

UMBC Summer Math Program at Lakeland EMS

Program Evaluation – Summer 2021

Summary

During the summer of 2021, the UMBC Sherman Program sponsored a five-week (June 28-July 30), in-person Summer Math Program in partnership with Lakeland Elementary/Middle School. Full-day, six-hour programming included three hours of personalized math learning, STEM projects, restorative practices, career exploration, and mentoring. Students established lasting relationships with UMBC college students and accelerated their learning by developing essential skills for long-term success in mathematics.

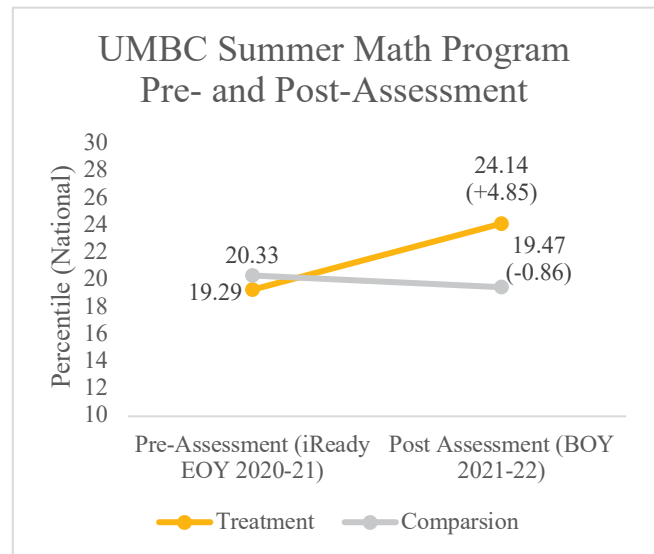
We worked closely with Lakeland Elementary/Middle School to align health and safety protocols to establish confidence and familiarity for the students and their families in response to the COVID-19 pandemic. Through this collaboration, we were able to host a fully in-person program for students and families in preparation for a return to in-person learning in SY2021-22.

Grade	Enrollment
3 rd	24
4 th	13
5 th	20
6 th	10
7 th	21
8 th	17
Total	105

105 students enrolled in the program from grades 3 through 8. Average daily attendance exceeded 80%, despite absences related to COVID-19. On average, participants attended the full-day program for 19 of the 24 days of summer program, yielding nearly 60 hours of additional math instruction for participants and a collective 2000 hours of programming for all students.

Program Highlights

- The program resulted in an estimated effect size of +0.21, considered “large” for educational interventions
- 105 students served in grades 3-8 through a full-day, five-week program
- Participants grew an average of 5 percentile points through the intervention
- 17 pre-service UMBC Sherman Scholars & Urban Teacher residents gained valuable teaching experience



Prepared by Joshua Michael (joshmichael@umbc.edu), November 2021



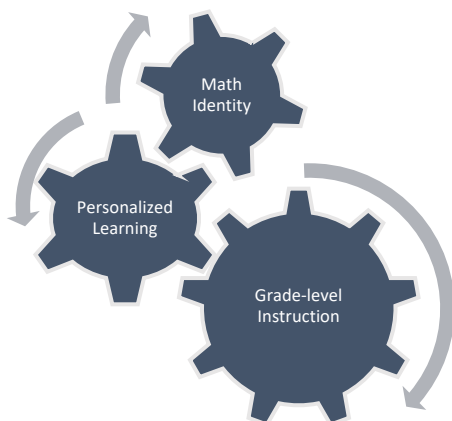
Program Overview

Comprehensive Model

Our comprehensive model for summer learning includes a comprehensive math instructional model, family engagement, and STEAM Enrichment over 24 days of full-day summer learning. The program is designed as an intensive mathematics program that is highly engaging for students. Each day, students engaged in three hours of math instruction, STEAM enrichment programs, and socio-emotional learning program components. Breakfast and lunch were provided for students. Teachers engaged in frequent communication with families to promote daily attendance and to communicate progress. We primarily used the Talking Points platform to maintain communication.

Time	Component
8:15 – 9:00	Breakfast & Morning Circle
9:00 – 12:00	Math Sessions
12:00 – 12:30	Lunch
12:30 – 2:00	STEAM Enrichment
2:00 – 2:15	Closing & Dismissal

Math Instructional Model



The program leverages a comprehensive model to improve math outcomes for students to pursue a vision of students being Algebra-ready by 8th grade. Our mission states: *We will facilitate purposeful math experiences that enhance each student's math identity and learning trajectory.* We design a math instructional model that promotes students' math identity and growth in math. In the 2021 program, we developed three one-hour blocks with distinct purposes and program components. Students received three hours of math instruction each day and up to 72 hours of math instruction total over the course of the program.

