

**Impact of the Extended Learning Opportunities
Summer Adventures in Learning (ELO SAIL)
Program on Student Academic Performance:
Part 2, Results for Summer 2015**

Office of Shared Accountability

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Executive Summary

This study is an evaluation of Extended Learning Opportunities—Summer Adventures in Learning (ELO SAIL), which is a Montgomery County Public Schools (MCPS) summer program in Title I elementary schools. ELO SAIL has two major goals: 1) to prevent the achievement loss that students may experience in summer and 2) to prepare students for the next grade level. The program is offered in all 24 Title I schools during July; its target includes students who will enter kindergarten, Grade 1, or Grade 2 in the fall after the summer session. The program features a four-hour instructional day of reading, language arts, and mathematics. The evaluation focuses on the impact of ELO SAIL on student academic achievement. This report addresses the following questions for the 2015 ELO SAIL program:

1. What were the demographic characteristics of students in Kindergarten–Grade 2 who attended ELO SAIL in 2015?
2. How did the students who participated in ELO SAIL perform in the following fall, compared with students in Title I schools who did not participate? Did the academic impact of the ELO SAIL program vary by student subgroups, such as race/ethnicity and services received?
3. How did the students who participated in ELO SAIL perform in the following spring, compared with their peers in Title I schools who did not attend? Did the academic impact of the ELO SAIL program vary by student subgroups, such as race/ethnicity and services received?

Summary of Methodology

The study population was students who participated in ELO SAIL in summer 2015 for 16 days or more (and thus attended Title I schools). The comparison groups were students who did not participate in ELO SAIL and were enrolled in Grades K–2 in Title I schools during 2015–2016. Performance measures included school readiness as indicated by the Maryland Kindergarten Readiness Assessment (KRA), reading levels from the Assessment Program in Primary Reading (AP-PR), and Rasch unit (RIT) scores in mathematics from Measures of Academic Progress–Primary Grades (MAP-P). For questions 2 and 3, bivariate tests of significance were used to examine differences by grade level and content area between attendees and non-attendees for all students and for seven student subgroups: Asian, Black or African American, Hispanic/Latino, White, and students who received the following services: English for Speakers of Other Languages (ESOL), Free and Reduced-price Meal System (FARMS), and special education.

Summary of Findings

Question 1. ELO SAIL 2015 had 2,727 students who attended for 16 or more days. Among this group, more than six out of ten students were Hispanic/Latino, over one quarter were Black or African American, six out of ten received ESOL services, and eight out of ten qualified for FARMS services.

Question 2 (School readiness in fall). Among all kindergarten students and the biggest subgroups (i.e., Black or African American, Hispanic/Latino, ESOL recipients, FARMS recipients), a significantly higher percentage of ELO SAIL attendees than non-attendees were school ready.

Question 2 (Reading in fall). To analyze reading performance in fall by kindergarten students, those who were not reading were compared to those who were reading or at a pre-reading level. A significantly higher percentage of attendees than non-attendees were in the reading/pre-reading category among all kindergarten students and five subgroups: Black or African American, Hispanic/Latino, and recipients of ESOL, FARMS, and special education.

For Grade 1 and Grade 2 students, the focus for fall reading performance was whether the student avoided any summer loss in reading; the measure used was whether each student had a fall book level (i.e., after the summer) that was higher or the same as his or her book level in the previous spring (i.e., before the summer). For both first and second graders, more ELO SAIL attendees than non-attendees avoided summer reading loss, among all students and nearly all subgroups. The only statistically significant difference was for FARMS recipients, in both Grade 1 and Grade 2, in favor of attendees.

Question 2 (Mathematics in fall). There were no findings with respect to mathematics performance by kindergarten students in the fall because almost every student lacked scores.

Analyses of mathematics for Grades 1 and 2 examined changes in RIT scores between spring (prior to ELO SAIL) and fall (after ELO SAIL). On average, attendees increased their RIT score more than non-attendees, among all students and nearly every subgroup for both grade levels. Differences were statistically significant in favor of attendees for all first graders, all second graders, and several subgroups in each grade level, including Hispanic/Latino students, ESOL recipients, and FARMS recipients.

