *Continue to engage and encourage parents to be involved in the resource center, scouts and soccer as this appears to contribute to both afterschool attendance and to academic achievement.*
4. *Focus on collecting six key data elements: EES enrollment, 2018 PARCC, fall reading and math benchmarks, afterschool attendance, and parent ESL status.*

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Program Overview

Background

Talbot County, Maryland, has a Hispanic population that is growing faster than in the rest of Maryland. Studies have shown that immigrant children who are not engaged academically by the third grade have a high probability of dropping out of high school and engaging in risky behavior. Low income is also a negative factor in academic achievement. Easton Elementary School (EES) has a large Hispanic enrollment and low income families. While half of all students at the school are registered in the Free and Reduced Meal (FARM) program, almost all of the Hispanic students receive FARM. In 2012, one-fifth of the Hispanic students failed to score at a proficient level in reading and mathematics, and half failed to score at a proficient level in science. No programs had been designed to provide extra academic help to Hispanic students at EES, or to engage their immigrant families in ways to assist them until the Chesapeake Multicultural Resource Center (ChesMRC) initiated an afterschool program in September of 2012. It then received a five-year 21st Century Community Learning Center (21st CCLC) grant by the Maryland State Department of Education (MSDE) to expand this program in school year 2013-2014 (FY2014) through school year 2017-2018 (FY2018). This report documents and evaluates involvement in the fourth year of the grant program, school year 2016-2017 (FY2017). Earlier reports have evaluated the earlier years of the program, but this report includes some summary data from the first three years for comparative purposes and to analyze the cumulative impact of the afterschool program.

The ChesMRC contracted with Bonham Research to evaluate its afterschool program. Bonham Research had also been the independent evaluator for the Caroline County Lifelong Learning Partnerships 21st Century Community Learning Center grants since FY2006, the afterschool program of the Baltimore County Local Management Board (FY2001-2005), the English Language Learners (ELL) program of the Baltimore County Public Schools (FY2005), the improvements in the Baltimore City Public School System (FY2008), and the Baltimore County Public Schools' master plan implementation (FY2008). Dr. Gordon Scott Bonham, the evaluator, earned his Ph.D. in sociology from the University of Michigan (Ann Arbor) in 1971, and has conducted applied health and social research and evaluation with the National Center for Health Statistics, the University of Louisville, and Towson University before establishing Bonham Research.

Matthew R. Peters, the director of ChesMRC, provides the overall coordination of the afterschool and parent programs, is the administrative link between ChesMRC and Bonham Research, and provided the data on parents. Carolyn Johnson, the Academic Coordinator for the afterschool program, is on the staff of the Talbot County Public Schools and provided the academic data for this evaluation. Melissa Meyers maintains the database for the program and provided the afterschool attendance data.

The ChesMRC incorporated research-proven aspects of other programs to develop a program to effectively reach out to the immigrant community through being culturally sensitive, being aware

of personal and family responsibilities, subsidizing the cost of participation, addressing language and communication barriers, and gaining the trust of parents. Additional academic assistance has been shown to improve reading scores for children of immigrants. However, school ELL programs often substitute English instruction for standard curriculum content, whereas afterschool English assistance can complement standard curriculum content. Additionally, the ChesMRC afterschool program is designed to involve parents in the educational process--parents who have low English skills, have completed an average of four years of schooling in their countries of origin, and may even be illiterate in their native language.

Goals and Objectives

The ChesMRC afterschool program at EES had two goals for educational improvement. One was for students and one was for parents. The student goal specified the desired academic performance at the end of the five-year 21st CCLC grant, with objectives specified for each of the first four years. Some benchmarks were also identified that should indicate progress toward reaching each year's objectives.

Student Goal: By June 2018 70% of program's first cohort, students that have participated for 5 consecutive years in the 21st CCLC program, who started at a Basic level will score Proficient /Advanced on the 5th grade reading and math assessments (MSA or PARCC) and 60% will score at Proficient or Advanced in the 5th grade science assessment. And 95% of the program's first cohort that started at Proficient/Advanced will remain at this level.

Student Objective 1--By June of 2014, 30% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math MSA.

Student Objective 2--By June of 2015, 40% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math PARCC.

Student Objective 3--By June of 2016, 50% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math PARCC.

Student Objective 4--By June of 2017, 60% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math PARCC.

Student Benchmark 1--Individual Reading Inventory score improves over previous administration (Sept. & May).

Student Benchmark 2--Houghton-Mifflin Aligned Theme Test score in reading improves over previous administration (Oct.&Dec.)

Student Benchmark 3--Quarterly report card grades improvement in January, March and June toward Bs or better in Reading, Math and Science.

Student Benchmark 4--Scores on teacher surveys improve over previous administration (Jan. & May).

Most of the parents (or adult caregivers) of students in the afterschool program did not have a good command of English which limited their ability to help their children with schoolwork. The program's goal for parents is improvement in their English skills by the end of the five-year grant, as well as attending sessions on how to help their children academically. The objectives for each year were essentially the same as the goal for the fifth year. Two benchmarks were specified that if met would be expected to result in meeting the year's objective.

Parent Goal: For every year of participation in the afterschool program, the English Proficiency level determined by guidelines developed by the Adult Education Department of Chesapeake College will increase by ONE level for 50% of the parents that do not have a proficient or advanced level of English. And 100% of the parents complete the 20-session Parent Literacy program developed by ChesMRC and partner organizations.

Parent Objective 1--By October 2013, 50% of parents at a basic level of English are enrolled into free, ESL classes provided by Chesapeake College or participating in ESL activities at the ChesMRC center.

Parent Objective 2--By September 2014, 50% of parents at a basic level of English are enrolled into free, ESL classes provided by Chesapeake College or participating in ESL activities at the ChesMRC center.

Parent Objective 3--By August 2015, 50% of parents at a basic level of English are enrolled into free, ESL classes provided by Chesapeake College or participating in ESL activities at the ChesMRC center.

Parent Benchmark 1--By September of each year, 100% of the parents sign commitments to participate in some form of adult education during the school year (i.e., ESL classes or training, participating in our Adult Literacy program, or choosing another adult educational program).

Parent Benchmark 2--By June of each year, parents have participated in at least 75% of the educational programming offered by ChesMRC, Chesapeake College, or another agency.

Program Plan and Expectations

The plan for the students' afterschool program involves two hours of math instruction and two hours of reading/language instruction per week. Certified teachers, mainly from within EES, implement several evidence-based curricula with the help of a dedicated group of community volunteers and staff from ChesMRC. The math curricula uses *Moving with Math's* extension series which has students using manipulatives in every lesson to develop conceptual understanding and improve achievement. The reading/language component consists of project-based learning built on Common Core Standards and *ARC* (American Reading Company) *Research Labs*. The reading curriculum's focus is on STEM (Science, Technology, Engineering, and Math) themes in earth, physical, and life sciences. The academic instruction period is linked to an enrichment component using hands-on extensions from the *ARC Research Lab* as well as including educational materials from *Delta Education Science Module*. Both of these are all correlated with the Common Core standards for the State of Maryland. Volunteers from a partnership with the 4H provide hands on activities that include nutrition and health, coupled with engineering using Lego Robotics. Additional reading enrichment is provided by Junior Achievement, which helps students develop financial literacy and important social skills. The ChesMRC afterschool program hosts a number of activities to help students develop important social skills. It promotes and assists students and families to enroll in additional youth development programs, such as the YMCA, the Boy Scouts of America, the Girl Scouts of America, 4H Club, Talbot Mentors, sports teams, music programs, and art programs. All of these programs, along with Character Counts, are expected to promote self-confidence and character development in the students.

The afterschool program operates for up to 109 days from mid-September to the Memorial Day holiday. It takes place Monday-Thursday at the EES Dobson building from the end of the school day at 3:45pm until 6:15pm. Group size for the instruction period is limited to 15 students for each certified teacher who is assisted by an enrichment program leader, volunteers, and ChesMRC staff. The program schedule concludes with 15 minutes of guided homework completion. Parents are required to pick up their children after the homework time so students and staff can show the parents completed homework tasks and explain the remaining assignments to be finished at home with parental guidance. This provides opportunity for program staff to inform parents about their children's progress overall and to share important school and community information.

The parents of students participating in the ChesMRC afterschool program are expected to commit to their own educational development. Parents can opt to enroll in free ESL classes (English as a Second Language), GED classes provided by Chesapeake College, adult literacy or academic development program provided by other social service providers, or work independently at the ChesMRC Resource Center with the *Skills Tutor* program. ChesMRC staff uses the *Parenting for Academic Success* curriculum that covers a diverse array of topics designed for parents who are non-native speakers of English, and which increases their ability to support the language and literacy development of their children. Parents are also required to volunteer at least one hour per month to help at the afterschool program.

Partnering with the ChesMRC are Easton Elementary School, Talbot County Public Schools, Chesapeake College, Salisbury University, Talbot County Judy Center, Talbot Partnership, Boy Scouts of America, University of Maryland Extension, Junior Achievement of Delmarva, Character Counts Mid-Shore, Talbot Family Network, Talbot Department of Health, and Maryland Food Bank.

Evaluation Data and Methods

The evaluation measures whether the program met its specific goals, objectives and benchmarks. In addition, the discussion addresses broader questions about the value of the program using all available data, not just the data that specifically relate to the goals and objectives. The following measures and tests were used for the evaluation:

Student characteristics:

- Gender;
- Grade: The level in school during the specific year;
- Cohort: The year the student began first grade;
- Ethnicity: Combines race and ethnicity categorized as African American, Asian, white-Hispanic, and white non-Hispanic. Students with multiple race and ethnicity designations are assigned to the group in the shown alphabetic order;
- FARM (Free and Reduced-price Meals): Participation in the program during any year as an indicator of low family income;
- ELL (English Language Learner): School defined services for students with extra need to learn English provided during any year in the program;
- SPED (Special Education): School defined services for students needing specialized help that were provided during any of the afterschool program years.

