Chesapeake Multicultural Resource Center (ChesMRC) Afterschool Initiative FY2014-FY2018: Final Evaluation

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

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Executive Summary

Overview

The Hispanic population is growing at a quicker rate in Talbot County than the rest of Maryland, and no special program 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 (ChesMRC) initiated an afterschool program in September 2012 and was awarded a five-year 21st Century Community Learning Center grant by the Maryland State Department of Education (MSDE) beginning in September 2013 (FY2014). This report presents the final evaluation of the afterschool program during the five years of the grant. This report also provides additional data on the fifth year of the program comparable to the interim reports for the prior years.

Student Program

The ChesMRC afterschool program met for 518 days between September 2013 and May 2018 (FY2014-FY2018). (See **Chart.**) It met for as few as 99 days in school year 2013-2014 and as many as 107 days in school year 2015-2016. The program expected to grow from an enrollment of 105 Easton Elementary School

(EES) students in the first year to 135 students in the third-fifth years. It surpassed the target enrollment during the first three years but failed to achieve the target enrollment in the last two years. A total of 341 students experienced the afterschool program during at least one of the five years:

- 50% attended one year;
- 27% attended two years;
- 16% attended three years;
- 6% attended four years;
- 1% attended five years.

Program characteristics

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%
2017-2018	106	102	68	36%
5 years	518	341	77	52%

The program reached its peak

attendance during school year 2015-2016 with an average daily attendance of 88 students. It had its lowest average attendance during school year 2017-2018, although that year had the highest percent of students who attended 90 or more days (36%). During the five years, 52% attended 90 or more days.

Over half (56%) of the afterschool students were girls, 77% were Hispanic, 96% received free and reduced-price meals (FARM), 66% received English Language Learner (ELL) services, and

9% received special education (SPED) services. First grade students comprised 30% of the participants in the first year but only 16% in the fifth year. Fourth grade students increased from 15% the first year to 32% in the fifth year. The largest cohort (19%) of students to experience afterschool programming under the grant were in the second grade during the first year of the program in FY2014, but only had four years in which they could have experience the program. The next largest cohort (18%) were in the first grade in FY2014 and could have experience the program for all five years, although only four students participated for five years.



Daily attendance generally peaked by the end of the first week at about 90 students and then declined throughout the fall. It reached a low of about 70 students in late winter or early spring, and then rebounded to between 75 and 80 students during the rest of the spring. Fifty students attended fewer than 30 days during the five years and over half attended less than 120 days. (See Chart.) Only 23 students attended more than half of the 518 days the program operated during the five years with one attending 90% of the days.

Parent Involvement

The afterschool program encouraged parents to become involved with their children in afterschool activities. These included the resource center and scouts since FY2015 when the program started keeping records, with soccer starting in FY2016. More than half of the students had parents engaged with the program in each of the years with records, reaching a high of 88% in FY2017.

The mothers' levels of English were assessed for 75% of the students, and their fathers' English for 44%. Two-thirds of the mothers and two-fifths of the fathers at their initially assessments were at a low beginner level of English. By the last time they were assessed, 26% of these mothers and 13% of these fathers had advanced to at least the high beginner level. Twice as many mothers as fathers took ESL classes, with mothers averaging 54 hours and father 47 hours. Low beginner mothers who took 100 hours of ESL classes increased about two and one-half ESL levels on average, while those who took no ESL classes improved only one-twelfth of a level.

Academic Outcomes



Students in grades three, four and five took the PARCC English/language arts (ELA) and math assessments beginning in 2016. In 2016, 7% of the afterschool students met or exceeded expectations in ELA and 10% met or exceeded expectations in math. By 2018, these percentages had increased to 21% and 23% (**chart**). However, this is substantially below the 40% of EES students who met ELA expectations and the 35% of EES students who met math expectations. The initial goal that 70% of the students would achieve proficiency on

the MSA reading and math assessments then being used does not appear to have been met. Yet the initial goal recognized that meeting the goals would be affected by where the students started and how consistently they participated in the afterschool program.



Four components of the afterschool program primarily affected students' PARCC Math scores: the number of days the students attended the FY2018 afterschool program, the number of prior years they attended, the number of hours mothers spent in ESL classes, and parents engaged with them in FY2018 afterschool activities of scouts, soccer and the resource center. (See chart.) Parental engagement had a significant direct effect to increase students' PARCC Math scores by 17 points. The number of prior

years that students attended afterschool increased the cumulative number of hours mothers spent in ESL classes, which in turn increases students' math grades. The 2018 PARCC scores in both ELA and Math were significantly related to the students' 2018 classroom grade in math and by their mothers' initial English skills. The ELA PARCC scores were independently affected by the students' reading skills at first assessment.

Many students experienced afterschool programming but did not re-enroll in FY218. The PARCC scores for those still at EES were higher for those with higher classroom grades, just as



they were for those enrolled in the FY2018 afterschool program. (See **chart**). Their prior afterschool experience increased their classroom math grades, and indirectly increased their PARCC scores.

Discussion

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

academically. The program may not have met the specific objectives envisioned when the program was planned and funded for 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 applied to too few students for robust evaluation; and 3) data collection focused on easily accessible information that could suggest program changes along the way rather than being tailored strictly for outcome evaluation purposes.

The evaluator is convinced that the program improves students' academic abilities and makes the following recommendations:

- 1. The ChesMRC afterschool program be continued in much the same format as has demonstrated success during the past five years.
- 2. Engage students as early in their elementary school years as possible and encourage their families to keep them in the afterschool program year after year.
- 3. Extend afterschool opportunities into the middle school years when possible, but at least assess the effect elementary afterschool programs have on middle school achievements.
- 4. Continue to collect and evaluate data about the afterschool attendance of students, the participation of their parents in afterschool activities and ESL classes, and students' scores on academic assessments, but augmented with academic data from both before and after students are attending the program.

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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 with low family incomes. 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 fifth year of the grant program, school year 2017-2018 (FY2018). Earlier reports provided detail data for the first four years of the program.¹ This report is the final evaluation of the cumulative impact of the ChesMRC afterschool program during the five years of the grant.

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.

¹ Bonham, G.S. (August 14, 2014.) Chesapeake Multicultural Resource Center (ChesMRC) Afterschool Initiative: 2014 Interim Evaluation. Bonham Research, Mars, PA.