Question 3 (Reading in spring). The measure of reading performance for spring following ELO SAIL was whether the student met the end-of-year grade-level reading benchmark on AP-PR. For kindergarteners, significantly more attendees than non-attendees met the benchmark, among all students and every subgroup except Asian students. For first graders, there was not a consistent pattern of higher performance by ELO SAIL attendees and no significant differences between attendees and non-attendees. For second graders, fewer attendees than non-attendees met the end-of-year reading benchmark among all students and every subgroup; these differences were statistically significant in favor of non-attendees for all Grade 2 students and two subgroups: Hispanic/Latino and FARMS recipients.

Question 3 (Mathematics in spring). The measure to analyze end-of-year mathematics performance was the MAP-P RIT score in mathematics from spring. Across all kindergarten students, the mean RIT score in mathematics of ELO SAIL attendees was slightly higher than the non-attendees for all students and for each subgroup. This difference was statistically significant for ESOL recipients. For first and second graders, there was not a consistent pattern of higher performance by ELO SAIL attendees and none of the differences was statistically significant.

Conclusion

There were four main findings with respect to the impact of ELO SAIL on fall performance. First, there was a strong positive impact on reading performance in fall for kindergarteners; this finding differed from earlier evaluations of ELO SAIL, perhaps because the analysis utilized a pre-reading category and included them with readers instead of with non-readers. Second, like evaluations of

more recent ELO SAIL sessions (i.e., 2012, 2013, and 2014), this one found little evidence of a positive impact on reading in the fall for first and second graders, although evaluations of earlier ELO SAIL sessions (i.e., 2002, 2003, and 2007) did find positive results for reading by students in Grade 1 or 2 or both. Third, there was evidence of a positive impact from ELO SAIL 2015 on mathematics performance in the fall for both first and second graders, similar to analyses of previous ELO SAIL sessions. Fourth, there was evidence for a positive impact of ELO SAIL on fall performance on every measure at every grade level for FARMS recipients. Likewise, evaluations of ELO SAIL in previous years frequently found positive results on at least some measures for FARMS recipients as well as ESOL recipients.

With respect to the impact of ELO SAIL on spring academic performance, there were three findings that were similar to those found for ELO SAIL in 2012, 2013, and 2014: positive impact on kindergarten reading; little positive impact on kindergarten math and Grade 1 reading; and negative impact on Grade 2 reading. Unlike the evaluations of earlier ELO SAIL sessions, this one did not confirm a negative impact on mathematics for first and second graders.

Recommendations

Based on the above findings, the following recommendations are proposed for ELO SAIL:

- Continue providing ELO SAIL to students from low-income families, due to the positive impact on students receiving FARMS.
- Continue with the reading curriculum for kindergarten and with the mathematics curriculum for Grades 1 and 2, due to their positive impacts on fall achievement.
- Analyze the reading curriculum to understand why the impact for first and second graders is less positive than for kindergarteners.
- Focus future research on understanding the lack of positive results for spring performance, including more detailed analyses that consider ability prior to ELO SAIL.
- In future research, include analysis of mathematics performance in fall for kindergarteners, because this study lacked data to analyze this area.

Impact of the Extended Learning Opportunities Summer Adventures in Learning (ELO SAIL) Program on Student Academic Performance: Part 2, Results for Summer 2015

The Office of Shared Accountability (OSA) conducted an evaluation of Extended Learning Opportunities—Summer Adventures in Learning (ELO SAIL) in Montgomery County Public Schools (MCPS) at the request of the Office of the Chief Academic Officer. The mission of MCPS is to ensure that every student will have the academic, creative problem solving, and social emotional skills necessary for success in college and career, as reflected in the district’s Strategic Planning Framework (MCPS, 2013). Achieving this mission requires eliminating achievement gaps among student groups. Extended school year and extended school time programs in MCPS provide students in Title I schools additional learning opportunities to further develop academic background knowledge. This document is one of two that examine the impact of ELO SAIL sessions from 2012 to 2015 on student academic achievement. This report concerns the summer 2015 ELO SAIL session; the earlier one focused on the 2012, 2013, and 2014 ELO SAIL programs (Cooper-Martin, Wolanin, Jang, Modarresi, & Zhao (2016).