Student academic proficiency:

- Reading MSA (Maryland School Assessment) scale scores and proficiency levels for students in grade 3-5 are available from spring 2014;
- Science MSA (Maryland School Assessment) scale scores and proficiency level for students in grade 5 are available from spring 2015 and 2016: Basic (<391), Proficient (391-466), and Advance (467+);
- PARCC (Partnership for Assessment of Readiness for College and Careers) in English and Language Arts (PARCC ELA) and mathematics (PARCC math) are available for students in grades 3-5 in 2017: Level 1=did not yet meet expectations (650-699), Level 2=partially met expectations (700-724), Level 3=approached expectations (725-749), Level 4=met expectations (750-784), and Level 5=exceeded expectations (785-850);
- Reading/language arts and math final report card scores range from 50 to 100 for most years for students in all grades. However, in some years students in grades 1-2 received one of three classifications which for this report were assigned the following numeric values: Beginning=50, Developing=60 and Secure=70. Numeric scores qualified by “modifications” were treated the same as numeric scores without the qualification;

- Rigby Informal Reading Inventories (IRI) and math benchmarks in October and May are used to identify progress during the year for all students. The school uses the IRI for the reading benchmarks with scores ranging from 0 to 33. Although the IRI scores are basically ordinal, they are treated as interval measures for the analysis in this report. The math benchmark has scores ranging from 0 to 100, and are treated as interval scales for the analysis in this report.

English skills of parents:

- ESL (English as a Second Language) test levels of Low Beginner, High Beginner, Low Intermediate, High Intermediate, Low Advance, Advance, High Advance and Fluent are only available for parents in the years they took ESL classes;
- Parent involvement in Citizenship ESL is available for FY2016.

Student afterschool participation:

- The actual number of days attended during a year or over the four years combined are used in this report for calculation of means, correlations and regressions;
- Since “regular attenders” are defined by MSDE as attending 30 days or more per year, days attended during a year or over the four years are combined into 30-day categories.

Adult participation:

- The number of hours the mother and the father attended ESL classes are available for all four years;
- Involvement by a parent in Boy Scouts and Girl Scouts are available separately in FY2015 and FY2017, but combined in FY2016. Parent volunteering in Resource Center is available for FY2015-FY2017. Parental volunteering in soccer is available in FY2016-FY2017.

Statistical procedures and tests:

- Statistical processing and testing used GNU PSPP (statistical analysis software). Two-tailed tests of significance are used when the directions of relationships (positive or negative) are not assumed. For the hypothesis that attendance increases academic performance, a one-tail test is used. A probability of error of 5% or less ($p \leq .05$) is used for all tests of statistical significance;
- Relationships shown by cross-tabulating two nominal variables are tested with chi-square statistic when one of the variables has three or more categories, and with a percent t-test when both variables have two categories;
- Relationships of two ordinal or interval variables uses Pearson’s bivariate correlation to test for statistical significance;
- Multiple regression to test for the additional contribution of each interval (or dichotomous) independent variable in predicting an interval dependent variable measured as an interval or dichotomous measure according to a hypothesized cause and effect model. The F-statistic tests the significance of the overall model and the t-statistics tests for significance of each independent variables’ contribution. All variables with

- significant bivariate correlations with the dependent variables are initially included, and then excluded stepwise until all remaining variables have significant t-statistics;
- Path analysis is based on successive multiple regressions.

Findings

Student Enrollment

The ChesMRC afterschool program planned for 105 students in the first year, 120 in the second, and 135 in each of the following years. In the first year (FY2014) 135 students enrolled, as measured by attending at least one day during that year. In the second and third years, 140 students enrolled. In the most recent year (FY2017) 100 students enrolled. (See **Figure 1.**) A total of 297 students experienced the afterschool program during the first four years. Slightly over half (150 or 51%) enrolled during only one of the four years. About one-third (88 or 30%) enrolled in two years. About one-sixth (47 or 16%) enrolled in three years, and 4% enrolled in all four years. However, only students in the fourth and fifth grades in FY2007 could have attended afterschool all four years since younger children had been in elementary school for only one, two or three years. There is value in cross-sectional analysis of student characteristics in each of the fiscal years of the grant program. There is also value in longitudinal analysis of student involvement across fiscal years.

More girls participated in the afterschool program during its first four years than boys (57% and 43%). The percentages varied from year to year, and more boys than girls participated in FY2017. Girls were more likely than boys to participate for one or two years, whereas boys were more likely than girls to participate for three or four years. Of the 169 girls who ever attended, four (2%) attended all four years. Of the 128 boys who ever attended, eight (6%) attended all four years.

The program was designed for Hispanic students, and three-fourths (77%) of the students who attended during the four years were Hispanic. The next largest race-ethnic group was African American students (14%). Hispanic students constituted 72% of the students during the FY2016 afterschool program. That percent rose to 91% of the students in the FY2017 program. All (100%) of the students who attended all four years of the program were Hispanic.

Characteristic	Enrolled during				Ever Enrolled	Years enrolled			
	FY14 (135)	FY15 (140)	FY16 (140)	FY17 (100)		1 (150)	2 (88)	3 (47)	4 (12)
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
<i>Gender</i>									
Female	56%	61%	53%	43%	57%	61%	60%	45%	33%
Male	44%	39%	47%	57%	43%	39%	40%	55%	67%
<i>Race/Ethnicity</i>									
African American	11%	9%	19%	5%	14%	21%	7%	14%	0%
Asian	4%	0%	2%	1%	2%	3%	2%	0%	0%
Hispanic	80%	84%	72%	91%	77%	68%	85%	83%	100%
White, non-Hispanic	4%	6%	6%	3%	6%	7%	5%	6%	0%
Other, missing	1%	1%	1%	0%	1%	1%	1%	0%	0%
<i>Grade</i>									
First	30%	25%	19%	17%	24%	THIS SECTION BLANK			
Second	24%	24%	26%	15%	23%				
Third	16%	21%	21%	35%	22%				
Fourth	15%	19%	18%	19%	17%				
Fifth	16%	11%	16%	13%	13%				
Not recorded	--	--	--	1%	0%				
<i>Grade 1 Cohort</i>									
2016 (max. 2 years)	--	--	--	17%	6%	11%	--	--	--
2015 (max. 3 years)	--	--	19%	15%	10%	11%	14%	--	--
2014 (max. 4 years)	--	25%	26%	35%	20%	19%	19%	32%	--
2013 (max. 5 years)	30%	24%	21%	19%	20%	15%	20%	17%	83%
2012 (max. 4 years)	24%	21%	18%	13%	17%	12%	22%	26%	17%
2011 (max. 3 years)	16%	19%	16%	--	12%	8%	13%	26%	--
2010 (max. 2 years)	15%	11%	--	1%	8%	9%	13%	--	--
2009 (max. 1 year)	16%	--	--	--	7%	14%	--	--	--
<i>FARM^a</i>									
Yes	97%	97%	97%	95%	96%	93%	100%	98%	100%
No	3%	3%	3%	5%	4%	7%	0%	2%	0%
<i>ELL^a</i>									
Yes	86%	77%	64%	80%	68%	56%	78%	81%	83%
No	14%	23%	36%	20%	32%	44%	22%	19%	17%
<i>Special Ed^a</i>									
Yes	11%	11%	11%	7%	10%	6%	16%	13%	8%
No	89%	89%	89%	93%	90%	94%	84%	87%	92%

^a If so identified during any year they attended the afterschool program.

Figure 1. Student characteristics by enrollment

On average, about one-fourth of the students each year were in each of the lower school grades: 24% in first grade, 23% in second grade and 22% in third grade. The fewest in any year were in the fifth grade: 13% on average and only 11% in FY2015. Compared to all years and all grades, FY2017 had the smallest percent of students in the first grade (17%) and the largest percent in

the third grade (35%). Since generally the grade in school changes every year for each student, the grade during a program year is not very useful for longitudinal analysis. Therefore students were also identified by the year they began first grade, identified as the Grade 1 Cohort.

Forty-one first grade students attended the afterschool program during FY2014. (See **Figure 2.**) They were 30% of the afterschool students in FY2014 and the only students eligible to attend all five years of the grant program. They are identified as the 2013 first grade cohort, since they