Session	Purpose	Components
Core Math	Engagement with rigorous, grade-level content.	<i>Eureka Math</i> lessons and aligned formative assessments
Math Gym	Personalized learning to promote mastery of concepts students are currently grappling with	Personalized learning programs and small group instruction; <i>iReady</i> and <i>Do The Math</i> for grades 3-4, <i>Math 180</i> grades 5-8
Math Advisory	Promote math identity and connections to math	Fluency (<i>Rocket Math</i>), goal setting, class math tasks, executive functioning activities, career connections

The complementary program components are designed to engage students and accelerate learning through a model informed by Vygotsky's zone of proximal development and socio-cultural learning theories. Personalized learning through the Math Gym session provides students with instruction just above their current level of mastery to promote a coherent mastery of pre-



requisite concepts. Concepts covered are narrowed to focus on those that are in-service to grade-level concepts. Core Math lessons provide students with rigorous, grade-level instruction to promote access and high expectations. Math advisory components help students build self-efficacy and connect to mathematics. In each component, relationships are emphasized with instructors.

STEAM Enrichment



Students participated in project-based STEAM learning each afternoon. Students grew plants in the community garden, designed tools to catch invasive species, and tested robots. In the final week, students explored community problems and developed proposals to address community problems. We partnered with the Lakeland Community & STEAM Center, Let's Go Boys & Girls, and Media Rhythm



Institute to provide fun and engaging programs for students. Weekly themed units focused on: Environmental Science, Engineering, Arts, Robotics, and Community Problem-Solving.

Student Selection and Enrollment

The program enrolled students in grades 3 through 8 (SY2021-22) at all performance levels who were interested in growing in mathematics. Recruitment for the program began in May. The program was initially designed for 120 students in grades 3-8 but was scaled back to an enrollment of 100 students due to limited funding from granters. With a target enrollment of 100 students by the start of the program, we initially enrolled 116 students. Given issues related to COVID-19, some students were ultimately unable to enroll while others could not continue with the program. The program sustained enrollment of 105 students.

Pre-Service Teachers

The program leveraged pre-service teachers to lead instruction during the summer. The experience provided future educators with an intensive, full-day internship experience to develop and hone skills in building relationships with students, planning instruction, improving mathematics pedagogy, developing classroom systems, and differentiating instruction. 11 UMBC Sherman Scholars and 6 Urban Teacher residents led instruction throughout the summer and received regular coaching to improve practice. The cohort of teachers was comprised of 58% underrepresented racial groups (Black, Latinx, or Multi-racial). 58% of the teachers were STEM majors, while the remaining pursued degrees in the humanities and social sciences in pursuit of elementary certification. For non-STEM majors, this program provided professional development and experience teaching STEM subjects. Teachers received five days of professional development at the beginning of the program and participated in daily professional learning including training, coaching sessions, peer observations, and professional development.



Health and Safety Measures – COVID-19 Pandemic

The program provided a fully in-person program for the Lakeland community at a large scale in preparation for the 2021-22 school year. While Lakeland supported in-person learning for some students during the 2020-21 school year through a hybrid model, no students in the school attended for more than two days per week. This program provided students and families with a full-day program across five weeks of the summer. Several students who did not participate in in-person learning in school year 2020-21 were able to re-engage through the summer math program. The program leveraged existing health and safety protocols established during the school year. These protocols included daily health screening and temperature checks, reduced class size, desk shields, classroom pods, modified schedules, pool testing, and mask requirements. Between 5 and 10% of students were absent each day based on results from the health screens and COVID-19 symptoms. Despite these obstacles, we maintained over an 80% attendance rate with no positive cases.

Program Outcomes

<i>Construct</i>	<i>Key Measure</i>	<i>Summary</i>
Engagement	Attendance	Average daily attendance for the 105 students was 81%, despite challenges associated with health and safety precautions. On average, students attended the program for 19 days. Further, 62 students (59%) attended at least 20 of 24 days.
Self-Efficacy in Math	Student Survey (Table 7)	93% of students reported that they were more confident in math because of the summer program. Further, the same percentage reported that their math skills improved over the summer.
Parent Satisfaction	Parent Survey (Table 6)	100% of families reported that staff cares about their child, and 97% of responding families would recommend the program to other families. 94% of families reported that their student likes participating in the program and that their math skills have improved as a result of participation.
Student Learning	District iReady assessment (Tables 1-5)	On average, participants in the program grew 4.85 percentiles from April 2021 to September 2021 on the iReady assessment, while peers at the school declined 1 percentile. Results suggest that the program helped reverse “summer slide” for participants. The difference in trends for participants represents an estimated program effect of 5.71 percentiles, corresponding to an estimated effect size of +0.21, which is considered a large effect size for educational interventions. Subsequent sections include more rigorous analysis to estimate the effect of the program and approximate an effect size.