Background

Program Description

Overview. ELO SAIL is a free summer program for students in Grades K–2 in MCPS Title I elementary schools. The major goals of ELO SAIL are first, to prevent the achievement loss that students may experience in summer, also known as summer loss, and second, to prepare students for the next grade level. ELO SAIL was piloted at 17 Title I schools in 2002 and continued to operate in all 24 Title I schools in summer of 2015 as a part of the district’s strategy to focus resources and supports for students in these schools (MCPS, 2015).

Target population. The target population for the ELO SAIL program includes students who will enter kindergarten, Grade 1 or, Grade 2 in the fall after the ELO SAIL session. All students in Title I schools are eligible to attend. Participation in ELO SAIL is voluntary in nature; however, program staff monitor student attendance closely.

Program purpose. The ELO SAIL program is an equity strategy that seeks to serve the following specific purposes:

- Meet the academic needs of each participant by providing opportunities to review grade-level concepts
- Accelerate learning by previewing concepts and skills to be taught in the grades students will enter in fall
- Strengthen basic skills that are preconditions of later learning
- Mitigate the achievement loss that students may experience in summer
- Provide continuing English language instruction for speakers of other languages

Structure and funding. In 2015, the ELO SAIL program was conducted for 19 days in July and featured a four-hour instructional day of reading, language arts, and mathematics. Bus transportation, breakfast, and lunch were provided free of charge. ELO SAIL is a core program of the federal Title I programs and is supported mainly with federal Title I funding.

Staffing. All teachers must be highly qualified in order to teach in the ELO SAIL program. A “highly qualified teacher” is someone who has a [minimum of a] bachelor’s degree from an accredited institution, demonstrates competence in the subject area in which he/she will teach, and is certified to teach in the state of Maryland (Maryland State Department of Education, 2015a). In summer 2015, the classroom teacher to student ratio was 1:18 for all grades. Each school also had one teacher for English for Speakers of Other Languages (ESOL), one special education resource teacher, one paraeducator for every 75 enrolled students, one summer attendance secretary, one cafeteria support, and one clerical support for registration. The Office of Community Engagement and Partnership in MCPS recruited 230 volunteers to assist staff for ELO SAIL in summer 2015. The number of volunteers assigned depended on ELO SAIL enrollment in the school, ranging from 4 to 15 volunteers per school.

Major program changes since 2009. In 2009, ELO SAIL targeted students entering kindergarten through Grade 5 in 22 Title I schools, used an earlier MCPS curriculum, and had staff-student ratios between 1:17 and 1:19 in Grades K–2. Due to fiscal constraints, the program was limited to Grades K–2 in summer 2012. Although stimulus funds permitted ELO SAIL to again serve Grades K–5 in summer 2013, MCPS responded to the threat of economic instability by committing to fund the program for the early learners K–2 from summer 2014 onward. In summer 2015, ELO SAIL served Grades K–2 in all 24 Title I schools, provided instruction with MCPS Curriculum 2.0, and had a staff-student ratio of 1:18 in Grades K–2.

Expected student outcomes. The short-term goal of the ELO SAIL program is to provide a stimulating academic summer opportunity for students in Title I schools. Further, the expectation is that students who attend the ELO SAIL program will maintain or improve their skills in reading and mathematics and be ready to succeed at the next grade level. In the long-run, the expectation is that ELO SAIL attendees will continue to make expected academic progress and to meet or exceed grade-level benchmarks in reading and mathematics.

Previous Evaluations of ELO SAIL

There have been MCPS evaluations of ELO SAIL for several years, starting with the first year of the program in 2002. In summary, for six years of ELO SAIL, these studies found a small to modest positive impact on student fall academic performance in reading and mathematics for students with high attendance (i.e., 16 days or more) at the summer program. However, the benefits varied by grade level, content area, and student subgroup, as seen in Figure 1.