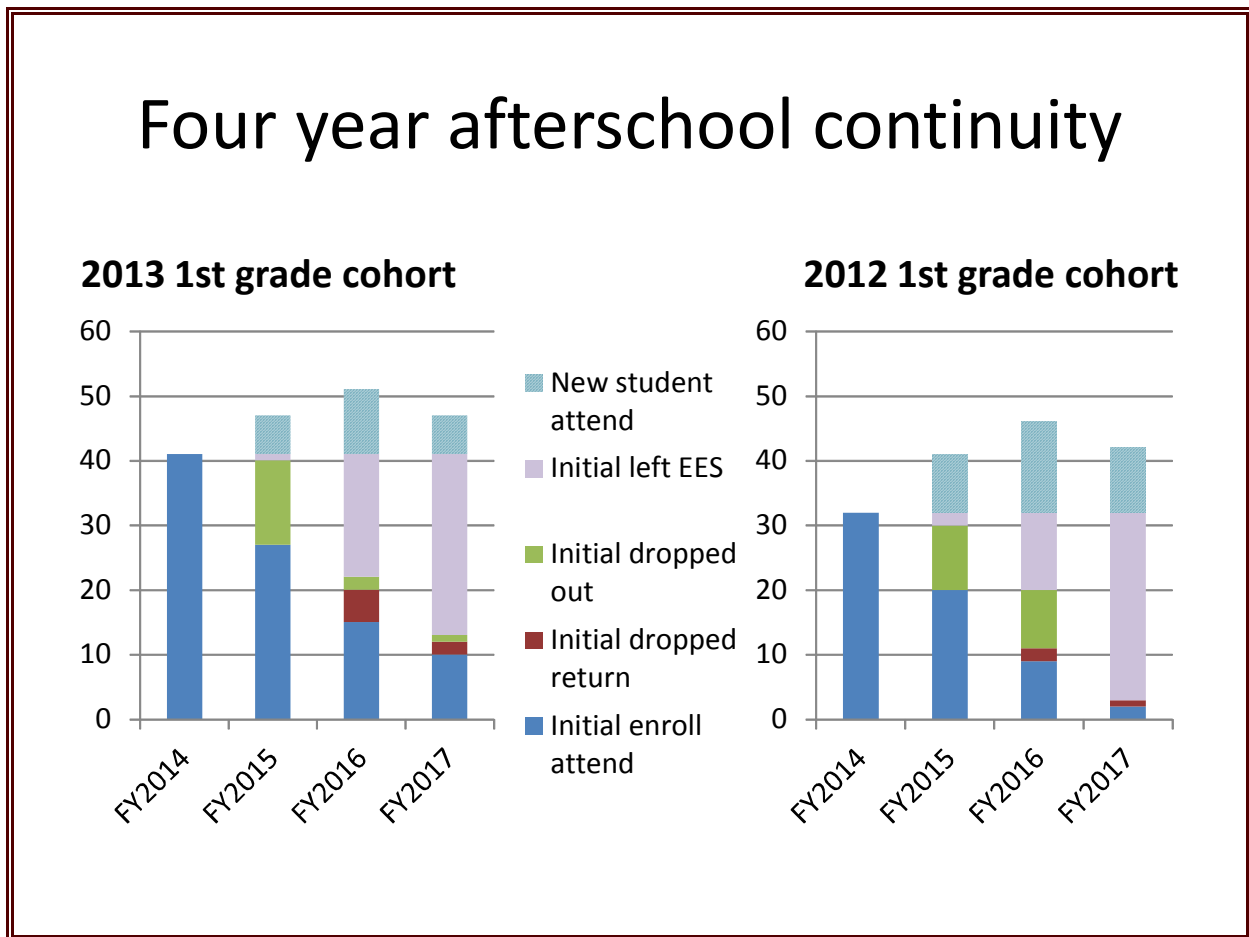


Figure 2. Four-year attendance continuity of students in the FY2014 afterschool program

began first grade in the fall of 2013, whether that first grade was at EES or elsewhere. Twenty-seven of these 41 students (66%) enrolled in and attended the afterschool program in FY2015 as second graders. Thirteen, however, did not attend afterschool in FY2015 even though they attended EES for their second grade. The other student did not attend EES in FY2015 and so would not have been able to attend the afterschool program even if desired. They were joined by six students who had not enrolled in the FY2014 afterschool program even though they had attended EES for their first grade. Almost half of the original group of 41 first grade student in FY2014 attended the FY2016 afterschool program during their third grade, 15 had attended continuously and five had dropped out for FY2015. Only two of that original group attended

EES for their third grade but not the afterschool program. The other 19 students did not attend EES for their third grade and so could not have been involved in the afterschool program. Of the original group of 41 first grade students in the FY2014 afterschool program, ten attended were in their fourth straight year of afterschool in FY2017, two others had missed one of the intervening years. Another one was still at EES for their fourth grade but did not attend afterschool, but most (28) of the initial afterschool attenders were no longer at EES. Six fourth grade students attended afterschool program since they had enrolled at EES, four who were new to EES in FY2017 and two who were new to EES in FY2016.

The only other cohort of students who could have attended the first four years of the grant were those in the 2012 first grade cohort, 32 of whom attended the afterschool program as second grade students in FY2014. Only two of these have attended all four years with one other attending three of the four years. None of the others was still at EES for their fifth grade. The FY2017 afterschool program had ten students who spent their first and second grades, and maybe their third and fourth grades, at schools other than EES. However, none of these children will be at EES and eligibles for the afterschool program in FY2018, the fifth year of the grant program.

The school provides three types of services to students which are included in this study since they have been found related to academic achievement. These can change for a student from year to year, but this analysis assumed that they changed little from year to year and students were classified by whether they received the services during any year of the grant. Almost all (96%) of the students in the afterschool program received Free and Reduced-priced Meals (FARM) through the school, an indicator of low family income.. This varied little from year to year, and all 12 of the students who attended afterschool during the first four years of the program received FARM during at least one (if not all four) of the years. For comparative purposes, 61% of all students at EES in fy2017 received FARM. Overall all the years, two-thirds (68%) of the afterschool students have received English Language Learner (ELL) services from the school, but 80% of the students in FY2017 received ELL compared with 15% of all EES students. Put another way, almost half of the ELL students at EES in FY2017 were in the afterschool program. During the four years, 10% of the afterschool students received Special Education (SPED) services from the school. This was slightly lower in FY2017 when only 7% received SPED, the same percentage as in EES as a whole. Neither of ELL or SPED student services had a significant relationship with students attending all four years of the afterschool program.

Student Attendance

The afterschool program operated for 105 days between September 12, 2016 and May 18, 2017. This compares with the 107 days in FY2016, 101 days in FY2015, and 99 days in FY2014. Attendance varied from day to day in all years, generally declining during the fall, and then increasing slightly in the spring. The FY2017 program started with 83 students on the first day, increased to 93 on the third day, and then generally declined to a low of 54 on February 16 and April 27. (See **Figure 3**.) The program ended with 73 students on the last day. The average

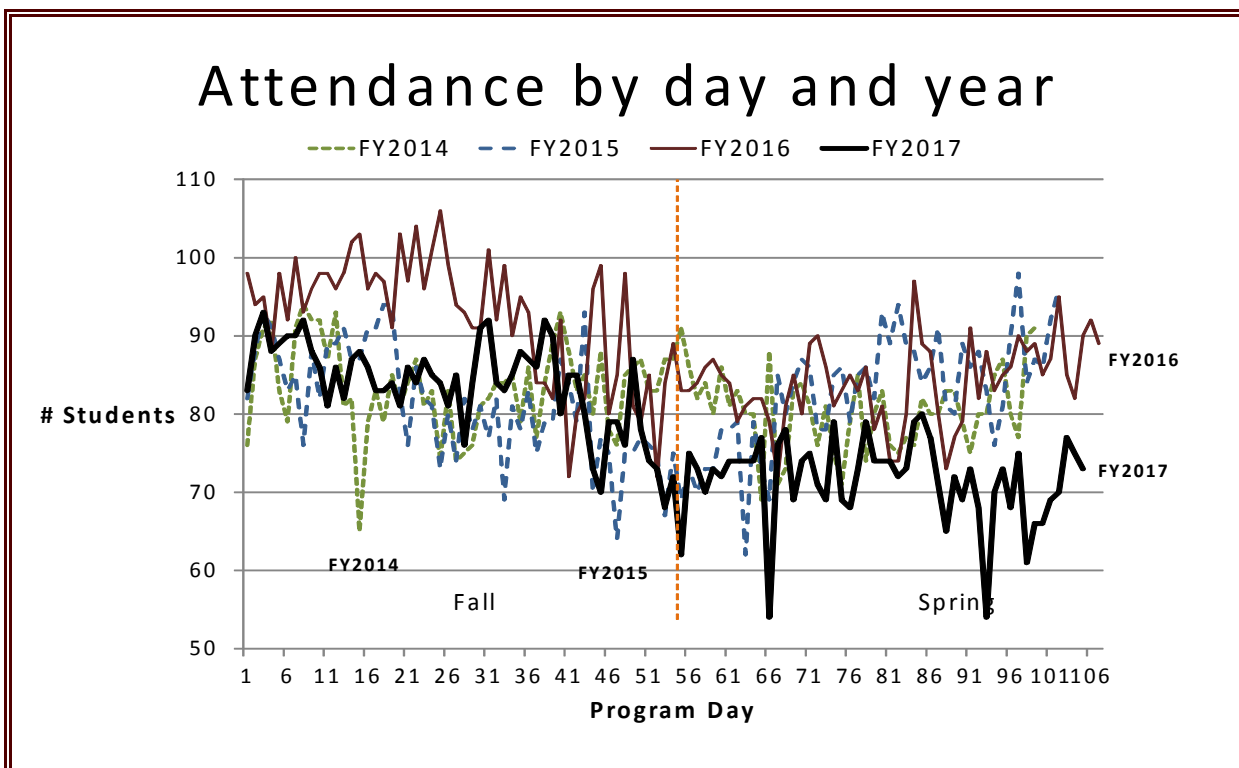


Figure 3. Number of students attending after school each program day, by fiscal year

daily attendance in FY2017 was 78 students. This was lower than the 88 average daily attendance in FY2016, 83 in FY2015, and 82 students in FY2014. The lower daily attendance in FY2017 reflects the lower number of students ever enrolled during the year.

Students attended an average of 72 days in FY2017, 7% higher than the FY2016 average of 67 days and 20% higher than the average 60 days in both FY2014 and FY2015. Only eight students attended fewer than 30 days, the minimum number of days MSDE requires for students to be counted as regular attenders.