Bonham, G.S. (September 25, 2015.) Chesapeake Multicultural Resource Center (ChesMRC) Afterschool Initiative: 2015 Interim Evaluation. Bonham Research, Mars, PA.

Bonham, G.S. (August 22, 2016.) Chesapeake Multicultural Resource Center (ChesMRC) Afterschool Initiative: 2016 Interim Evaluation. Bonham Research, Mars, PA.

Bonham, G.S. (August 31, 2017.) Chesapeake Multicultural Resource Center (ChesMRC) Afterschool Initiative: 2017 Interim Evaluation. Bonham Research, Mars, PA.

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 by 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. Providing additional academic assistance has been shown to improve reading scores for children of immigrants. However, school English Language Learning (ELL) programs often substitute language instruction for standard curriculum content, whereas afterschool programs can provide supplemental curriculum content while perfecting English. Additionally, the ChesMRC afterschool program is designed to involve parents in the educational process—especially parents who have low English skills 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 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--50% of parents at a basic level of English are enrolled each year 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 use *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 are 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 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. 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 and 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.

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

Evaluation Data and Methods

This report evaluates whether the program met its specific goals, but then goes beyond to address broader questions about the value of the program based upon all available data. In doing so, it uses the following measures and tests:

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 into four categories of African American, Asian, Hispanic, and white non-Hispanic. Students with multiple race and ethnicity designations were assigned to the group in the alphabetic order shown;
- FARM (Free and Reduced-price Meals): Participation in the program during any year as an indicator of low family income;
- ELL (English Language Learner): receiving school-defined services for students with extra need to learn English, if these services were provided during any program year;
- SPED (Special Education): receiving school-defined services for students needing specialized learning help if they were provided during any program year.

Student academic proficiency:

- 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 2016, 2017, and 2018 with 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);
- 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+);
- 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 five 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 and over the five 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 five years;
- Involvement by a parent in Boy Scouts and Girl Scouts are available separately in FY2015, FY2017 and FY2018, but were combined in FY2016. Parent volunteering in Resource Center is available for FY2015-FY2018. Parental volunteering in soccer is available in FY2016-FY2018;
- Involvement in the Talbot Mentor Program is available for FY2017 and FY2018.

Statistical procedures and tests:

- Statistical processing and testing used GNU PSPP (statistical analysis software). Twotailed 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<.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, ordinal, or dichotomous independent variable in predicting an interval, ordinal, or dichotomous dependent variable 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 the unique contribution of each independent variable. 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 fourth and fifth years (FY2017 and FY2018), about 100 students enrolled. (See **Table 1**.) A total of 341 students experienced the afterschool program during the five years of the program. Half of the students (171 or 50%) enrolled during only one of the five years. One-fourth (92 or 27%) enrolled in two years. Fifty-four (16%) enrolled in three years, twenty (4%) enrolled in four years, and four (1%) participated in the afterschool program for all five years, starting when they were in the first grade. Thus, this means that only these four children are available to directly evaluate whether the primary goal of the program was achieved. This report will include information for other students to provide indirect evidence of whether the primary goal was likely reached.

More girls than boys (56% and 44%) participated in the afterschool program during its five years. The percentages varied from year to year, and more boys than girls participated in FY2017. However, girls tended to participate for fewer years than boys, such that 60% of the students who attended only one year of the program were girls, decreasing to 25% of the students who participated in all five years of the program. Of the 192 girls who ever attended, one (0.5%) attended all four years. Of the 149 boys who ever attended, three (2%) attended all four years.

The program is designed for Hispanic students, and three-fourths (77%) of the students who attended during the five years were Hispanic. The next largest group is African American (15%). A few of these were registered as both African American and Hispanic but are combined for this analysis with the smaller racial/ethnic group. White Hispanic students were the only ones to attend the afterschool program for four and five years, buy they were only 68% of those who attended during only one of the five years.

On average, slightly more than one-fifth of the students each year were in grades one (21%), two (22%), three (23%), and four (21%). Consistently fewer students were in the fifth grade (14% on average). However, the percent of students in the first grade declined each year of the program, from 30% in the first year to 16% in the fifth year. No other grade had a similar consistent pattern of change during the five years, although 35% of the students in FY2017 were in the third grade and 32% of the students in FY2018 were in fourth grad.

Since generally the grade in school changes every year for each student, the grade during a program year is not very useful for analysis of what happened over time. Therefore, students were also identified by the year they began first grade (Grade 1 Cohort), whether they attended the afterschool program during their first grade. Students who first grade in September of 2013

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Table 1. Characteristics of students attending each year and ever attended											
	Attended during the year Ever				Ever	Total number of years attended					
Characteristic	FY14	FY15	FY16	FY17	FY18	Enrolled	1	2	3	4	5
Number	135	140	140	100	102	341	171	92	54	20	4
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Gender											
Female	56%	61%	53%	43%	52%	56%	60%	59%	48%	45%	25%
Male	44%	39%	47%	57%	48%	44%	40%	41%	52%	55%	75%
Race/Ethnicity											
African American	11%	9%	19%	5%	13%	15%	20%	10%	11%	0%	0%
Asian	4%	0%	2%	1%	1%	2%	3%	2%	0%	0%	0%
Hispanic	80%	84%	72%	91%	84%	77%	68%	84%	81%	100%	100%
White, non-Hispanic	4%	6%	6%	3%	2%	5%	6%	3%	7%	0%	0%
Other, missing	1%	1%	1%	0%	0%	1%	2%	1%	0%	0%	0%
Grade											
First	30%	25%	19%	17%	16%						
Second	24%	24%	26%	15%	19%						
Third	16%	21%	21%	35%	21%			SECTI		NV	
Fourth	15%	19%	18%	19%	32%		1115	SECII	JN DLA	WA	
Fifth	16%	11%	16%	13%	13%						
Not recorded				1%							
Grade 1 Cohort											
2017 (max. 1 year)					16%	5%	9%				
2016 (max. 2 years)				17%	18%	7%	8%	12%			
2015 (max. 3 years)			19%	15%	21%	11%	14%	8%	15%		
2014 (max. 4 years)		25%	26%	35%	32%	19%	17%	17%	24%	50%	
2013 (max. 5 years)	30%	24%	21%	19%	13%	18%	15%	17%	17%	40%	100%
2012 (max. 4 years)	24%	21%	18%	13%	1%^	15%	10%	22%	22%	10%	
2011 (max. 3 years)	16%	19%	16%			10%	7%	12%	22%		
2010 (max. 2 years)	15%	11%		1%^		7%	8%	12%			
2009 (max. 1 year)	16%					6%	12%				
FARM ^a											
Yes	97%	97%	97%	95%	96%	96%	95%	97%	98%	100%	100%
No	3%	3%	3%	5%	4%	4%	5%	3%	2%	0%	0%
ELL^{a}											
Yes	86%	77%	64%	80%	70%	66%	54%	76%	78%	90%	75%
No	14%	23%	36%	20%	23%	31%	40%	24%	22%	10%	25%
Not recorded					7%	3%	5%				
Special Ed ^a											
Yes	11%	11%	11%	7%	3%	9%	5%	12%	17%	5%	0%
No	89%	89%	89%	93%	97%	91%	95%	88%	83%	95%	100%
^a If in any year of afte	rschool a	ttendanc	e. ^M	av indic	ate hold	ing back fo	r acader	nic reas	ons or d	ata error	