Evaluating the Estimated Effect of the Program

Selection of Treatment and Comparison Groups

The program was advertised to all students at Lakeland in grades 3-8 (for SY2021-22). Classroom teachers encouraged students at all performance levels to join the program. Table 1 demonstrates the similarity of the participant group and the comparison group of students from Lakeland. Of the 105 participants, 5 students transferred to another school at the end of the summer. For the purposes of analysis, treatment was considered at least 10 days of programming; 8 students not meeting this threshold were dropped from analysis. Subsequently, treatment group was reduced to 92 students for the analysis of program outcomes. The comparison group includes 393 students that did not attend the program.

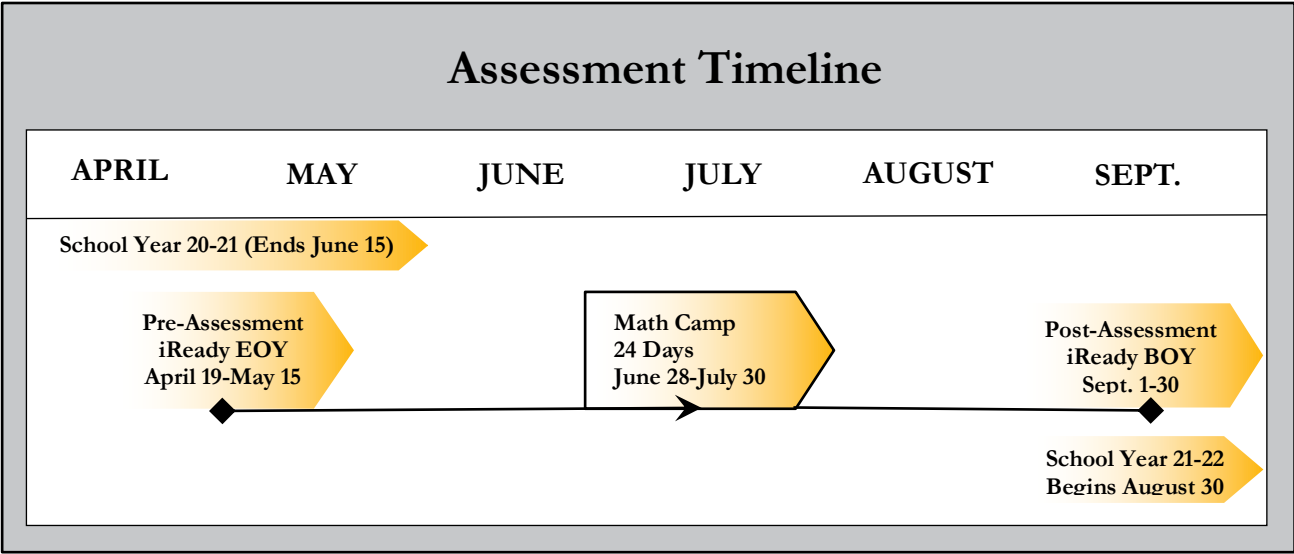
Table 1 illustrates the demographic data of the treatment and comparison groups. Note minor differences in the treatment and control group, but none statistically significant using a two-tailed *t*-test. Further, pre-assessment data suggests that the treatment and comparison groups were quite similar in achievement, confirmed by a two-tailed *t*-test. While the treatment group is not randomly selected, it is similar in demographics and prior achievement levels to the comparison group. The treatment group may be subject to a “motivation” bias for students and parents that may have increased the likelihood of enrollment.

Evaluating Pre- and Post-Achievement

To measure pre- and post-achievement levels, we use district iReady assessments to measure and compare achievement. iReady is an adaptive assessment that measures mastery of skills across a continuum of grade-levels to determine a student’s current level of mastery. This contrasts with standards-based state assessments or unit-based benchmark assessments. This offers an assessment that aligns with our focus on growth and mastery across a multi-grade continuum of learning.

To measure pre-program achievement levels, we use the end-of-year iReady assessment administrated between April 15 and May 15, 2021 to estimate pre-assessment levels. We used the beginning-of-year iReady assessment administered between September 1 and September 30, 2021 to model post-achievement levels. While this assessment window is notably larger than the program window of June 28 to July 30, it effectively measures summer learning loss for Lakeland students. Further, the delay in the post-assessment measure effectively captures actual learning sustained beyond the gap in programming in August. The pre-assessment data point, EOY iReady for school year 2020-21, may be subject to validity concerns as several students completed the assessment remotely and may have had access to external supports in responding to questions.