Figure 1
 Summary of Significant Differences Between ELO SAIL Attendees and Nonattendees
 Year Indicates Modest Positive or Negative (-) Impact Observed

Student group	Performance in fall						Performance in spring ^{a, b, c}					
	K Read ^{a,c}	K Math ^{a,c}	G1 Read	G1 Math ^c	G2 Read	G2 Math ^c	K Read	K Math	G1 Read	G1 Math	G2 Read	G2 Math
All Students		2013- 2014-	2002 2007	2002 2003 2014	2002 2002 2014	2002 2013	2013 2014	2013-	2012- 2013- 2014-		2012- 2013- 2014-	
Asian			2002	2002	2002 2003	2002						
Black	2013-	2012	2002 2007	2002 2003 2014	2002 2012	2002	2012 2013 2014	2014				2014
Hispanic	2013-	2003	2002 2007	2002 2003 2014	2002 2003	2002 2014	2013 2014					
White	2003-	2013-	2002	2002	2002 2003-	2002 2013		2014-	2012- 2013-		2014-	
Receipt of ESOL	2003- 2013	2003	2003 2007	2003 2013 2014	2003 2013	2003 2014	2013 2014			2013-	2013	
Receipt of FARMS	2013 2014	2003	2003 2007	2003 2014		2013 2014	2013 2014	2014		2013-	2013	
Receipt of ESOL and FARMS ^d			2002	2002 2003	2002	2003-						
Receipt of special education ^{a,b}		2014-	2014-	2014			2013 2014		2012 2013		2012-	

Note. Definition of attendees and non-attendees varied by year; see details in text.

All results included were in favor of attendees, except for those marked with - for results in favor of non-attendees.

^a Not tested in 2002

^b Not tested in 2003

^c Not tested in 2007

^d Not tested in 2012, 2013, or 2014

Summer 2002. ELO SAIL began as a 20 day program; the instruction focused on a preview of reading and math concepts to students in kindergarten through Grade 3 at 18 schools. The evaluation of this first year of the program focused on student academic outcomes and whether the impact differed across student subgroups of race/ethnicity and services received (Sunmonu, Larson, Horn, Cooper-Martin, & Nielsen, 2002). This study used a pretest-posttest design; students completed pretests in mathematics and reading at the beginning of the ELO program and posttests in September after the program. There were modest but statistically significant benefits in mathematics for Grades 1 through 3 students who attended all four weeks of the program and modest benefits in reading for students in Grades 1 and 2, compared to non-attendees (including students who attended for five days or less). (Analyses also included a group of students who attended 6 to 15 days of the program, but found very few statistically significant differences for that group.) Except for Grade 2 students, program benefits were similar across all ethnic groups and also apparent for students who received FARMS and ESOL services. However, in Grade 2, the ELO SAIL benefits in mathematics were limited to students who did not receive ESOL or

FARMS services, while the benefits in reading were limited to second graders who were recipients of both ESOL and FARMS.

Summer 2003. In summer 2003, the program served students in kindergarten through Grade 4 in 18 Title I schools and ran for 20 days. The evaluation of the second year of ELO SAIL included both implementation and outcomes (Sunmonu, Curry-Corcoran, and Mordica, 2004). The evaluators concluded that implementation of student recruitment and attendance strategies were largely successful. Further, the teachers at ELO SAIL had credentials that were equivalent to teachers in Title I schools. Adult stakeholders, including program administrators, teachers, and parents of attendees, were satisfied with the program.

To evaluate outcomes for ELO SAIL 2003, the authors calculated the change in each student's test scores from spring 2003 prior to the program to test scores from fall 2003 after the program for students in Grades 1–4; for kindergarteners, they used only scores from fall 2003. Students who attended the program for at least 16 days had higher spring to fall improvements, compared to their peers who attended five days or fewer, including those who did not attend at all. However, the only statistically and practically significant difference was for Grade 4 students in mathematics. The authors did find significant benefits, in selected grades and academic areas, for several subgroups: recipients of ESOL but not FARMS, recipients of FARMS but not ESOL, Asian students, Black or African American students, and Hispanic/Latino students.