comprised 30% of the students involved in the afterschool program during school year 2013-2014 (FY2014). This is the only group of students who had the potential of attending the afterschool program for all five years. If all of them had remained at Easton Elementary School for all five years of their elementary education and had participated in the afterschool program each year, their percentage of the afterschool students each year would have remained about the same, affected only by the total number of students who attended each year. However, they only comprised 13% of the afterschool students when they were in the fifth grade, a substantial amount of attrition. In contrast, students who entered first grade a year later (September 2014) comprised 25% of the FY2015 afterschool students, and by the time they were in the fifth grade the comprised 32% of the afterschool students.

The school provides various services to students. Three of these services 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 incomes. This varied little from year to year and was substantially higher than among all students at EES, which varied from a low of 56% in FY2014 to 62% in FY2016. All students who attended the afterschool program for four or five years had low family incomes.

Two-thirds (66%) of the students who attended the afterschool program during the five years received English Language Learner (ELL) services from the school at least some time during the five years but it was as high as 86% in the first year of the program. Since only 15% of the students in the school received ELL services in FY2014, this means that two-thirds of the students in the school who received ELL services were enrolled in the afterschool program in its first year. This proportion dropped steadily so that in FY2018, only two-fifths of the students receiving ELL services from the school were enrolled in the afterschool program. Students attending the afterschool program for two or more years were much more likely to receive ELL services than those who attended the afterschool program for only one year.

About one-tenth of the students who enrolled in the afterschool program received Special Education (SPED) services from the school. This was about the same percent as among all the students in the school during the first three years of the afterschool program. During the fifth year of the afterschool program, only 3% of the afterschool students received SPED compared with 12% in the school as a whole.

The afterschool program expected to make a difference in the academic achievement of students who attended all five years of the grant. Program. Table 1 shows that only four of the 41 first grade students who attended afterschool in FY2014 attended afterschool for all five years. The table does not show that 63 who were in first grade in FY2014 attended the afterschool program at some time during the five years. Where did they come from and what happened to them? The data collected provide partial answers, as shown in Error! Reference source not found. and o utlined by the fiscal year of the program.



Figure 1. Number of students who were in 1st grade in FY2014 by yearly attendance

- First grade students in FY2014:
 - 41 attended afterschool;
 - o 22 would attend in later years.
- Second grade students in FY2015:
 - o 27 (66% of the original) students returned to the afterschool program;
 - \circ 13 (32% of the original) attended EES but not the afterschool program;
 - \circ 1 (2% of the original) did not return to EES;
 - \circ 6 students first attended afterschool for the first time.
- Third grade students in FY2016:
 - o 20 (49% of the original) students returned for their third year in afterschool;
 - o 5 (12% of the original) students returned after dropping out for FY2015;
 - o 10 (24% of the original) students attended EES but not the afterschool program;
 - \circ 6 (15% of the original) students did not attend EES for their third grade;
 - 8 students attended the afterschool program for the first time;
 - o 2 students who first attended in FY2015 returned to the afterschool program;
 - 4 students who first attended in FY2015 attended EES but not afterschool.
- Fourth grade students in FY2017:
 - o 10 (24% of the original) students returned for their fourth year in afterschool;
 - \circ 3 (7% of the original) students returned after dropping out for at least one years;
 - \circ 18 (44% of the original) students attended EES but not the afterschool program;
 - \circ 10 (24% of the original) students did not attend EES for their fourth grade;
 - 3 students attended the afterschool program for the first time;

- o 3 students who first attended in FY2015 or FY2016 returned to afterschool;
- 13 students who first attended in FY2015 or FY2016 attended EES but not afterschool;
- 5 students who first attended in FY2015 or FY2016 did not attend EES for their fourth grade.
- Fifth grade students in FY2018:
 - 4 (10% of the original) students returned for their fifth year in afterschool;
 - o 3 (7% of the original) students returned after dropping out for at least one years;
 - \circ 20 (49% of the original) students attended EES but not the afterschool program;
 - o 14 (34% of the original) students did not attend EES for their fifth grade;
 - o 5 students attended the afterschool program for the first time;
 - 2 students who first attended in FY2015-FY2017 returned to afterschool;
 - 8 students who first attended in FY2015-FY2016 attended EES but not afterschool;
 - 7 students who first attended in FY2015-FY2016 did not attend EES for their fifth grade.