Despite limitations of the data, this approach offers several benefits that promote the validity and reliability of the data. First, the assessment directly aligns with student and school measures of achievement, aligning the intervention with school and district priorities. The assessment is also administered by educators not associated with the program, promoting the reliability of the data. Finally, using a post-assessment measure at the summer, instead of at the end of the program, ensures an accurate measure of learning retained over the course of the summer and not just at the peak of achievement in program. While other instructional experiences may contribute to changes in achievement from May to September, whether in or out of school, the robust comparison group accounts for similar trends occurring during that time frame.

Students at Lakeland, on average, performed at the 20th percentile at the end of the 2020-21 school year. Table 2 illustrates changes in achievement for students at each performance level. Note that at each grade level, there are notable declines in student achievement for students in the comparison group at Lakeland EMS as measured by the iReady scale score and percentile levels in the “Summer Change” column. The difference column illustrates the difference in trends between participant students and comparison students. Note that Lakeland students in the comparison group fell further behind national peers between the 2020-21 EOY assessment and the 2021-22 BOY assessment as indicated by a decline in overall percentile of 1.04 percentiles (Table 1), indicating a more pronounced “summer slide” for students at Lakeland than other peers.

Despite concerning trends for the comparison group of students at Lakeland over the summer, students in the math program achieved notable gains in achievement. On average, students grew 4.67 percentiles from the end of SY2020-21 to the beginning of SY2021-22. While gains were consistent across grade-levels (Table 2), students in 3rd and 6th grade demonstrated the greatest relative gains compared to other Lakeland peers. Results from this comparison of averages is encouraging.



OLS Regression Model

To further account for potential confounding variables, ordinary-least squares (OLS) regression is used to model difference by growth in achievement over the summer based on participation in the summer math program while accounting for other characteristics. Specifically, the dependent variable in the model represents the change in percentile of achievement between the pre- and post-assessment. The independent variable in focus is participation in the summer math program. Dosage of 10 days in attendance out of 24 possible days is considered treatment in the model. Covariates were included in the model for student demographics (gender and race), English-language learners, and students with disabilities. Grade-level fixed effects control for variation in student selection and summer teacher quality. The coefficient in this model for treatment is 5.171 and is statistically significant ($p < 0.01$) (Table 3). This represents an estimated treatment effect of over 5 percentile points for participants in the program.

In Table 4, sensitivity analysis is conducted based on the dosage of the program by the number of days in attendance. This analysis examines whether having attended more sessions influences the estimated treatment effect. This model estimates a similar treatment effect at each level. This suggests that attending at least 10 days of the program resulted in a significant improvement in overall achievement during the summer months, but that additional dosage beyond 10 days did not increase the program effect. This analysis is limited by the number of students that attended between 10 and 19 days, as most more than half of students attended over 20 days of the program.

Estimating the Effect Size

To model the effect size of the intervention, percentile scores for pre- and post-achievement are converted to standardized Z-scores based on the national distribution of achievement on iReady. Then, the standardized scores are used as the key dependent variable on the OLS regression model. This increase in achievement represents an estimated treatment effect size of +0.21, as represented in the full OLS regression model in Table 5. This estimated effect size is notable considering the relative brevity of the five-week intervention.

Matthew Kraft of Harvard University offers benchmarks for educational interventions based on meta-analysis of causal studies. He suggests the following framework for considering the efficacy of educational interventions: effect sizes less than 0.05 are considered small, effect sizes of 0.05 to less than 0.20 are considered medium, and 0.20 or greater are considered large in the context of educational interventions¹. By this categorization, this program yields a large effect size.

Further contextualizing these findings, Kraft explains that the expected growth on student achievement in a given academic year by late elementary school is an effect size of 0.40. Kraft also offers a schema for interpreting educational interventions based on effect sizes and cost per pupil. This intervention yields a large effect size and is priced at a moderate cost (\$1000 per pupil). Given Kraft's schema, the intervention is "reasonable to scale" given the effect size and modest cost.

¹ Kraft, M. A. (2020). Interpreting effect sizes of education interventions. *Educational Researcher*, 49(4), 241-253.