Summer 2007. In summer 2007, ELO SAIL ran for four week and served incoming kindergarten through Grade 5 students from all 22 Title I schools. The evaluation of this program used multilevel data collection methods to examine both implementation and outcomes (Wang, 2009). Administrators and teachers reported positive views of program implementation. Based on classroom observations, teachers consistently implemented communication of mastery objectives and the instructional block components for reading; however, implementation of the instructional block components for mathematics was less consistent.

Wang analyzed three measures of student performance: Grade 1 reading, Grade 2 reading, and Grade 4 mathematics. First graders who attended all four weeks of ELO SAIL had significantly higher reading performance in fall than nonparticipants, but there no differences between attendees and non-attendees for reading by Grade 2 students. Grade 4 students who attended all four weeks of ELO SAIL significantly outperformed their nonparticipating peers in mathematics. Further, students who were ESOL recipients, FARMS recipients, or Hispanic benefited more from ELO SAIL than non-recipients for both first grade reading and fourth grade mathematics. Program benefits also were evident for African American Grade 1 students and Asian American Grade 4 students.

Summer 2012, 2013, and 2014: Fall analysis. The most recent study of ELO SAIL focused on three years: summer 2012, 2013, and 2014 (Cooper-Martin, Wolanin, Jang, Modarresi, & Zhao, 2016). In each of those years, the program operated in all 24 Title I schools and targeted students who would enter kindergarten, Grade 1, or Grade 2 in the fall following the program.

For each year studied, analyses for kindergarten compared results for attendees to non-attendees. The only evidence of an impact on fall reading for kindergarteners was for selected subgroups.

For ELO SAIL 2013, there were statistically significant differences in reading performance in favor of attendees among four subgroups: Black or African American, Hispanic/Latino, ESOL recipients, and FARMS recipients. For summer 2014, the only statistically significant difference in kindergarten reading was for White students, but in favor of non-attendees. With respect to mathematics, fall scores from all kindergarteners were significantly lower for ELO SAIL participants than for nonparticipants in summer 2013 and 2014, but there were almost no statistically significant differences among subgroups of kindergarteners in any of the three summers studied.

The analyses for Grade 1 and Grade 2 students concerned changes in performance in the fall after each ELO SAIL session, compared to performance in the spring prior to that ELO SAIL session. In each of the three years examined, there were no differences statistically significant between ELO SAIL attendees and non-attendees in summer reading loss for any year for all first and second graders or for the majority of subgroups. Findings were more positive in mathematics; first grade attendees at ELO SAIL in 2014 outperformed non-attendees among all students and four subgroups. Likewise, second grade attendees at ELO SAIL had higher fall scores in mathematics among all students and three subgroups in both 2013 and 2014.

Summer 2012, 2013, and 2014: End of year analysis. Unlike previous studies, Cooper-Martin et al also examined the impact of ELO SAIL on end-of-year performance. The only positive impact on end-of-the-year reading was for kindergarten in in both 2013 and 2014; the stronger performance was apparent for all kindergarteners and the majority of subgroups. There were no significant differences in end-of-the year reading performance between ELO SAIL attendees and non-attendees in Grades 1 and 2 among all attendees and almost all subgroups.

Further, there was very little evidence for a positive impact of ELO SAIL on mathematics performance at the end of the year. For kindergarten students, attendees had significantly lower scores than non-attendees at the end of the year for summer 2013, although these differences were evident only for all kindergarteners, not for subgroups. The positive impact in the fall for both Grades 1 and 2 did not carry through to the spring; ELO SAIL first and second graders had significantly lower end-of-the-year mathematics scores than nonparticipants in each of the three years. These differences were evident for all students in each grade level, but not for most subgroups.