The MSDE only counts students who attend 30 or more days of an afterschool program as “regular attenders.” The percent of the students who attended afterschool for less than 30 days declined with each year of the grant program,

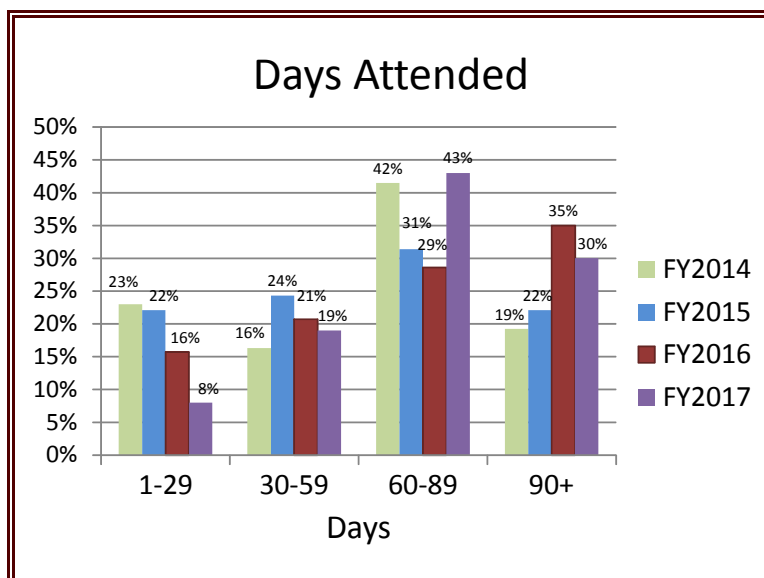
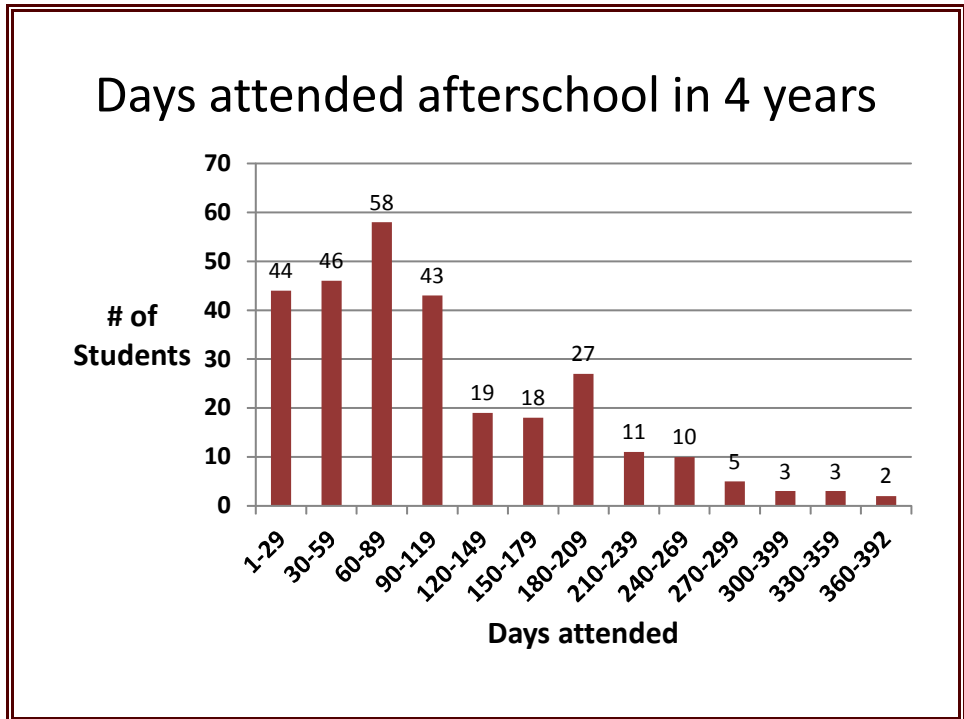


Figure 4. Percent attending afterschool by 30-day groups and fiscal year

from 23% in FY2014 to 8% in FY2017. (See **Figure 4.**) The percent attending 90 or more days increased each year with a slight exception for FY2016 when 35% of the students attended 90 or more days compared with 30% in FY2017.



The afterschool program operated for 412 days during the first four years of the grant program. The maximum any student attended was 392 days, or 95% of the time. Forty-four of the 297 students (15%) attended less than 30 days during the four years and would not be considered regular attenders. (See **Figure 5.**) The number attending each subsequent increment of 30 days increased to a peak at

Figure 5. Number of students by days attended afterschool in four years

60-89 days, less than the 103-day average of afterschool programming provided each year. The numbers in each subsequent 30-day interval continuously diminished with an exception at 180-209 days, about two full years of programming. Only two students attended 360 days or more.

Students receiving FARM attended the FY2017 afterschool program for an average of 74 days, significantly more than the 48 days attended by the few students who did not receive FARM. Grade level also affected afterschool attendance. Students who entered first grade in FY2017 attended 82 days on average decreasing with each successive cohort to an average of 61 days for fourth graders (first grade cohort of 2013). Fifth grade students, however, attended afterschool on 79 days, the second greatest average after first graders. The few white non-Hispanic and Asian students attended about half of the number of days on average than did Hispanic and African American students. Gender, ELL and SPED had no relationship with afterschool attendance.

The actual number of days a student attended may not be the best measure of participated in the afterschool program, since a first grade student in FY2017 could not have participation in more than 105 days and a fifth grade student in FY2014 could not have participated in more than 99 days. On average, students attended afterschool 40% of the days they were eligible to attend. The percent of possible days students could have attended during the first four years of the grant

shows that those eligible for only one year attended afterschool relatively more than those eligible for all of the first four years. (See **Figure 6.**) Students in the fifth grade in FY2014 (entered first grade in fall 2009) attended 51% of the 99 afterschool days they could have attended during that one year. Students who entered first grade in 2010 were in fourth grade in FY2014 and fifth grade in FY2015, and attended an

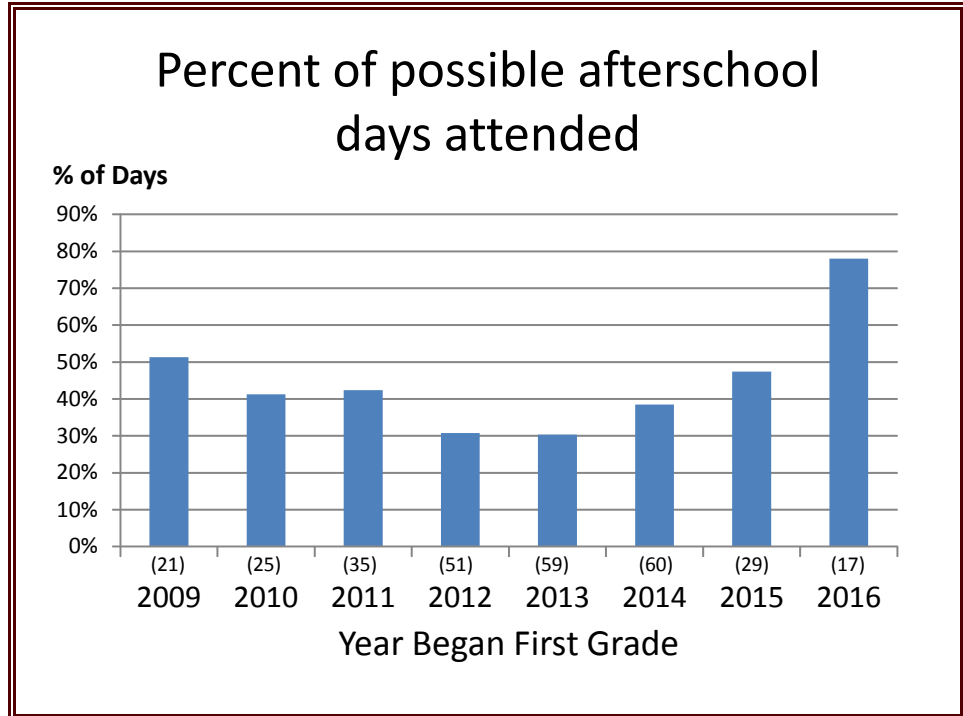


Figure 6. Percent of possible afterschool days students attended during the first four years, by the year they began first grade

average of 41% of the 201 days they could have attended. Students in the 2011 first grade cohort attended 42% of the 308 days of afterschool programming during their third, fourth and fifth grades. Students in the 2012 and 2013 first grade cohorts could have attended all four years (assuming they attended EES all four years) attended 30%-31% of the possible 413 days. First graders starting in the fall of 2016 attended 78% of the 105 afterschool days in FY2017.

Parental Involvement and English Improvement

Seventy-seven mothers and fifty-six fathers were identified for the 100 students in the FY2017 afterschool program. Three students did not have a mother identified and 35 did not have a father listed. Most of them had only one child in the afterschool program (79% of mothers and 84% of fathers), but thirteen mothers and nine fathers had two children attending afterschool. Two mothers had three children and one had four children, while no fathers were listed with more than two children in the FY2017 afterschool program. (See **Figure 7.**) More (42% of mothers and 48% of fathers) had their child, or oldest child, in the third grade than in any other grade. Most of the parents initially tested at the low beginner ESL level for their English ability (64% mothers and 72% fathers). Only one mother and one father (2% each) tested at the advanced ESL level. The majority of the mothers (60%) and fathers (66%) did not take ESL classes. The others took between 10 and 80 hours of ESL classes, with 40 being the most frequent number of hours for both mothers and fathers. The percent of mothers who took ESL classes in FY2017 (40%) was about the same as in FY2016 (38%), but the percent of fathers

who took ESL classes in FY2017 was significantly higher than in FY2016 (34% and 10%, $p < .01$).

The grade level of the oldest child was significantly related to the mother's level of English. All four (100%) of the mothers whose oldest child was in first graders tested at the low beginner ESL level compared with 78% of mothers whose oldest child was in second grade and 73% whose oldest child was in third grade. Less than half of the mothers with their oldest child in the fourth grade (47%) or fifth grade (25%) tested at the low beginner level. Overall, mothers' English abilities increased as their children advanced through elementary school ($r = 0.28$, $p = .03$). Mothers' initial lack of English was also related to their child, or all their children, being in ELL: 73% of mothers with low beginning ESL level had their children in ELL compared with 26% of mothers with greater English abilities. The fathers' English abilities had no relation to the grade level of the oldest child in afterschool, nor was there a relation to their children being in ELL. The fathers of boys, however, tended to have better English than the fathers of girls ($p = .08$).

Mothers and fathers who had low beginner English at the beginning of the year took slightly more hours of ESL classes than those with greater English abilities, bordering on statistical significance for fathers ($p = .08$).

Mothers' English abilities significantly increased when they took ESL classes. None of the three who took only 10 hours advanced a level, but two of those who took 20 hours advanced a level.