Student Attendance During Five Years

The afterschool program operated between 99 and 107 days during each of the five years. In the most recent year, it program operated for 106 days between September 25, 2017 and May 17, 2018. (See **Figure 2**.) Altogether, the ChesMRC provided 518 days of afterschool

School year	Number of program days	Number of programNumber of studentsAverage daily dailydaysenrolledattendan		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%					
2017-2018	106	102	68	36%					
5 years	518	341	77	52%					

Program characteristics

Figure 2. Annual and 5-year program characteristics

years. The first two years of the program had much smaller percentages of students who attended 90 or more days during the year. Since half of the students attended the program in multiple years, over half (52%) of the students who had ever attended the afterschool program attended at least 90 days during the five years.

programming for students. The programs began each year as early as September 12 (2016) and as late as October 7 (2013). An average of 77 students attended attend each day of the program during the five years. FY2018 had the lowest average attendance of 68 students per day, substantially fewer than the 88 students who attended the FY2016 program each day. This was due to 38 fewer students being enrolled in the FY2018 program, since about the same percent (35%-36%) of students attended 90 or more days of the program in each of those two



An average of 81 students attended the afterschool program on its first day during each of the five years. (See Figure 3.) By the third day, the programs had their highest average attendance, averaging 91 students. Attendance then generally declined through the first 33 days of the program. The FY2014 program began its winter holiday break after the 33rd day, but the FY2017 program did not began its holiday break until after the 50th day, so it is difficult to know how much of the

Figure 3. Average number of students attending by program day

decline during these two days is continuing the fall decline and how much is due to the lower average attendance in the years when the break began early. However, the lowest average attendance occurred soon after the return from the winter holiday break, primarily January and February. Attendance then picked up and averaged 75-80 students for the remainder of the spring.



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

Students attended an average of 68 days in FY2018, fewer than in FY2017 (72 days), about the same as in FY2016 (67 days), and higher than the average in FY2014 and FY2015 (60 days). The MSDE considers only 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 from 23% in the first year of the program to 8% in the fourth year, but then increased to 14% in the fifth year. (See Figure 4.) At the other end, the percent who



Figure 5. Number of students by days attended in five years

attended 90 or more days almost doubled from 19% in FY2014 to 36% in FY2018.

The afterschool program operated for 518 days during the five years of the grant program. Three students attended 81%-90% (420-466) of the program days. (See **Figure 5**.) Fifty of the 341 students (15%) attended less than 30 days during the five years and would not be considered regular attenders by MSDE. The majority (62%) of the students attended less than 120 program days, less than one-fourth of the program days offered

The afterschool program targeted Hispanic students from families with low incomes. Hispanic students attended an average of 126 days during the five years, significantly more (p=.001) than the 89 average days of non-Hispanic students. Almost all the students that attended the afterschool program came from low income families, and they did not differ significantly from the few non-FARM students in the average number of days they attended the afterschool program during the five years. Gender, ELL services and SPED services also had no relationship to the average number of days attended.

-				
# Years eligible	Grades eligible	Average days	% total days	(# of students)
1	5	51	52%	(21)
1	1	71	67%	(16)
2	4-5	83	42%	(25)
2	1-2	115	55%	(24)
3	3-5	130	42%	(35)
3	1-3	110	35%	(39)
4	2-5	128	31%	(51)
4	1-4	140	33%	(68)
5	1-5	132	25%	(62)
	# Years eligible 1 2 2 3 3 3 3 4 4 4 4 5	# Years eligible Grades eligible 1 5 1 1 2 4-5 2 1-2 3 3-5 3 1-3 4 2-5 4 1-4 5 1-5	# Years eligible Grades eligible Average days 1 5 51 1 1 71 2 4-5 83 2 1-2 115 3 3-5 130 3 1-3 110 4 2-5 128 4 1-4 140 5 1-5 132	# Years eligible Grades eligible Average days % total days 1 5 51 52% 1 1 71 67% 2 4-5 83 42% 2 1-2 115 55% 3 3-5 130 42% 3 1-3 110 35% 4 2-5 128 31% 4 1-4 140 33% 5 1-5 132 25%

Average days attended during five years

Figure 6. Average days attended by cohort and years eligible

The number of days attended during the five years differed substantially among students in different cohorts due to the number of years they were eligible for the program. The 21 fifth grade students in FY2014 (2009 first-grade cohort) were in middle school for the rest of the five years. They attended an average of 52 days, or 52% of the possible days they could have attended afterschool. (See Figure 6.) The 16 and first grade students in FY2018 (2017 first-grade cohort) attended an average or 71 days, 67% of the days they could have attended, since they were not old enough to attend during the first

four years of the grant program. Among the two cohorts who could have attended the afterschool programs during two years, those who were in their fourth and fifth year of elementary school attended 83 (42%) of the possible 200 days during the first two years of the grant; those who were in first and second grade attended 115 (55%) of the 211 days during the last two years of the grant. For those who could attend only one or two years, those who attended started afterschool as first graders after the program had been going several years attended more of the possible days than did those who started during the first two years of the program as older elementary school students. Generally, the more years the students were eligible to attend afterschool, the fewer of the possible days they attended on average—everyone attended some days during at least one year but may not attend at all during other years they were eligible. A notable exception to this pattern occurred with the 2011 cohort—students who were in the third grade when the afterschool program started attended the same percent of days as students who were in the fourth grade when the program started. They also attended a greater percent of possible days than students who were in first grade during the third year of the program. For students who could have attended the program for four years, it made practically no difference whether they started in the first program year as second graders, or in the second program year as first graders. The one cohort who could have attend afterschool for all five years attended an average of 25% of the possible program days.

The previous discussion of eligible days assumed students attended EES for all their elementary schooling. However, patterns of attendance show:

- 50% of the students attended during a single year, and over half of these attended during year 1 or year 5;
- 23% attended two adjacent years, with half of these attending FY2014 and FY2015;
- 14% attended three adjacent years, with half of these attending FY2014-FY2016;
- 5% attended four adjacent years;
- 1% attended all five years;
- 7% had a gap of at least a year in the years they attended.

What causes some students to re-enroll in the afterschool program the following year? Data were available on whether EES students in FY2016 and FY2017 who attended EES the next year re-enrolled in the afterschool program. Close to three-fourths (71%) of the FY2016 afterschool students who returned to EES re-enrolled in the FY2017 afterschool program. One-fourth (R^2 =0.27) of the variation in their re-enrollment is explained by three factors independent of each other:

- Boys were 32 percent points more likely to re-enroll than girls (p<.01);
- Every day they attended in FY2016 increased the probability of re-enrollment by 0.04 percentage points (p<.01);
- Students receiving FARM were 58 percentage points more likely to re-enroll than non-FARM students.