Scope of the Evaluation

This evaluation examines the impact of ELO SAIL on student academic achievement as posed by questions that were developed in collaboration with the program administrators in the Office of Title I Programs. This report focuses on the impact of the ELO SAIL program in 2015 with the following evaluation questions:

1. What were the demographic characteristics of students in Kindergarten–Grade 2 who attended ELO SAIL in 2015?
2. How did the students who participated in ELO SAIL perform in the following fall, compared with students in Title I schools who did not participate? Did the academic impact of the ELO SAIL program vary by student subgroups, such as race/ethnicity and services received?
 - a. Were kindergarten students who attended the 2015 ELO SAIL program more ready for school than their peers who did not attend?
 - b. Did kindergarten students who attended an ELO SAIL program perform better in reading and mathematics in fall 2015, compared with their peers in Title I schools who did not attend?
 - c. Did Grade 1 and Grade 2 students who attended an ELO SAIL program experience less summer loss in reading and mathematics, as measured in fall 2015, compared with their peers in Title I schools who did not attend?
3. How did the students who participated in ELO SAIL perform in the following spring, compared with their peers in Title I schools who did not attend? Did the academic impact of the ELO SAIL program vary by student subgroups, such as race/ethnicity and services received?

Methodology

Study Samples

During ELO SAIL 2015, 3,833 students attended for at least one day. Prior evaluations of ELO SAIL (as noted above) identified benefits only for students who attended four weeks or at least 16 days. Therefore, in this study, the sample of ELO SAIL attendees was limited to 2,705 students who attended at least 16 days of ELO SAIL in 2015.

To answer evaluation questions 2 and 3, the comparison group on non-attendees was students who did not attend any days of ELO SAIL in 2015 and were enrolled in Grades K–2 in Title I schools during the following school year, 2015–2016. Demographic characteristics of both attendees and non-attendees are in Appendix A. The two groups were similar on most characteristics; however, there were more Hispanic/Latino students among attendees (61%) than non-attendees (56%), more students who received ESOL services among attendees (60%) than non-attendees (47%), and more students who received FARMS services among attendees (80%) than non-attendees (70%).

Measures

Measures for this study included academic performance measures and student characteristics.

Kindergarten readiness. The Maryland Kindergarten Readiness Assessment (KRA) assesses school readiness in four domains: language and literacy, mathematics, physical well-being and motor development, and social foundations (MSDE, 2015b). KRA measures the skills and behaviors that children learned prior to entering kindergarten and classifies kindergarten readiness as follows:

- Demonstrating Readiness—a child demonstrates the foundational skills and behaviors that prepare him/her for curriculum based on the kindergarten standards.
- Developing Readiness—a child exhibits some of the foundational skills and behaviors that prepare him/her for curriculum based on the kindergarten standards.
- Emerging Readiness—a child displays minimal foundational skills and behaviors that prepare him/her for curriculum based on the kindergarten standards.

Children whose readiness skills and behaviors are identified as “developing” or “emerging” may require additional instructional support to be successful in kindergarten. KRA scores were used as an outcome measure to answer evaluation question 2a; each kindergarten student was categorized as school ready (i.e., identified as demonstrating readiness) or not ready (i.e., identified as developing or emerging readiness). (Although measured in fall 2015, these data were not available to MCPS until spring 2016.)

Reading. Data from the Assessment Program in Primary Reading (AP-PR) were used as reading measures. The AP-PR is a research-based and locally developed assessment used to measure important concepts and skills in the MCPS reading curriculum. AP-PR results provide formative and summative data. The Text Reading and Comprehension (TRC) subtest of the AP-PR is administered in the fall, winter, and spring each year to students from kindergarten to

Grade 2. Teachers and staff can use the data to monitor students' reading accuracy, oral retell, and oral comprehension and to guide instructional decisions. Students are expected to reach grade-specific benchmarks in spring: Level 4 for K, Level 16 for Grade 1, and Level M for Grade 2.