The one who took 30 hours advanced a level. At 40 hours, 80% advanced one level and 20%

<i>Characteristics</i>	<i>Mother</i>		<i>Father</i>	
	<i>#</i>	<i>%</i>	<i>#</i>	<i>%</i>
All mothers	77	100%	56	100%
<i>Children in afterschool</i>				
One	61	79%	47	84%
Two	13	16%	9	16%
Three	2	2%	--	--
Four	1	1%	--	--
<i>Grade of oldest child</i>				
First	5	7%	4	7%
Second	11	15%	8	15%
Third	31	42%	26	48%
Fourth	18	24%	9	17%
Fifth	9	12%	7	13%
Unknown	3	--	2	--
<i>Beginning ESL level</i>				
Low beginner	41	64%	31	72%
High beginner	10	16%	1	2%
Low intermediate	6	9%	7	16%
High intermediate	4	6%	2	7%
Low advanced	2	3%	1	2%
Advanced	1	2%	1	2%
Not tested	13	--	13	--
<i>ESL class hours</i>				
None	46	60%	37	66%
10	3	4%	1	2%
20	8	10%	6	11%
30	1	1%	--	--
40	15	19%	11	20%
60	3	4%	1	2%
80	1	1%	--	--
<i>Change in ESL level</i>				
No change	41	67%	26	60%
Increase 1 level	15	24%	16	37%
Increase 2 levels	6	8%	1	2%
Increase 3 levels	1	2%	--	--
Not tested	14	--	13	--

Figure 7. Parents' characteristics, FY2017

advanced two levels. All three who took 60 hours advanced two levels. The one mother who took 80 hours advanced three levels. On average, mothers advanced 0.043 levels for every hour of ESL classes they took ($R^2=.79$, $p<.001$). While 37% of fathers increased their English ability one level during the year, and 2% increased it two levels, there was no statistical relationship between the number of ESL hours they took and their increase in English abilities.

During the first four years of the program, 29% of the students had mothers that increased their English by one or more ESL levels. Only 18% of the students who attended the afterschool program during just one year had mothers who increased their English by a level or more. This compares to 43-45% of the students who attended afterschool for three or four years.

The afterschool program encourages parents to become involved as leaders and coaches in activities that included their children. Parents helped out in the Resource Center that provided books and online access to help students in both their homework and in afterschool activities. The Cub Scout program for boys and the Girl Scout program for girls are for students in all five grades. Scouts in the younger grades typically met during afterschool hours on Mondays, and the 4th and 5th graders on Tuesdays during every week of the afterschool program. The soccer program in the fall and spring was run by the YMCA. It had co-ed teams for ages 6-7 and 10-12, and separate girl and boy teams for ages 8-9. Soccer practice was on Thursdays during afterschool hours. Parent participation was essential for weekend soccer games and for scout fishing trips, camping, and community service.

The FY2017 program engaged parents of 64% of the students to be involved in the Resource Center. (See **Figure 8.**) While the Resource Center was not gender-specific, boys were more likely to have a parent involved than were girls (70% and 56%). This is possibly because a greater percentage of girls had parents involved in Girl Scouts (84%) than boys had in Cub Scouts (61%). Not as many parents were involved in soccer with their children, yet 44% of girls and 53% of boys had parents involved with them in soccer.

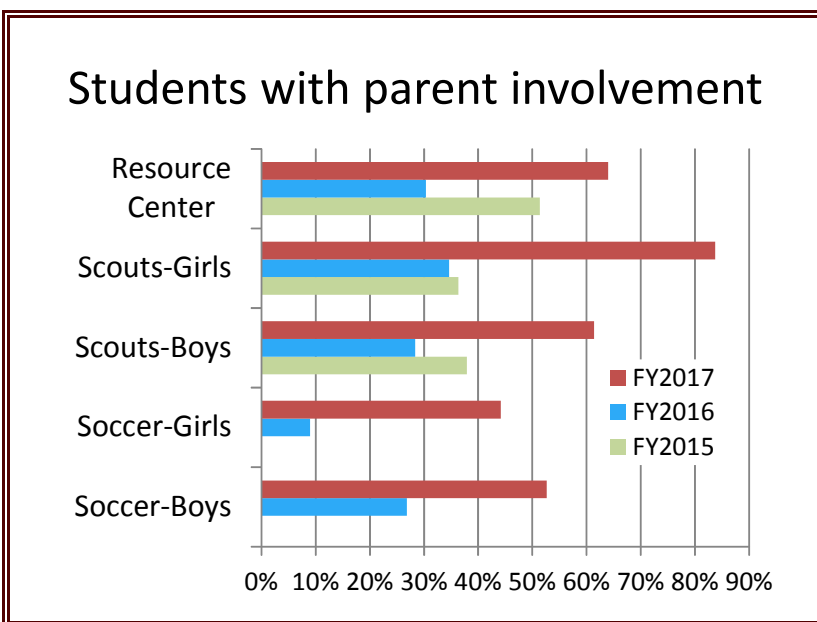


Figure 8, Percent of students with parent involvement, by activity and year

Parent involvement in the Resource Center and scouting was first recorded in FY2015. Soccer was added in FY2016. The FY2017 program was substantially more successful in getting parents involved in these three

types of activities with their children than in earlier years: 34% of the students had parents involved in all three of their activities; 28% had parents involved in two of them; and 26% in one. Only 12% of the students did not have a parent involved with them in any of the three activities. In contrast, only 7% of the students in FY2016 had parents involved in all three activities and half (49%) did not have parents involved in any. More parents were involved in FY2015 than FY2016, even though soccer was not offered; only one-third (34%) of parents in FY2015 were not involved in either activity. The greatest increases between FY2016 and FY2017 were the involvement of parents in their daughters' activities. Six out of seven girls (84%) had parents involved in Girl Scouts in FY2017 compared to one out of three (35%) the previous year. Close to one-half (44%) of the girls had parents involved in their soccer in FY2017 compared with less than one-tenth (9%) the previous year. For boys and the Resource Center, the percentages doubled between FY2016 and FY2017.

Parental involvement in their students' activities had significant effects on students attending the afterschool program in FY2017. All forms of parent involvement had bivariate correlation with attendance, but many parents were involved in multiple activities. Multiple regression (backward stepwise) revealed that the most significant involvement was in Girl Scouts and Cub Scouts. Parent involvement in these two activities nullified the effect of low family income (FARM) on attendance. Multiple regression, equation [1], explains one-third ($R^2=.33$) of the variation in student afterschool attendance in FY2017:

$$\text{Attendance} = 55.2 - 37.9 \text{ White_Asian} + 24.3 \text{ Cub_Scouts} + 28.6 \text{ Girl_Scouts} \quad [1]$$

Hispanic and African American students without parental involvement in either of the scouting programs attended 55.2 days on average. The few non-Hispanic White and Asian students without parental involvement attended an average of 17.3 days ($55.2-37.9$). When parents were involved in scouting, boys attended 24.3 more days and girls attended 28.6 more days. This pattern has been consistent since FY2015 when parental involvement in scouting increased afterschool attendance by 26 days for both boys and girls, although the smaller number of parents involved in scouting that year meant that only 19% of the variation in student attendance could be explained. In FY2016, parental involvement increased afterschool attendance by 21 days, but explained only 10% of the variation in student attendance.

Mothers' initial levels of English and number of ESL class hours had significant bivariate correlations with afterschool attendance, but added no independent explanation for afterschool attendance to that provided by parental involvement in scouting. Fathers' English levels and ESL class hours had no relationship to student afterschool attendance.

Student FY2017 Academic Outcomes

Maryland used its own Maryland School Assessment (MSA) in FY2014 to provide standardized assessment of student reading and math achievements in grades 3-5 and science in grade 5. In FY2015 it changed to the Partnership for Assessment of Readiness for College and Careers (PARCC) to assess English and language arts and math for students in grades 3-5. It retained the

MSA for science for students in grade 5, but the science MSA scores were not available for FY2017 at the time of this report. Final classroom grades each year are available for students in all five grades, as are reading and math benchmark scores taken by the students at the beginning of school each year to assess their incoming skill levels and what they needed to learn during the year.

Sixty-one of the 67 afterschool students in grades 3-5 took the English Language Arts PARCC assessments in the spring of 2017, and 65 took the Math PARCC. The PARCC results are divided into five performance levels that delineate the knowledge, skills, and practices that students are able to demonstrate. One-fifth (20%) of the afterschool students met expectations (Level 4) in English language arts (none “Exceeded expectations”--Level 5). (See **Figure 9**.) One-third (31%) did not meet expectation. Students performed better in math with 25% meeting expectations and 24% not meeting expectations. Percentages for Easton Elementary School and for all of Maryland are available on the Maryland Report Card. Afterschool students were about 16 percentage points behind other students at EES in meeting English and language arts expectations (20% vs 34+2%=36%), and 21 percentage points behind Maryland elementary students (20% vs 35+6%=41%). The difference in math was smaller, with afterschool students 10 percentage points behind all EES students in grades 3-5 (25% vs 30+5%=35%), and 14 percentage points behind all Maryland elementary students (25% vs 31+8%=39%).

Level	English PARCC			Math PARCC		
	After2017	EES2017	MD2017	After2017	EES2017	MD2016
<i>Number</i>	(61)	(516)	(202,992)	(65)	(523)	(203,875)
All	100%	100%	100%	100%	100%	100%
5-Exceeded expectations	0%	2%	6%	0%	5%	8%
4-Met expectations	20%	34%	35%	25%	30%	31%
3-Approached expectations	20%	25%	24%	17%	26%	26%
2-Partially met expectations	30%	21%	19%	33%	24%	22%
1-Did not meet expectations	31%	18%	16%	24%	15%	14%

Figure 9. PARCC achievement: 2016 afterschool; 2015 Easton Elementary and Maryland

The number of days students attended the afterschool program did not show a consistent relationship with PARCC achievement. One-fourth (25%) of the students who attended 90 or more days met Level 4 expectations in English, just a little higher than the 20% who attended fewer than 30 days. (See **Figure 10**.) On the math PARCC, two of the five students who attended less than 30 days met expectations and appear to do better than those who attended more days. However, with only five students in this category, a lower score by one of the two students would change this appearance greatly. It does appear that among those attending at least 30 days, the more days attended the more likely to meet math expectations, although this

still might not be statistically significant.