Only 51% of the FY2017 afterschool students re-enrolled in the FY2018 afterschool program. One-tenth (R2=0.10) of their re-enrollment is explained by two factors:

• Every day they attended in FY2017 increased the probability of re-enrollment by 0.05

percent points (p=.01);

• Every one-point higher on the fall IRI when they first enrolled in afterschool decreased the probability of re-enrollment by one percentage point.

Parental Involvement and English Improvement

The afterschool program encourages parents to become involved as leaders and coaches in activities that includes their children. Parents helped 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. Most students, during the four years for which records are available, had parents who engaged with them in some associated activity. FY2017 was the high point with 88% of the afterschool students having one or both parents involved in one or more activities. (See **Table 2**.) Two-thirds (64%) had parents involved in helping with the Resource Center, half (48%) had parents involved in soccer, and one-third had parents involved with their scouting (35% Boy Scouts and 36% Girl Scouts). Not all the years offered

Table 2. Percent of students by type of parent engagement									
FY2015 FY2016 FY2017 F									
Number of students	140	140	100	102					
Percent with engaged parents	69%	54%	88%	72%					
Cub Scouts	16%	20%	35%	26%					
Girl Scouts	23%	26%	36%	29%					
Soccer	na	18%	49%	42%					
Resource Center	54%	31%	64%	48%					
Talbot Mentoring	na	na	6%	7%					
Other participation	na	na	na	28%					

the same activities for students, nor recorded parent engagement in the same way. Soccer began in FY2016 and the Talbot Mentoring program began in FY2017. The records in FY2018 recorded other types of parental

participation.

Parent participation in afterschool activities is significantly related to student afterschool attendance. Students attended significantly more days of the afterschool program in FY2018 when their parents were involved with Cub Scouts during the year (r=.29), soccer (r=.33), and the resource room (r=.41). Involvement with Girl Scouts rather than Cub Scouts was significantly related to student attendance in FY2017, along with involvement in soccer and the resource center. Involvement in FY2016 soccer was related to FY2016 student attendance. In FY2015, parental involvement in Cub Scouts, Girl Scout and the resource center were all related to more frequent afterschool attendance. Not surprising then, the more years parents have been

engaged in the program, the more days students have attended afterschool during the five years.

ChesMRC encouraged parents to learn English themselves by enrolling in English as a Secondary Language (ESL) classes. As part of this process the program assessed the English skills of the parents of fourfifths of the students. (See **Figure 7**.) The English skills of both mother and father were assessed for 40% of the students during the five years of the program, and the mothers only of 35% of the students. Only 4% of the students had the English skills of only their father assessed.



Mothers had lower levels of English skills than fathers, especially at their first assessment. About two-thirds



(64%) of mothers were assessed initially at the low beginner level of English, (ESL Level 1)



compared with less than half (43%) of the fathers (43%). (See Figure 8.) There was little difference in the percentages assess as high beginners (ESL Level 2): 5% for mothers and 7% for fathers. Mothers improved substantially by their last assessment with one-tenth moving into the intermediate level of English (ESL Levels 3 and 4). Only 38% remained at the low beginner level. No fathers advanced out of the beginner level, but 13% moved from the low beginner to the high beginner level.

Figure 8. Parents level of English at first and last assessment

Mothers were less likely than fathers to be at an intermediate level of English at their first

23

assessment (14% and 24%). The percent of mothers in the intermediate level doubled to 29% by their last assessment, whereas the percent of fathers in the intermediate level remained the same at 24%. By their last test, 26% of mothers were at the intermediate level. Fathers at the intermediate level had not changed much. Mothers were less likely as fathers to be at the advanced level (ESL Levels 5 and 6) at the first assessment (16% and 27%), and this changed little for either by their last assessments (17% and 29%).

Irrespective of where they started, most of the parents (63% of mothers and 72% of fathers) did not advance an ESL level between their first and last assessment. However, one-fifth advanced one ESL level (20% of the mothers and 18% of fathers). Mothers were more likely than fathers to advance two or more levels (14% and 3%). However, some parents were assessed at a lower ESL level on their last assessment than on their first (3% of mothers and 6% of fathers).



Twice as many students had mothers taking ESL classes as fathers: 130 or 38% had mothers in ESL and 62 or 18% had fathers in ESL. However, this represents only 49% of mothers who had their English skills assessed, and 38% of fathers. Most (79%-83%) mothers assessed at Levels 2-4 took ESL classes, as well as about half of those at Level 1 (44%) and Level 5 (57%). Few (9%) mothers at Level 6 took ESL classes. Parents in ESL took an average of about 50 class hours (54 for mothers and 47 for

Figure 9. Average change in ESL level by ESL class hours

fathers). Parent who took less than 20 hours of ESL classes tended to lose English skills. (See **Figure 9**.) Those who took 20-39 hours of ESL classes increased their English skills an average of three-fourths of an ESL level. Those who took 60-79 hours had an average increase of 1.2 to 1.3 ESL levels. Although the pattern is not perfect, the more ESL class hours mothers and fathers took, the more their English skills improved.

A simple relationship between ESL class hours and mothers' change in ESL level does not consider the mother's starting level, nor the father's level of English and his involvement in ESL classes. Multiple regression permits a clearer understanding of changes in the mother's level of English. (See **Figure 10**.) The constant term in equation (1) means that there was some general improvement in ESL levels regardless of mothers taking ESL classes, but not very much.

Variables	(1)	(2)	(3)
\mathbb{R}^2	0.21	0.34	0.61
Constant	0.13*	0.50**	0.11
100 hours ESL	1.15**	1.20**	3.25**
First ESL level		-0.18**	-0.04
First ESL*100 hours			-0.72**
*p=.05 **p=.01			