Tables

Table 1: Descriptive Statistics Treatment and Comparison Group

	Population	Treatment	Comparison	Difference
N	485	92	393	
Demographic Data				
Female	0.46 (0.499)	0.53 (0.502)	0.44 (0.497)	0.09
Black	0.25 (0.436)	0.20 (0.399)	0.27 (0.443)	-0.07
White	0.02 (0.155)	0.03 (0.179)	0.02 (0.150)	0.01
Latinx	0.70 (0.457)	0.74 (0.442)	0.69 (0.461)	0.05
English Language Learner	0.44 (0.497)	0.47 (0.502)	0.44 (0.496)	0.03
Students with Disabilities	0.15 (0.356)	0.13 (0.339)	0.15 (0.360)	-0.02
Achievement Data				
Pre-Percentile	20.14 (20.61)	19.29 (19.40)	20.33 (20.90)	-1.04
Post Percentile	20.36 (18.59)	24.14 (20.63)	19.47 (18.00)	4.67**

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, two-tailed t -test

Notes: The population includes all 3-8 grade students at Lakeland. Of the 106 students that participated in the program, 13 students were dropped from the data set. 5 students transferred out of Lakeland after the summer program and did not participate in the post assessment. 8 students participated in the program but did not meet the treatment threshold of 10 days present.



Table 2: Pre- and Post- Mathematics Achievement using iReady, by Grade-level

		Scale Score - iReady					Percentile - iReady			
		N	Pre-Assessment	Post-Assessment	Summer Change	Difference	Pre-Assessment	Post Assessment	Summer Change	Difference
3rd Grade	Comparison	69	402.3	390.5	-11.8		24.6	17.3	-7.3	
	Treatment	21	396.3	397.1	0.8	12.6	20.1	22.1	2.0	9.3
4th Grade	Comparison	60	404.2	404.0	-0.2		15.2	14.9	-0.3	
	Treatment	12	405.8	409.8	4.0	4.2	13.5	18.0	4.5	4.8
5th Grade	Comparison	67	431.0	428.6	-2.4		17.0	19.0	2.0	
	Treatment	18	416.5	424.0	7.5	9.9	9.8	12.7	2.9	0.9
6th Grade	Comparison	66	444.0	437.7	-6.3		18.1	18.2	0.1	
	Treatment	8	453.3	454.8	1.5	7.8	20.8	29.5	8.7	8.6
7th Grade	Comparison	56	451.8	455.0	3.2		19.1	21.2	2.1	
	Treatment	18	455.9	460.9	5.0	1.8	21.5	29.1	7.6	5.5
8th Grade	Comparison	75	469.0	467.0	-2.0		26.4	25.4	-1.0	
	Treatment	15	471.7	482.9	11.3	13.3	30.7	35.9	5.1	6.1

Notes: The Pre-Assessment measure is the End-of-Year (EOY) iReady assessment for school year 2020-21 administration between April 15 and May 15, 2021. The Post-Assessment measure is the Beginning-of-Year (BOY) administration of the iReady assessment for school year 2021-22 administered between September 1 and September 30, 2021. The "Summer Change" column reflects the difference between the Post-Assessment and Pre-Assessment. The scale score number is a score specific to the iReady assessment. Typical growth varies by pre-assessment level and grade-level, and differences across grade-level are not comparable. The percentile ranking is produced from iReady and is based off a national distribution of student achievement. Note that "summer slide" persists across the population, so median declines in achievement over the summer would result in no change in the percentile ranking. For instance, 5th grade students in the comparison group at Lakeland declined at a rate of -2.4 scale score points, which was less than average for peers at that achievement level across the US, so the percentile ranking increased by two points. A decline in percentile in the summer change column reflects a summer slide that is greater than average.



Table 3: Linear Regression Model for change in Percentile in Achievement

	Dependent Variable - Percentile Change				
	(1)	(2)	(3)	(4)	(5)
Participant (at least 10 Days)	5.710*** (1.769)	5.308*** (1.677)	5.211*** (1.700)	5.110*** (1.539)	5.171*** (1.526)
BOY Pre-Assessment Percentile		-0.387*** (0.055)	-0.385*** (0.055)	-0.493*** (0.057)	-0.484*** (0.054)
Female			-1.318 (1.265)	-1.812 (1.172)	-1.723 (1.175)
Black			-8.347* (4.775)	-7.718 (5.570)	-7.797 (5.289)
White			-7.537 (5.904)	-7.068 (6.374)	-7.900 (6.125)
Latinx			-6.903 (4.603)	-2.417 (5.478)	-3.105 (5.185)
English Language Learning				-10.097*** (1.688)	-8.620*** (1.649)
Student with Disability				-9.003*** (1.658)	-9.396*** (1.646)
Grade 3					0.000 (.)
Grade 4					2.127 (2.077)
Grade 5					2.379 (1.957)
Grade 6					2.740 (2.044)
Grade 7					4.714** (2.024)
Grade 8					4.447** (2.169)
Constant	-0.863 (0.800)	7.012*** (0.976)	14.756*** (4.713)	19.637*** (5.655)	16.627*** (5.381)
R-squared	0.020	0.273	0.280	0.379	0.388
N	485	485	485	485	485