Students' FY2017 fall reading benchmark scores and spring final class reading grades were highly related to their 2017 PARCC ELA scores. A causal path model of what contributes to student achievement on the standardized PARCC assessment can be developed based upon the hypothesis that the final class grade reflects what the

student learned during the year beyond the skills they demonstrated at the fall benchmark assessment. **Figure 11** on the next page shows the path model with an increase of the variable at the tail of an arrow causing an increase in the variable at the head of the arrow when the arrow is solid and a decrease in the variable at the head when the arrow is dotted. The thickness of the arrow represents the statistical significance of the path, and the number on the arrow indicated the relative importance of the different paths. Students' 2017 initial reading assessment and final reading grades together explain over half of the variations among students in their scores on the 2017 PARCC ELA test ($R^2=.56$), and both path are likely to be seen less than 1 time out of 1,000 if that relationship did not exist. A one-point higher final reading grade predicts a 2.38 point higher PARCC ELA score. Yet even if they had the same final reading score, a student with a one-point higher fall reading benchmark score would be expected to score 2.14 points higher on the PARCC ELA score.

While the model shows no direct effect of the afterschool program on the English PARCC scores, the afterschool program had substantial indirect effect by increasing the scores on both students' fall reading assessments and final reading grades. The more days students attended the afterschool program in FY2017, the higher their final class reading grades above what their fall reading benchmark would predict. In addition, the more years the student attended the afterschool program, the higher the fall reading benchmark. The model does show a thin dotted arrow directly from years in afterschool to the final reading grade, but this has to be viewed in the larger context. Path coefficients can be multiplied together to approximate the importance of indirect paths compared to direct paths. The more years the students attended the afterschool

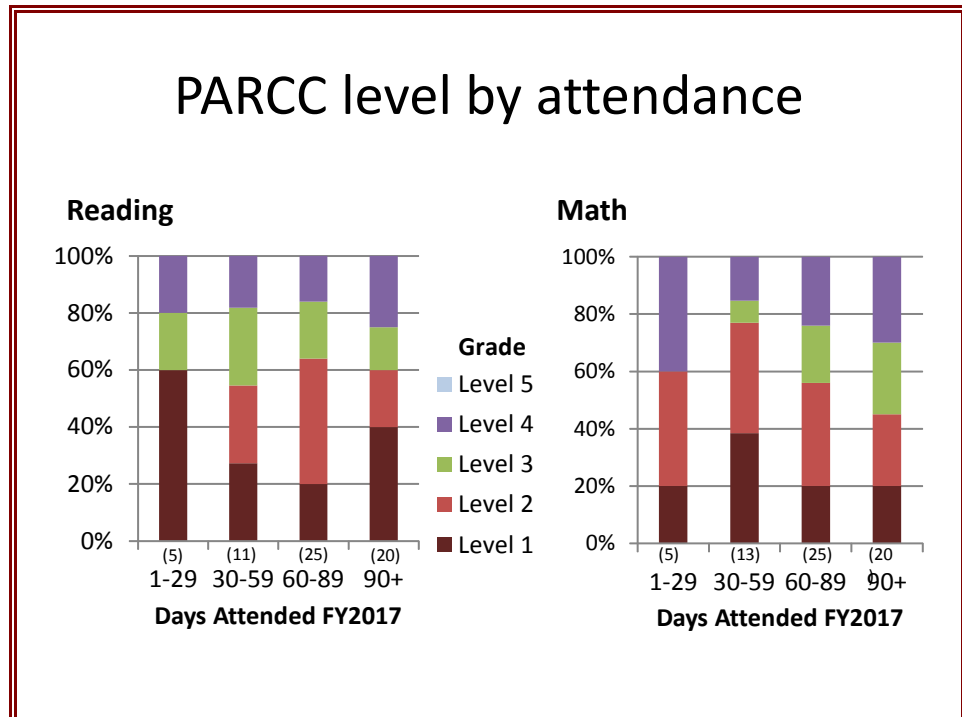


Figure 10. Percent at PARCC achievement level by afterschool attendance

What affects 2017 PARCC scores?

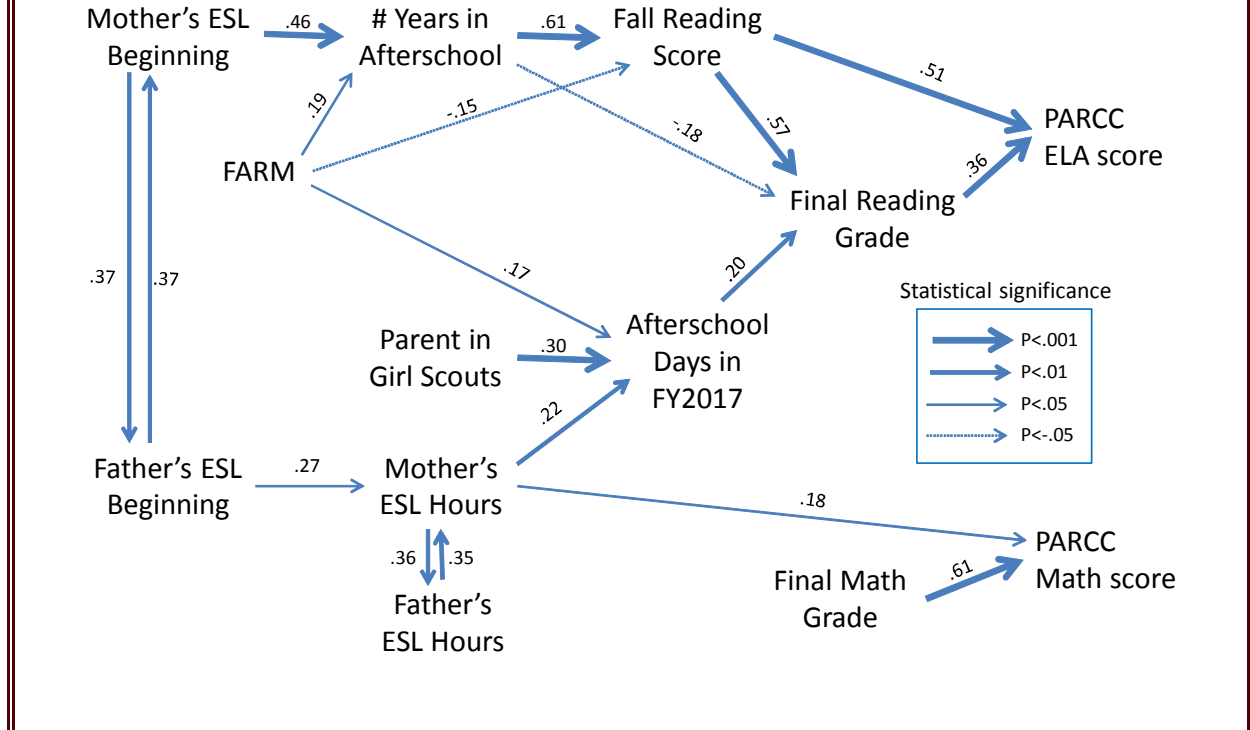


Figure 11. Path model of what affects PARCC scores directly and indirectly: FY2017

program, the higher their fall reading benchmarks, and the indirect effect of years in afterschool through the fall reading score ($0.61 \times 0.57 = 0.29$) is much larger than the negative direct effect (-0.18). In addition, the two-step indirect effect of years in afterschool on the PARCC scores ($0.61 \times 0.51 = 0.31$) is almost as large as the direct effect of the final reading grade (0.36). On top of this, there is a small three-step indirect effect of years in afterschool through final reading grade ($((0.61 \times 0.51) - 0.18) \times 0.36 = 0.04$). Both number of years attending afterschool and the number of days in the most recent year had significant effects on PARCC English scores, even though these effects were indirect.

Every day students attended the afterschool program added 0.06 points to the average reading grade of 75.15. Students who attended afterschool for 100 days in FY2017 would be expected to have reading grades averaging 81.15, an increase that would move them from a C to a B. Combining the direct and indirect effects, attending the afterschool program for all four years further increases this reading average to 88.26.

The path model goes further to show what contributes to afterschool attendance. Three variables had significant relationships with the number of days students attended the afterschool program

in FY2017: mothers' ESL class hours, parent involvement in Girl Scouts, and low family income as indicated by FARM. Every hour mothers spent in ESL classes increased the days their students attended afterschool by 0.24 days. Thus students were likely to attend 10 more afterschool days if their mothers took a typical 40-hour ESL class. Parent involvement in Girl Scouts increased afterschool attendance by 14 days. Less important relatively than the other two variables, students receiving FARM attended 20 more days than those with higher family incomes that had the same level of mother or parent involvement. Together, these three variables explain 16% of the variation in afterschool attendance.

Two variables explain one-fourth ($R^2=.27$) of the variation in the number of years attended afterschool. The higher the ESL level of the mother at the beginning of FY2017 (fall 2016), the more years the student attended afterschool. Additionally, students receiving FARM for one or more years, attended afterschool more frequently than did students not receiving FARM.

Moving further to the left, mothers' and fathers' ESL levels at the beginning of FY2017 were related, but no attempt was made to hypothesize causality since both were probably affected by factors not measured in this study. Mothers' and fathers' hours of ESL classes are also related and the model makes no attempt to distinguish which parent influences the other. What can be determined from the data is that the number of ESL hours a parent takes is not influenced by their own ESL level at the beginning of the year. The mother's ESL level at the beginning of the year affected neither her nor her husband taking classes, but did affect her children's attendance in afterschool. However, the higher the father's ESL level at the beginning of the year, the more hours of ESL classes the mother took during the year.

The major predictor of the math PARCC score in FY2017 was also the final classroom grade in 2017, with the final math grade by itself predicting more of the math PARCC ($R^2=.45$) than the final reading grade predicted the English PARCC ($R^2=.34$). The fall math benchmark was not available to be included in the model and including it might have show effects of afterschool attendance on final math grades. Unlike reading, however, one part of the ChesMRC afterschool program had a small direct effect on the math PARCC. The more hours of ESL classes a mother took, the higher the student scored on the math PARCC (R^2 increased to .45). Students whose mothers took a typical 40 hour ESL class scored an average of 12 points higher on the math PARCC. The regression equation is shown in equation [2]:

$$\text{Math PARCC score} = 454.75 + 3.22 \text{ final math grade} + 0.31 \text{ mother's ESL hours} \quad [2]$$

The path model shows that neither attendance in the FY2017 afterschool program, nor the number of years in afterschool had any effect of math achievement. However, fall math benchmark scores were not available for inclusion in the analysis, and the results might have been different if they had been included.