Figure 10. Regressions of change in mothers' ESL level

ESL classes had significant effect as every 100 hours of classes increased mothers' English skills by more than one (1.15) ESL levels. ESL hours explain about one-fifth (R2=0.21) of the change in mothers' English abilities. Adding the mothers' starting levels of English in column (2) increases the explained variance to one-third (R²=0.34) and shows that the average change shown by the constant was higher, but mothers with higher initial English skills improved less

than those with poorer initial English skills. However, all improved about the same for every 100 hours they spent in ESL classes. Column (3) shows that three-fifths ($R^2=0.61$) of the change in mothers' English ability when an interaction between their starting skills and the hours of ESL classes. Mothers starting at the low beginner Level 1 increased 2.6 ESL levels for every 100 hours of classes. This is calculated by adding the constant coefficient (0.11), the 100 hours ESL coefficient (3.25), the first ESL constant time Level 1 (-0.04*1), and the interaction term for 100 hours and Level 1 (-0.72*1*1). Mothers at Level 1 improved only 0.08 of an ESL level if they did not take any ESL classes (0.11 - 0.04 = 0.08). Those who started at the high intermediate Level 4 advance only 0.32 of a level with 100 hours of ESL classes (0.11 + 3.25 - 0.04*4 - 0.72*4 = 0.32). Those already at the advance level (5 and 6) do not appear to be helped by ESL classes at all. The contribution of ESL classes to fathers' English skills is similar to the contribution to mothers' English skills, although fewer fathers were assessed and took ESL classes. It also appears that when both parents take ESL classes that English skills increase faster than when only one parent does, but the statistics become much more complicated for analysis.

The hours parents attended ESL classes during any given year had no relation to number of days students attending afterschool during that year. During the five-year period, however, they are related as both the number of days students attended and the hours of ESL classes taken by mothers are related to the number of years students attended the afterschool program.

FY2018 Afterschool Student Academic Outcomes

The Maryland Comprehensive Assessment Program (MCAP) 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/language arts and mathematics for students in grades 3-5. It retained the MSA for science for students in grade 5, but the science MSA scores are only available for 2014, 2015 and 2016. 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.

In the most recent year (spring 2018), 58 afterschool students in grades 3-5 took the PARCC English/Language Arts (ELA) and 61 took the PARCC Math assessments. PARCC results are divided into five performance levels that delineate the knowledge, skills, and practices that students should be able to demonstrate. One-fifth (21%) of the afterschool students met (Level 4) or exceeded expectations (Level 5) in ELA, about the same percent as in 2017, but substantially more than the 7% in 2016. (See **Table 3**.) The afterschool students in 2018 were about half as likely to meet or exceed expectations as all third-fifth grade students at EES or all third-fifth grade students in Maryland as a whole. It is significant to note, however, that the percent of afterschool students that did not even partially meet expectations declined from 47% in 2016 to 14% in 2018, which is about the same percent as in all EES and Maryland.

The afterschool students did slightly better in math than in ELA, with 23% meeting or exceeding expectations. As in ELA, their performance increased significantly after 2016, the first year the PARCC assessment was administered. Since students at EES generally performed less well in math than in ELA, the gap between the afterschool students and other students was less in math (13 percentage points) than in ELA (19 percentage points).

Table 3. Percent of afterschool students meeting PARCC expectations										
Ennestation	ELA PARCC					Math PARCC				
Level	After	After	After	EES	MD	After	After	After	EES	MD
Level	2016	2017	2018	2018	2018	2016	2017	2018	2018	2018
Number	68	61	58	506	205,798	70	65	61	523	206,344
Percent	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
5-Exceeded	1%	0%	2%	4%	7%	0%	0%	2%	6%	8%
4-Met	6%	20%	19%	36%	35%	10%	25%	21%	29%	32%
3-Approached	19%	20%	29%	25%	24%	34%	17%	31%	29%	24%
2-Partially met	26%	30%	36%	21%	18%	44%	33%	30%	22%	21%
1-Did not meet	47%	31%	14%	14%	17%	11%	24%	16%	13%	15%

The science MSA is taken in elementary school only by students in fifth grade. The results for students in the afterschool program are available only for 2014, 2015 and 2016. In 2014, five of the twenty-one (24%) afterschool fifth grade students achieved proficiency. In 2015, six of sixteen (38%) achieved proficiency. In 2016, four of seventeen (24%) achieved proficiency.

The number of days students attended the afterschool program did not show a consistent relationship with PARCC achievement. (See **Error! Reference source not found.**) None of t he eight students who attended the FY2018 afterschool program for less than 30 days met the PARCC English/language arts expectations, and only two (25%) approached the expectations. In contrast, 29% of the 14 students who attended 30-59 days met or exceeded expectations. However, only 18% of the 17 who attended 90 or more days met expectations and just as many did not even partially meet expectations in ELA. Math skills did not show any more consistent relationship with afterschool attendance than ELA skills. Although 47% of the 15 students who attended 0-59 days met or exceeded expectations.



Only in FY2015 was there a correlation between the number of days students attended the afterschool program during the year and their scores on the standardized tests at the end of the vear (MSA in FY2014 and PARCC in the other four years). However, the grant was for five years with the goal that students who attended all five years (first through

Figure 11. Meeting PARCC expectations by days attended in FY2018

fifth grade) would meet academic expectations. Only four students attended the afterschool program all five years. One of them (25%) met the English/ language arts expectation and two (50%) met the math expectation. However, the afterschool involvement may have contributed to students' academic achievement in ways that can be estimated through path analysis based upon multiple regression.

Four aspects of the afterschool program contributed to students' academic achievement: the number of days students attended afterschool in FY2018, number of prior years they had attended afterschool, their parents' engagement in their afterschool activities, and the number of hours of ESL classes their mothers had taken since the students first enrolled in the afterschool program. These aspects are highlighted in the path model shown in **Error! Reference source not found.** Since some of these effects are indirect, the analysis of the path model begins with the PARCC scores at the far right. Half of the variation among FY2018 afterschool students in their PARCC ELA scores (R^2 =0.49) can be directly explained by the three arrows pointing to it: students' 2018 classroom math grade, their IRI reading scores the fall they began attending afterschool, and their mothers' initial level of English. Their 2018 math grades, as a measure of what they learned in math class during the year, made the biggest contribution as indicated by the thickness of the arrow and the size of the standardized multiple regression coefficient (β =0.47) shown on the arrow -- the higher the math grade, the higher the PARCC ELA score. Less important were their scores on the IRI reading assessment they took the fall they began the afterschool program (β =0.24) and their mothers' levels of English assessed about the same time

(β =0.24). The three factors significantly associated the PARCC ELA scores have an estimated independent contribution as follows:

- A 1.0-point increase in the math grade results in a 1.6-point increase in the PARCC ELA;
- A 1.0-point increase in the first IRI reading level results in a 0.9-point increase in the PARCC ELA;
- Each higher ESL level of the mother at first assessment results in a 5.4-point increase in the PARCC ELA.