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Notes: The Pre-Assessment measure is the End-of-Year (EOY) iReady assessment for school year 2020-21 administration between April 15 and May 15, 2021. The Post-Assessment measure is the Beginning-of-Year (BOY) administration of the iReady assessment for school year 2021-22 administered between September 1 and September 30, 2021. The percentile ranking is produced from iReady and is based off a national distribution of student achievement. Note that "summer slide" persists across the population, so median declines in achievement over the summer would result in no change in the percentile ranking. Percentile change, the key dependent variable, reflects a relative ranking compared to peers across the nation. A decline in percentile in the summer change column reflects a summer slide that is greater than average.



Table 4: Linear Regression Model, Sensitivity Analysis by Dosage

	(1) 10 Days	(2) 15 Days	(3) 20 Days
Participant	5.171*** (1.526)	4.597*** (1.523)	4.831** (2.008)
BOY Pre-Assessment Percentile	-0.484*** (0.054)	-0.487*** (0.054)	-0.500*** (0.054)
Female	-1.723 (1.175)	-1.591 (1.172)	-1.521 (1.220)
Black	-7.797 (5.289)	-7.915 (5.293)	-7.709 (5.446)
White	-7.900 (6.125)	-8.078 (6.129)	-6.987 (6.781)
Latinx	-3.105 (5.185)	-3.357 (5.193)	-3.391 (5.311)
English Language Learning	-8.620*** (1.649)	-8.606*** (1.640)	-8.550*** (1.653)
Student with Disability	-9.396*** (1.646)	-9.298*** (1.641)	-9.223*** (1.765)
Grade 3	0.000 (.)	0.000 (.)	0.000 (.)
Grade 4	2.127 (2.077)	2.151 (2.046)	1.791 (2.153)
Grade 5	2.379 (1.957)	2.867 (1.939)	3.024 (2.090)
Grade 6	2.740 (2.044)	3.038 (2.033)	2.538 (2.125)
Grade 7	4.714** (2.024)	5.082** (2.011)	4.710** (2.132)
Grade 8	4.447** (2.169)	4.694** (2.164)	4.330* (2.268)
Constant	16.627*** (5.381)	16.599*** (5.382)	16.969*** (5.518)
R-squared	0.388	0.395	0.401
N	485	480	455

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Notes: The Pre-Assessment measure is the End-of-Year (EOY) iReady assessment for school year 2020-21 administration between April 15 and May 15, 2021. The Post-Assessment measure is the Beginning-of-Year (BOY) administration of the iReady assessment for school year 2021-22 administered between September 1 and September 30, 2021. The percentile ranking is produced from iReady and is based off a national distribution of student achievement. Percentile change, the key dependent variable, reflects a relative ranking compared to peers across the nation. The key independent variable in this model remains treatment, and a sensitivity analysis is conducted by dosage. Note that the N decreases as the dosage increases in this sensitivity analysis as students who attended the program but did not meet the dosage threshold are excluded from the model.



Table 5: Linear Regression Model, Z-Score

	Dependent Variable – Z-Score Change				
	(1)	(2)	(3)	(4)	(5)
Participant (at least 10 Days)	0.240*** (0.069)	0.220*** -0.063	0.217*** (0.065)	0.211*** (0.059)	0.213*** (0.059)
BOY Pre-Assessment Percentile		-0.343*** -0.05	-0.343*** (0.049)	-0.460*** (0.053)	-0.449*** (0.050)
Female			-0.054 (0.049)	-0.080* (0.045)	-0.076* (0.045)
Black			-0.290** (0.138)	-0.254 (0.173)	-0.255 (0.160)
White			-0.244 (0.180)	-0.212 (0.200)	-0.247 (0.190)
Latinx			-0.247* (0.128)	-0.087 (0.168)	-0.117 (0.154)
English Language Learning				-0.376*** (0.066)	-0.309*** (0.064)
Student with Disability				-0.404*** (0.079)	-0.423*** (0.079)
Grade 3					0.000 (.)
Grade 4					0.080 (0.085)
Grade 5					0.099 (0.079)
Grade 6					0.122 (0.083)
Grade 7					0.214*** (0.081)
Grade 8					0.183** (0.083)
Constant	-0.034 (0.030)	-0.393*** -0.065	-0.114 (0.131)	-0.121 (0.169)	-0.231 (0.168)
R-squared	0.024	0.247	0.254	0.361	0.372
N	485	485	485	485	485