Comparison of Annual Outcomes

The above analysis is based only on FY2017 data, however comparisons with earlier years is instructive. In all four years of the grant, the most significant predictors

of afterschool students' English MSA or PARCC scores were their scores on the October IRI reading benchmarks and their final classroom grades in reading. (See **Figure 12.**) Thus in 2017, the 60 afterschool students who took the PARCC ELA test had an intercept (a theoretical zero on every variable) of 478.45 points. For every point they achieved on the reading fall benchmark test, they would be expected to score 2.27 points higher on the PARCC in the spring. Added to this, every point they achieved on their final classroom grade in reading would be expected to add 2.38 points to their PARCC scores. Both variables are highly significant in all four years, with a probability of error of less than 0.001. These two previous achievements in reading predict about half of the variations in the English PARCC test scores. In two of the years, FY2015 and FY2016, each day the students attended afterschool increased their expected scores by 0.2-0.3 points, statistically significant but not as important as demonstrated reading abilities. In the same two years, though, the number of years the student had attended afterschool (1 or 2 years in FY2015 and 1-3 years in FY2016) had a significant, but negative impact. One possible explanation is that students who learn more slowly are more likely to continue to the afterschool program. The fact that neither afterschool variable was significant in two of the years suggests caution in making too much of these two findings.

Fall math benchmark scores are available for about two-thirds of students in FY2014-FY2016, but not available for any students in FY2017. Math skills at the beginning of the year and the final classroom grades in math explained almost half of the

	<u>2014^a</u>	<u>2015^b</u>	<u>2016^b</u>	<u>2017^b</u>	
<i>Number of students</i>	55	22	68	60	
<i>R²</i>	.48	.70	.39	.54	
Intercept	79.93	452.74	503.82	478.45	
Reading fall benchmark	1.76 ^{***}	2.24 ^{***}	1.69 ^{***}	2.27 ^{***}	
Afterschool days in year	0.14	0.30 [*]	0.23 ^{**}	0.02	
Years in afterschool	na	-20.76 ^{**}	-6.97 ^{**}	-4.17	
Final reading grade in year	3.08 ^{***}	2.63 ^{**}	1.97 ^{***}	2.38 ^{***}	
	^a MSA	^b PARCC	* p=.10	** p=.05	*** p=.01

Figure 12. Multiple regression coefficients of standardized English test scores on afterschool attendance by students in that year

	<u>2014^a</u>	<u>2015^b</u>	<u>2016^b</u>	<u>2017^b</u>	
<i>Number of students</i>	56	24	62	62	
<i>R²</i>	.39	.49	.42	.42	
Intercept	93.85	536.45	581.42	478.45	
Math fall benchmark	1.25 ^{***}	1.76 ^{***}	0.84 ^{***}	na	
Afterschool days in year	0.10	-0.03	0.02	0.12	
Years in afterschool	na	-6.09	1.46	3.36	
Final math grade in year	2.90 ^{***}	1.73 ^{***}	1.42 ^{***}	3.34 ^{***}	
	^a MSA	^b PARCC	* p=.10	** p=.05	*** p=.01

Figure 13. Multiple regression coefficients of standardized math test scores on afterschool attendance by students in that year

variability among the students on the standardized math MSA or PARCC. (See **Figure 13.**) In all four years, Math MSA and PARCC scores appeared to be unaffected by afterschool attendance during the year and the number of years the student had attended the afterschool program.

Multiple Year Academic Outcomes

The three previous figures and their analysis involved only students attending the afterschool program during the specific year being analyzed. However, they suggest that the cumulative days students attended afterschool over the years might have a cumulative effect on academic achievement. However, measuring cumulative effect is complicated by fact that only some children could have been in the afterschool program for all of the first three years (grades 1-3 in FY2014) or all of the first four years (grades 1-2 in FY2014) of the program. In this section, the percent of the days the student could have attended the afterschool program while in elementary school is used as the measure of afterschool attendance. The benchmark assessment given in the fall at the student first attended EES is used as a control for the academic aptitude or skill the student had before the were, or could have been, affected by the afterschool program. A first fall IRI reading benchmark is available for 99% of the students, while a first fall math benchmark is available for only 65%. The students’ first fall IRI reading assessment significantly predicted their achievements on both the 2016 and 2017 English PARCC 1-3 years later (2016 PARCC) and 1-4 years later (2017 PARCC). (See **Figure 14.**) The percent of the possible days the students attended the afterschool program had no statistical effect on English PARCC scores. Over half (56%) of the parents participated in activities with their children in during FY2015-FY2017 (all were assumed to have not participated in FY2014 when activities were not

	PARCC 2016		PARCC 2017		Final Grade 2017	
	<u>ELA</u>	<u>Math</u>	<u>ELA</u>	<u>Math</u>	<u>Read</u>	<u>Math</u>
<i>Number of students</i>	68	70	52	64	94	78
<i>R2</i>	.34	.10	.23	.07	.15	.05
Intercept	675	717	696	715	78	79
% possible afterschool days	--	--	--	--	0.06***	--
First fall benchmark	1.64***	--	1.39***	--	0.29***	--
Mother 1 st ESL level	--	--	6.04**	--	--	1.07**
Mother ESL hours	--	0.20**	--	0.24**	--	--
Number parent activities	4.91***	--	--	--	--	--
** p=.05 *** p=.01						

Figure 14. Multiple regression coefficients of academic achievement on cumulative student and parent characteristics

recorded). Each additional activity in which the parents participated during FY2015 and FY2016 significantly increased their students’ 2016 English PARCC scores by about five points. On the 2017 English PARCC, it was the mothers’ first measured level of English (available for

78% of the students) that affected students' achievement. Each higher ESL level of mothers at the time of their first ESL test resulted in the students scoring six-point higher on the English PARCC. Like the 2017 English PARCC, the 2017 final reading grade was also affected by the students' initial reading aptitude as measured by their first fall IRI reading assessments. However, mothers' initial level of English did not directly affect students' reading grades independent of students' initial reading aptitude and their afterschool attendance, but probably had effect indirectly similar to the manner shown in **Figure 11**. Every percentage-point increase in the percent of the time students attended afterschool while they were at EES directly increased their final reading grade by 0.06 points.

Students' initial fall math benchmark assessment at EES had no relationship with students' 2016 and 2017 math PARCC scores nor with their 2017 math final grades, at least for those who had received a fall math assessment. Only the English status of mothers appear to affect student math achievements. On both the 2016 and 2017 math PARCC, the more hours mothers spend in ESL classes during the three or four years of the program, the higher their students scored on the math PARCC. While two-thirds of the mothers had taken no ESL classes during the three or four years, the other third had taken 5-173 hours of classes. Every hour of ESL classes mothers took was associated with 0.20 (2016) or 0.24 (2017) more points their students scored on the math PARCC. Thus mothers who had taken 100 hours of ESL classes had students who scored, on the average, 20-24 points higher on the math PARCCs than did mothers who had taken no ESL classes. As reference, 50 point are the differences between levels 1 and 2, 25 points between levels 2 and 3, and 25 points between levels 3 and 4. For students' final 2017 grades in math, only their mothers' beginning English abilities had any predictive value, and it explained 5% of the variation among students in their scores.

Discussion

Meeting Goals and Objectives

***Student Goal:** By June 2018 70% of program's first cohort, students that have participated for 5 consecutive years in the 21st CCLC program, who started at a Basic level will score Proficient /Advanced on the 5th grade reading and math assessments (MSA or PARCC) and 60% will score at Proficient or Advanced in the 5th grade science assessment. And 95% of the programs first cohort that started at Proficient/Advanced will remain at this level.*

Student Year 1 Objective:** By June of 2014, 30% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math MSA. –**Achieved.

Student Year 2 Objective:** By June of 2015, 40% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math PARCC. –**Possibly achieved.

Student Year 3 Objective: By June of 2016, 50% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math PARCC.– **Not achieved**

Student Year 4 Objective: By June of 2017, 60% of the students that have participated in the 21st CCLC program and began at a Basic level will score at Proficient/Advanced on the reading and math PARCC.– **Not achieved.**

- PARCC scores are interpreted into five levels rather than the three categories of the MSA. Level 4 (met expectations) and Level 5 (exceeded expectations) are assumed to be the approximations of Proficient and Advanced;
- In English, 20% of afterschool students achieved Levels 4 or 5 in 2017, an improvement over the 7% in 2016, but lower than the 36% of 2016 EES students and 39% of 2016 Maryland students in grades 3-5. Three-fourths of the students improved between 2016 and 2017, with half improving by 25 or more points that would move them up at least one level;
- In math, 25% of afterschool students achieved Levels 4 or 5 in 2017, an improvement over the 10% in 2016, but lower than the 39% of 2016 EES students and 32% of 2016 Maryland students in grades 3-5. Two-thirds of the students improved their math PARCC scores between 2016 and 2017. The average improvement was 6 points, but 10% improved 25 or more points that would move them up a level.

Parent Goal: For every year of participation in the afterschool program, the English Proficiency level determined by guidelines developed by the Adult Education Department of Chesapeake College will increase by ONE level for 50% of the parents that do not have a proficient or advanced level of English. And 100% of the parents complete the 20-session Parent Literacy program developed by ChesMRC and partner organizations.

Parent Year One Objective –Not Achieved.

Parent Year Two Objective– Not Achieved.

Parent Year Three Objective– Not Achieved.

Parent Year Four Objective– Not Achieved.

- 73% of the students in FY2017, and 78% of those attending in any year, had mothers who had their English level ESL tested;
- 61% of the students had mothers who tested at the low beginner level;

- 29% of the students ever in afterschool had mothers who increased their English 1-5 levels between the first and last ESL testing; this increase ranged from 18% of mothers whose students attended only one year to 45% of mothers whose students attended afterschool all four years;
- Information on participation in the Parent Literacy program was not available.