Although reading grades (not shown) were related to the PARCC ELA scores, math grades were the better predictor of achievement on the PARCC ELA and knowledge of the reading grade did not significantly improve the prediction.



Close to two-thirds $(R^2=0.62)$ of the variation in the afterschool students PARCC Math scores are also explained by three factors. The higher their math grades in 2018, the higher their mothers' English level at first measurement, and their parents being engaged in afterschool activities (particularly scouts and soccer), the higher their PARC Math scores. These three factors have an estimated independent contribution to the PARCC Math scores as follows:

Figure 12. Contributions to 2018 PARCC scores among FY2018 afterschool students

- A 1.0-point increase in the math grade results in a 1.7-point increase in the PARCC Math;
- Parental engagement in the afterschool activities results in a 17.0-point increase in the PARCC Math;
- Each higher ESL level of the mother at first assessment results in a 6.0-point increase in the PARCC Math.

The number of days students attended the 2018 afterschool program and the number of prior years they attended the afterschool programs did not directly affect their PARCC scores. Nor did afterschool participation directly affect their math grades. However, both the number of days the students attended the FY2018 afterschool program and the number of prior year attendance indirectly affect students' academic achievements as greater student participation

increased the likelihood that their parents engaged with them in the afterschool activities of scouts, soccer, the resource center, or mentoring. While student attendance and parent engagement interact with each other, statistically it is parent engagement that and not student attendance that directly increase the PARCC Math scores. The path model shows that the more years the student attended the afterschool program indirectly increased their PARC Math scores by increasing the probability that their parents were engaged in their afterschool activities. The years the student attended afterschool also increased the number of hours their mothers spent in ESL classes with also indirectly increased the PARCC scores in both ELL and Math. The more hours of ESL classes that mothers took since their students started the afterschool program, the higher their students' math grades in school. In addition, the higher the mothers' initial level of English, the more hours of ESL classes they took, again indirectly increasing math grades and PARCC scores.

An analysis of the PARCC scores in 2017 had some similar and some different findings. The findings can be summarized as follows:

- 2017 PARCC ELA and Math scores were only affected by classroom grades, but both 2017 reading and math grades had independent contributions that were about equal;
- 2017 reading grade was 0.2-points higher for every day student attended afterschool;
- 2017 reading grade was 1.5-points higher for each higher ESL level of the mother;
- Math grades were directly affected only by the reading grade, but were indirectly affected by afterschool attendance and mother's English.

Meeting PARCC expectations in 2018 English/language arts Math 100% 100% 90% 90% 80% 80% Did not yet 70% 70% meet 60% Partially met 60% 50% 50% Approached 40% 40% 30% 30% Met or 20% 20% exceeded 10% 10% 0% 0% (58)(123) Total (61)(127) Total (65)(66)Current Previous **Current Previous**

In addition to the students in the 2018 afterschool program, PARCC scores in 2018 were available for 65-66 students in grades 3-5 at EES who had participated in the afterschool program during prior years, but who did not attend in FY2018. The average scores for these former afterschool students did not differ significantly from those of FY2018 afterschool

Ever Attendance and Academic Outcomes



attenders (730 and 725 ELA; 726 and 727 math). The most noticeable difference was that 29% of previous attenders and 21% of current attenders met or exceeded expectations on the PARCC ELA assessment. (See **Figure 13**.) It initially seemed reasonable to combine the two groups and conduct further analysis on all students in grades 3-5 at EES in FY2018 who had ever attended the afterschool program. Further analysis, however, found that those who had dropped out of the afterschool program by FY2018 differed sufficiently from those remaining in the afterschool program in FY2018 and those who joined it for the first time, that it called for separate analysis. The major difference revolves around which measures are appropriate and when the measurement took place. For example, Mothers' Total ESL Hours and Parents Engaged Afterschool measured events during the year prior to the final grades and PARCC assessment. Some former afterschool students only attended one of the previous four years, while others may have attended multiple years. The diversity of these students' experiences limits the detail with which contributions to the 2018 PARCC scores of former students' can be analyzed, but a few things become clear.



the classroom provided the greatest prediction of their PARCC scores among prior afterschool students just as it did among current afterschool students. (See Figure 14.) However, rather than math grades being the primary predictor for both the ELA and Math PARCC, 2018 math grades provided no independent prediction of 2018 ELA PARCC scores among former afterschool students, and only contributed a small amont to the prediction of Math PARCC scores (β =.29 former; β =.56 current). The major

What students learned in

Figure 14. Contributions to 2018 PARCC scores among prior afterschool students

predictor of former students' 2018 grades were their 2017 grades. But measures of former afterschool participation did add significantly to the prediction of their 2017 classroom grades. Their participation in FY2016 helped predict their 2017 reading and their participation in 2015 helped predict their 2017 math grade. Why different years of afterschool participation affected classroom grades differently is not clear. It may be due to the characteristics of different students: 14 of these prior students attended in both FY2015 and FY2016, 19 attended in FY2015, and the 25 attended in FY2016. It could also be due to different emphases of the afterschool programs in the two years.

Discussion

The above findings document that the ChesMRC afterschool program increased the academic skills of students, although the effect may not be large enough or direct enough to be immediately seen. This section specifically addresses the goals, objectives, and evaluation questions included in the application for funding.

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. –Not achieved.

- Four of the 41 students who started the program as first graders participated all five years. One of them (25%) met expectations on both the English/language arts and the math PARCC, and a second one met expectations on the math PARCC (combining for 50%);
- Fifth grade science assessments were not available at the time of this report;
- However, this goal did not consider that 68% of the students who started the program as first graders would no longer be attending EES as fourth graders (probably fewer attending EES as fifth graders). Under the MSA assessments used in 2014, 68% of third-fifth graders achieved proficiency in reading and 53% in the math surpassing the first year's objective. Two years later under the PARCC assessment, only 8% meet English/Language Arts expectations and 10% met math expectations, substantially less than the increasingly higher annual objectives;
- The analyses shown previously in **Error! Reference source not found.** and **Error! Re ference source not found.** statistically adjusts for these difficulties and the possibility that students who remained at EES and progressed rapidly may have stopped coming to the afterschool program. It estimates that students who consistently attend afterschool for all five years of elementary school will achieve expectations on both the ELA and math PARCC assessments given the average reading level when they start the program.