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Notes: The Pre-Assessment measure is the End-of-Year (EOY) iReady assessment for school year 2020-21 administration between April 15 and May 15, 2021. The Post-Assessment measure is the Beginning-of-Year (BOY) administration of the iReady assessment for school year 2021-22 administered between September 1 and September 30, 2021. The z-score is converted from the percentile ranking of iReady. The percentile ranking is produced from iReady and is based off a national distribution of student achievement.



Table 6 – Parent & Family Survey Responses		
(N = 34 respondents) <i>Administered in English & Spanish</i>		Agree or Strongly Agree
My child likes to participate in the Math Program.	Strongly Agree - 79% Agree - 15% Disagree - 3% Strongly Disagree - 3%	94%
My child's math skills have improved because of the program.	Strongly Agree - 68% Agree - 24% Disagree - 6% Strongly Disagree - 3%	92%
My child is more prepared for school this fall because of this program.	Strongly Agree - 64% Agree - 26% Disagree - 6% Strongly Disagree - 3%	91%
My child is more interested in school because of the program.	Strongly Agree - 68% Agree - 24% Disagree - 9% Strongly Disagree - 0%	91%
My child is more interested in STEAM (Science, Technology, Engineering, Art, and Mathematics) because of the program.	Strongly Agree - 68% Agree - 24% Disagree - 9% Strongly Disagree - 0%	91%
My child is more interested in college because of the program.	Strongly Agree - 55% Agree - 23% Disagree - 18% Strongly Disagree - 3%	92%
Staff care about my child.	Strongly Agree - 79% Agree - 21% Disagree - 0% Strongly Disagree - 0%	100%
My child talks about STEAM-related topics (science, technology, engineering, arts, math) more frequently at home?	Strongly Agree - 62% Agree - 32% Disagree - 6% Strongly Disagree - 0%	94%
Staff reach out to keep me informed about the program.	Strongly Agree - 68% Agree - 29% Disagree - 3% Strongly Disagree - 0%	97%
Staff work with my student to meet her or his individual needs.	Strongly Agree - 71% Agree - 26% Disagree - 3% Strongly Disagree - 0%	97%
I would recommend this program to other parents or caregivers.	Strongly Agree - 79% Agree - 18% Disagree - 3% Strongly Disagree - 0%	97%



Table 7 – Student Survey Responses		
(N = 85 respondents) <i>Administered in English & Spanish</i>		Strongly Agree or Agree
I like to participate in the Summer Math Program	Strongly Agree - 48% Agree - 41% Disagree - 8% Strongly Disagree - 2%	89%
I feel more confident in math because of the program	Strongly Agree - 51% Agree - 42% Disagree - 5% Strongly Disagree - 2%	93%
My math skills have improved because of the program this summer.	Strongly Agree - 47% Agree - 46% Disagree - 6% Strongly Disagree - 1%	93%
I am more prepared for school this fall because of the program.	Strongly Agree - 62% Agree - 28% Disagree - 7% Strongly Disagree - 4%	89%
I felt like there was an adult I could trust with my problems, someone who would listen to me.	Strongly Agree - 51% Agree - 40% Disagree - 8% Strongly Disagree - 1%	91%
Activities helped me practice my skills in math.	Strongly Agree - 56% Agree - 36% Disagree - 6% Strongly Disagree - 1%	93%
My summer math teachers work to meet my individual needs.	Strongly Agree - 54% Agree - 40% Disagree - 5% Strongly Disagree - 1%	94%
I would tell other students to join this program.	Strongly Agree - 47% Agree - 38% Disagree - 9% Strongly Disagree - 6%	85%
STEM Connection sessions helped me understand more about job opportunities.	Strongly Agree - 51% Agree - 33% Disagree - 13% Strongly Disagree - 4%	83%
I am more interested in STEM careers because of the program.	Strongly Agree - 43% Agree - 29% Disagree - 23% Strongly Disagree - 5%	72%
I am more interested in attending college because of the program.	Strongly Agree - 54% Agree - 33% Disagree - 8% Strongly Disagree - 5%	87%
After this camp, I am more curious about Science, Technology, Engineering, Art, and Math.	Strongly Agree - 47% Agree - 33% Disagree - 13% Strongly Disagree - 7%	80%
Math Core sessions were engaging.	Strongly Agree - 51% Agree - 41% Disagree - 5% Strongly Disagree - 2%	92%
I learned a lot through Math Core sessions.	Strongly Agree - 55% Agree - 36% Disagree - 7% Strongly Disagree - 1%	92%
Math Gym Sessions were engaging.	Strongly Agree - 59% Agree - 33% Disagree - 6% Strongly Disagree - 2%	92%
I learned a lot through Math Gym Sessions.	Strongly Agree - 56% Agree - 38% Disagree - 4% Strongly Disagree - 2%	94%