Evaluation Questions and Answers

1. Does the afterschool program improve academic proficiency for FARM students and minority subgroups within FARM?
 - a. Do students in the afterschool program perform better after participating in the program than before they participated?
 - **Yes in FY2014** – on MSA scores controlling for quarter 1 benchmarks;
 - **Yes in FY2015** – on classroom grades and improvements between first and last benchmark scores;
 - **Possibly in FY2016** – English PARCC scores were higher than expected based on the fall reading benchmark, but not based on the combination of reading and math fall benchmarks.
 - **Indirectly in FY2017** – The more frequently students attended afterschool, both during FY2017 and during the four years of the program, the higher their reading classroom grade. Reading grades significantly predicted PARCC ELA scores. Afterschool attendance did not have any effect on PARCC math achievement.
 - b. Do students who participate regularly in the afterschool program, both during a year and across years, perform better academically compared with students who participate irregularly and students eligible for the program who did not participate at all?
 - **Yes in FY2014** – when controlled for baseline academic performance;
 - **Yes in FY2015** – and for the first two years of the program on some measures;
 - **No in FY2016** – and for the first three cumulative years of the program on all measures;

- **Yes in FY2017** for reading but not directly for math; mother's hours of ESL classes were the main contributors to students' math achievements.
 - Academic performance for FARM and non-FARM students not enrolled in afterschool is unavailable for comparison, but 95% of the students in the afterschool program received FARM compared to 61% of all EES students.
- c. Does participation in the afterschool program help FARM and minority subgroups come closer to the academic performance of other students in the school?
- 95% or more of the afterschool students attending during a year received FARM, but 100% of those who attended all four years received FARM. FARM students did slightly less well on fall reading assessments, but their greater afterschool attendance eliminated this deficit.
 - No significant differences were found in academic achievement among afterschool students of different genders, races, ethnicities, and receipt of ELL and SPED services in any year or across years.
 - Data are not available for other students in the school for comparison, but almost half of all ELL students at EES were in the afterschool program.
2. Does the program help parents/caregivers with limited English to improve their English skills and thus help their children academically?
- a. Do parents/caregivers with children in the program improve their English skills?
- **Yes in FY2014** – for one-third of the parents with limited English who took ESL classes;
 - **Yes in FY2015** – for the one-half of the mothers with limited English who took 15 or more hours of ESL classes;
 - **Yes in FY2016** – During the first three years, the more hours mothers spent in ESL classes helped their students in math, and the more parents were involved in afterschool activities with the students, the better students did in English;
 - **Yes and No in FY2017 and during the four years** – The more hours mothers spent in ESL classes, the higher their students' math achievement but not their English achievement. The involvement of mothers in ESL

classes and in Girl Scouts increased afterschool attendance and thus indirectly increased academic performance.

b. Do parents/caregivers who participate regularly in adult literacy programs, both during a year and across years, improve their English skills more than those who participate irregularly or not at all

- **Yes in FY2014** – the more hours in ESL classes, the greater the improvement;
- **Yes in FY2015** – all who participated in 15 or more hours of ESL classes improved their English skills by one level;
- **No in FY2016** – there was improvement, but it was unrelated to the number of ESL class hours.
- **Yes in FY2017** – Mothers advanced 0.043 levels for every hour spent in ESL classes; fathers' improvements in English were unrelated to their number of hours.

c. Does improvement in English skills of parents/caregivers boost their children's academic proficiency?

- **Maybe in FY2014** – ESL classes correlated with school attendance;
- **No in FY2015** – mothers' English ability and changes in it were not directly related to their students' academic proficiency;
- **Yes in FY2016** – mothers' hours of ESL class significantly increased students' math PARCC scores beyond expectations based on fall math benchmarks;
- **Yes in FY2017** – mothers' hours of ESL classes increased students' math scores and grades, but mothers' increase in ESL levels did not relate to student increases in students' academic proficiency.

3. Does the program provide academic support in such a way that students and families want to participate year after year?

a. Does the program meet and maintain its enrollment targets?

- **Yes in first 3 years** – the program enrolled about the same number of students each year;

- **No in FY2017** – enrollment dropped 30%.
- b. Do most students attend the program regularly throughout the year?
- **Yes in all years** – although attendance varies from day to day, it generally decreased during the fall and then increased during the later winter and spring. The number of program days increased from FY2014 to FY2016 and declined slightly in FY2017, and this was responsible for some of the increase in the average number of days students attended.
- c. Do most students who enrolled in one year return to the program the following year?
- **Yes in FY2015**– 73% of afterschool students who returned to EES returned to the afterschool program;
 - **Yes in FY2016** – 53% of afterschool students who returned to EES returned to the afterschool program;
 - **No in FY2017** – 46% of afterschool students who returned to EES returned to the afterschool.
- d. Do students and parents/caregivers say they like the afterschool program?
- Data are not available, but 69% of the families in FY2015, 53% in FY2016, and 88% in FY2017 had parental involvement with their students in components of the afterschool program.
- e. Do parents with limited English attend programs to improve their English?
- **No in FY2014** – only one-fourth of the parents with limited English attended ESL classes
 - **Yes in FY2015 and FY2016** – half of the mothers with limited English took ESL classes, and 84% who initially tested at high beginner or above also took ESL classes.
 - **Partially in FY2017** – 83% of mothers took tests to determine their levels of English, and half of these took ESL classes. However, only one-fourth of those testing at the low beginner level took ESL classes.

The ChesMRC afterschool program has demonstrated its ability to help elementary school students from low income, and Spanish-speaking families become more successful academically.

However, the program has not met the specific objectives stated when the program was planned and funded nor can it provide positive answers to all the evaluation questions the evaluator initially proposed. There are three main reasons:

1. The goals and objectives were set unreasonably high. The student goal was for 60% of them to achieve proficient or advanced levels on the standardized test adopted by the Maryland State Department of Education (MSDE). While it recognized that MSDE was changing from the Maryland School Assessment (MSA) to the Partnership for Assessment of Readiness for College and Careers (PARCC), that goal could not anticipate what the change would mean. A goal that 60% of students from low income families that speak Spanish in the home would academic proficiency in science after five years in the afterschool program is unreasonable when only a third of all students in Maryland elementary schools students can meet expectations in English and math. It was probably also unreasonable to expect that half of all parents with young children in low income families with little knowledge of English or the culture will have the necessary time and inclination to take English classes offered by the local college during each year they have children in the afterschool program.
2. The tests used to measure aptitude and achievement changed and apply to too few students for any meaningful evaluation. The primary tests of academic achievement in English and math changed from the MSA at the time the program began to the PARCC during the FY2015. The MSA had three levels: basic, proficient and advanced. The PARCC has five levels. This evaluation has assumed that the MSA proficient and advanced levels correspond to the PARCC level 4 and level 5, but this is unlikely to reflect reality. Further, the MSA assessment used to measure science proficiency is given only to students in grade five and less than one-fifth of the students in the afterschool program in any year are in grade five. Since the goal involved the cumulative effect over five years of afterschool programming, the measure applies to only one group of afterschool students, those who started the afterschool program as first graders in FY2014. This group includes only ten students in year four, and not all may be at EES or want to participate in year five of the program.
3. Data collection focused on easily accessible information that could suggest program changes along the way rather than being tailored strictly for evaluative purposes. The goal requires comparing test results after five years with test results at the beginning of the first year. However, neither the MSA nor the PARCC tests are given to first graders as they enter school. The baseline measures of academic ability or aptitude used in this evaluation are the fall benchmark assessments used by the school to help teachers adapt their teaching plans to the needs of the individual students. How well the metrics of these assessment scores relate to the metrics of the MSAs and PARCCs scores have not

been investigated, only that they seem to have some linear correlation. Further, the earliest fall assessment to measure prior academic knowledge and abilities is from FY2014, or the first year the student attended EES if not enrolled at EES in FY2014. Therefore, this baseline measure may measure the students' knowledge or abilities at the beginning of their first, second, third, fourth, or fifth year in elementary school. Final classroom grades in reading and math are also used for the evaluation, and this evaluation assumes a linear relationship between final grades of 60% to 100% with PARCC scores of 650 to 850. Finally, the parent goal includes a program component that was not implemented (or measured), and does not include parental involvements that were planned and started after the program began.

Recommendations

Academic improvement takes time and the focus of the grant is to improve students' academic performance over their five years in elementary school. The afterschool program can only affect student performance to the extent that students are involved with the program. The program also recognizes the importance of parents to the academic performance of their students. To be able to evaluate the effectiveness of the program, appropriate data need to be collected for the five years of the program. The evaluator makes four recommendations for the final year of the grant program:

Recommendation 1. Continue to recruit as many of the students who attended in prior years students as possible for the final grant year, particularly those rising to the fifth grade.

Recommendation 2. Continue to encourage parents, particularly mothers, to take ESL classes to improve their own English abilities and their children's math abilities.

Recommendation 3. Continue to engage and encourage parents to be involved in the resource center, scouts and soccer as this appears to contribute to both afterschool attendance and to academic achievement.

Recommendation 4. Focus on collecting the following key data for the final year evaluation:

- A. The EES enrolment status of every student who was at EES in the 2016-2017 school year and participated in the afterschool program in any year;*
- B. The 2018 PARCC test scores for every student at EES who participated in the afterschool program in any year;*
- C. The earliest fall IRI reading and math benchmark scores for all FY2018 afterschool students in the first and second grades, and any students in the other grades enrolling in afterschool for the first time;*

- D. *Attendance by day and total attendance for every student participating in the FY2018 afterschool program;*
- E. *FY2018 beginning and ending ESL test levels for as many mothers and fathers as possible of students new to the afterschool program in FY2018; ending ESL test results for as many of the mothers and fathers of students continuing in afterschool in FY2018; and ESL class hours for mothers and fathers of all students in afterschool in FY2018.*
- F. *Involvement of parents of FY2018 afterschool students in the resource center, scouts, and soccer so that the significant effects of parental involvement on afterschool attendance and academic performance can be further investigated.*