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. -- Approached Achievement.

- 75% of students had mothers whose English had been tested and 44% had fathers whose English had been tested;
- 64% of mothers and 43% of fathers initially tested at the low beginner ESL level

- 45% of mothers and 32% of fathers who started at the low beginner ESL had advanced one or more ESL levels during the five years;
- 38% of mothers and 18% of fathers took ESL classes, with mothers' ESL classes affecting students' math grades in the following 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**.
 - Student participation in the afterschool program had some statistically identifiable effects on classroom reading and math grades, although these effects were often indirect rather than direct;
 - The involvement of parents in the afterschool program is an important component of the program improving student academic 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?
 - Data for comparison groups were not available to answer this question
 - c. Does participation in the afterschool program help FARM and minority subgroups come closer to the academic performance of other students in the school?
 - 96% of the afterschool students received FARM;
 - 21% in 2018 met expectations in ELA compared to 40% at EES and 42% in Maryland as a whole;
 - 23% met expectations in math compared with 35% at EES and 30% in Maryland as a whole;
 - 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?
 - The afterschool program tested the English levels of mothers for 75% of the students in the program, and 44% their fathers;

- 45% of tested mothers and 32% of tested fathers improved their English skills with about half of these taking ESL classes.
- 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 most years and over five years.**
 - Mothers initially at the low beginner level who took 100 hours of ESL classes during the five years gained 2.5 ESL levels. The gains from ESL classes decreased with higher initial English skills.
- c. Does improvement in English skills of parents/caregivers boost their children's academic proficiency? **Yes, indirectly.**
 - The mothers' hours of ESL classes in FY2016 significantly increased students' classroom math scores in FY2017, which increased classroom math scores in FY2018, which increase PARCC scores in both English/language arts and mathematics.
- 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 years 1-3;
 No, in years 4-5.
 - Planned enrollment increased from 105 in year 1 to 135 in years 3-5. Actual enrollment was 135-140 in years 1-3 and 100-102 in year 4-5.
 - b. Do most students attend the program regularly throughout the year? Yes, in years 3-5; No, in years 1-2.
 - Attendance generally decreased during the fall and then increased during the later winter and spring;
 - Attendance averaged 60%-70% of enrollment each year;
 - In FY2014-FY2015, about as many students attended less than 30 days as attended 90 or more days. In FY2016-FY2018 about twice as many attended 90 or more days then attended less than 30 days.
 - c. Do most students who enrolled in one year return to the program the following year? **Yes**.
 - 68% of FY2014 afterschool students in grades 1-4 returned to the afterschool program in FY2015;
 - 54% of FY2015 afterschool students in grades 1-4 returned;
 - 51% of FY2016 afterschool students in grades 1-4 returned;

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- 58% of FY2017 afterschool students in grades 1-4 returned to the afterschool program in FY2018.
- d. Do students and parents/caregivers say they like the afterschool program? Yes.
 - Opinion data are not available, but 54%-88% of the families each year were engaged in activities with their students, particularly the resource room, scouts and soccer.
- e. Do parents with limited English attend programs to improve their English? Yes, but those with intermediate skills attend most.
 - 45% of mothers at Level 1 attended ESL classes, but 79%-83% of those initially at Levels 2-4 attended ESL classes;
 - 38% of fathers at Level 1 attended ESL classes, but 64% of those initially at Level 4 attended 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. Since only a third of all students in Maryland elementary schools can meet PARCC expectations in ELA and math, a goal that 60% of students from low income families that speak Spanish in the home would achieve academic proficiency in science, even after five years in the afterschool program, appears unreasonable. 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 they applied 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. Generally different assessments produce different results, but this evaluation assumed that the MSA proficient and advanced levels correspond to the

PARCC level 4 and level 5. 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 four students of the 41 first graders who attended the afterschool program in FY2014.

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 were not investigated for this evaluation, only that they have statistically significant relationships, and the measurement timing identifies the direction of cause and effect. The earliest fall assessments of prior academic knowledge and abilities are from FY2014, or the first year the student attended EES if not enrolled at EES in FY2014. This baseline measure may be of the students' knowledge and 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 that range from 60% to 100% with PARCC scores that range from 650 to 850. Finally, the parent goal referred to a program component that was never implemented. No goals were set for the parent engagements that were implemented.

Academic learning takes place over time and the five-year grant provided enough time for the benefits of the ChesMRC afterschool program to observed. This evaluation has demonstrated that the program was effective, even though it may not have achieved all the initial goals. This evaluator is sufficiently impressed by the program that he makes the following recommendations:

Recommendation 1. The ChesMRC afterschool program be continued in much the same format as has demonstrated success during the past five years. This includes engaging parents to be involved with their students through the resource center, scouts and soccer, and in taking ESL classes.

Recommendation 2. Engage students as early in their elementary school years as possible and encourage their families to keep them in the afterschool program year after year to reap the full benefits of the program.

Recommendation 3. Extend afterschool opportunities into the middle school years when possible, but at least assess the effect elementary afterschool programs have on middle school achievements. Other evaluations by this evaluator have shown that afterschool programming can continue to improve academic performance, especially during the transition from elementary school to the middle school.

Recommendation 4. Continue to collect and evaluate data about the afterschool attendance of students, the participation of their parents in afterschool activities and ESL classes, and students' scores on academic assessments. A more complete understanding of the impact of the afterschool program could be obtained if the following data were also available:

4a. The school location of every student who participated in the EES afterschool program in any prior year –(1) enrolled at EES whether they are enrolled in the afterschool program, (2) enrolled in another elementary school within the Talbot County Public School system, (3) enrolled in a middle school in the Talbot County Public School system, or (4) no longer in the Talbot County Public School system;

4b. The PARCC ELA and Math test scores for every student in Recommendation 4a(1)-(3) above;

4c. The final classroom grade in Reading and Math for every student in Recommendation 4a(1) above;

4d. The first-grade fall IRI Reading Assessment score for every student in the second-fifth grade enrolling in the afterschool program for the first time if they attended EES during their first grade.