Math Advisory sessions were engaging.	Strongly Agree - 52% Agree - 36% Disagree - 11% Strongly Disagree - 12%	88%
I learned a lot through Math Advisory sessions.	Strongly Agree - 56% Agree - 36% Disagree - 6% Strongly Disagree - 1%	93%
STEAM Projects were fun and engaging.	Strongly Agree - 60% Agree - 34% Disagree - 1% Strongly Disagree - 5%	94%
I learned a lot through STEAM Projects.	Strongly Agree - 58% Agree - 38% Disagree - 1% Strongly Disagree - 4%	95%
Assignments helped me practice my skills.	Strongly Agree - 62% Agree - 34% Disagree - 2% Strongly Disagree - 1%	97%



Table 8 – Program Goals established for Reporting to Summer Funding Collaborative

<p><i>Goal 1: Implement a program that promotes summer acceleration in mathematics as indicated by 80% of students demonstrating growth in math as measured by iReady.</i></p>	<p>81% of students exceeded trends on the iReady assessment compared to non-participant peers at Lakeland. On average, participants in the program grew 4.85 percentiles from April 2021 to September 2021 on the iReady assessment, indicating a reversal of the “summer slide” for participants. Comparison students at Lakeland declined 1 percentile point, indicating that summer slide for students at Lakeland exceeded the national average. The difference in trends for participants represents an estimated program effect of 5.71 percentile points, corresponding to an estimated effect size of +0.21, which is considered a large effect size for educational interventions. Subsequent sections include more rigorous analysis to estimate the effect of the program and approximate an effect size.</p>				
<p><i>Goal 2: Implement a program that accelerates learning over the summer (curbing summer learning loss) in mathematics as indicated by 90% of students demonstrating growth on formative, mastery-based assessments.</i></p>	<p>89.9% of students, on average, demonstrated growth on formative, mastery-based assessments given at the end of each week. Assessments were developed from Eureka’s Affirm platform, so all questions were aligned to the BCPSS curriculum and rigorous standards.</p>				
<p><i>Goal 3: Implement a program that is engaging, compelling, and relevant for students and families as indicated by an average daily attendance rate of 75% and 90% satisfaction on the end-of-program survey (students and families).</i></p>	<p>The measurement of student engagement this year remained at an average daily attendance rate of 75% as we were unsure how the pandemic would affect attendance. During the program, the average daily attendance rate was 81%. This corresponds to an average of 19.44 days of additional math instruction for students. We exceeded our daily attendance rate goal. We met or exceeded our student and family satisfaction rates of 90%+ on the end-of-program surveys. See Tables 6 and 7 for full survey responses.</p> <table border="1" data-bbox="646 1417 1412 1816"> <thead> <tr> <th data-bbox="646 1417 1023 1480"> Student Survey (85 respondents) </th> <th data-bbox="1023 1417 1412 1480"> Family Survey (34 respondents) </th> </tr> </thead> <tbody> <tr> <td data-bbox="646 1480 1023 1816"> <ul style="list-style-type: none"> - I like to participate in the Summer Math Program. 89% Agree - I feel more confident in math because of the program. 93% Agree - My math skills improved because of the Summer Program. 93% Agree </td> <td data-bbox="1023 1480 1412 1816"> <ul style="list-style-type: none"> - My child likes to participate in the Math Program. 94% Agree - My child’s math skills have improved because of the program. 94% Agree Staff cares about my child. 100% Agree I would recommend this program to other parents or caregivers. 97% Agree </td> </tr> </tbody> </table>	Student Survey (85 respondents)	Family Survey (34 respondents)	<ul style="list-style-type: none"> - I like to participate in the Summer Math Program. 89% Agree - I feel more confident in math because of the program. 93% Agree - My math skills improved because of the Summer Program. 93% Agree 	<ul style="list-style-type: none"> - My child likes to participate in the Math Program. 94% Agree - My child’s math skills have improved because of the program. 94% Agree Staff cares about my child. 100% Agree I would recommend this program to other parents or caregivers. 97% Agree
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