To answer evaluation question 2 for fall performance in reading, the measures varied by grade level. For kindergarten, the analysis concerned reading performance in the fall, after the summer of each ELO session. Among this study's sample, relatively few kindergarten students (about 15%) had a book level from the AP-PR in fall. Therefore, instead of analyzing each student's book level in the fall, the analyses focused on whether students were reading (i.e., had a book level) or not. Further, for students who were not reading, there was information on whether students had passed print concepts (foundational, pre-reading behaviors), had attempted the print concepts test and failed it, or were not ready for print concepts. There was also information on whether they had passed reading behaviors, which is part two of print concepts. Therefore, analyses of fall reading performance for kindergarten students used three categories:

1. Non-reading, for students who were not ready for print concepts or attempted but did not pass it
2. Pre-reading, for students who passed print concepts or reading behaviors
3. Reading for students who had any book level

To answer evaluation question 2 for fall performance in reading by students in Grades 1 and 2, each student's book level in fall (after ELO SAIL) was compared to his or her book level in the previous spring (prior to ELO SAIL). The analyses focused on summer loss by examining the percentage of students whose fall book level increased or stayed the same compared to their book level the prior spring, meaning they had no summer loss. Analyses for Grades 1 and 2 students included only students with a book level from both spring and fall.

To answer evaluation question 3 for reading performance at the end of the academic year, percentages of students meeting grade-specific benchmarks (noted above) in spring were used for each grade level: kindergarten, Grade 1, and Grade 2.

Mathematics. Measures of Academic Progress-Primary Grades (MAP-P) is an integrated collection of computerized assessments designed for students in kindergarten through second grade (Northwest Education Association, 2008 & 2011). It includes multiple-choice items and a variety of other item types. Audio headphones provide task instructions to capitalize on non-readers' or early readers' auditory comprehension more than reading comprehension. The MAP-P assessment is designed to provide educators with instructional information about what students are ready to learn. Rasch unit (RIT) scores for mathematics were used to answer evaluation questions 2 and 3 for mathematics.

To answer evaluation question 2 for mathematics performance in the fall, the measures varied by grade level. For kindergarteners, the measure was the RIT score from the MAP-P in mathematics assessment completed in fall 2015 after the ELO SAIL session. For Grades 1 and 2, the analyses examined differences between the RIT score from fall 2015, following ELO SAIL, and the RIT score from spring 2015, prior to ELO SAIL. The measure to answer evaluation question 3 was the RIT score from the spring 2016 assessments following the ELO SAIL session.

Data Collection

Student-level data on participation in ELO SAIL, demographic characteristics, mathematics outcomes, and reading outcomes were downloaded from appropriate MCPS databases. KRA scores were obtained from MSDE.

Analytical Procedures

Descriptive analyses addressed evaluation question 1. For evaluation questions 2 and 3, bivariate tests of significance were used to examine differences between students who participated in ELO SAIL and those who did not for all students and for selected subgroups. The findings excluded American Indian, Pacific Islander, and Two or More Races subgroups due to small sample size. Specifically, χ^2 tests were used for the categorical measures, including school readiness (i.e., students were or were not ready for school) and reading (i.e., students did or did not have summer loss, students did or did not meet the end-of-year reading benchmark). For the mathematics measures, t-tests were used because the RIT scores were continuous (i.e., had a wide range of values) and were a ratio scale (i.e., start at zero and had the same distance between values).

Strengths and Limitations of the Methodology

One strength of this study is that ELO SAIL attendees were compared to other students from the same schools (i.e., all the Title I schools) that offer ELO SAIL. Thus, the comparison group had similar school experiences and were in the same grade. Also, the attendees were limited to students with high attendance, thus ensuring that students who received low dosages of the program were not included.

There are two caveats when interpreting the results. One, for students in Grades 1 and 2, the fall reading measure was whether a student had an increase in book level or stayed the same compared to the prior spring. However, because there are not equal intervals between book levels, the effort to increase from one book level to the next may not be the same for every book level. Thus it is possible that any differences between the attendees and non-attendees may be due to differences other than students' ELO SAIL experiences. Two, the tests of significance did not control for any differences between the attendees and non-attendees at ELO SAIL that could affect their academic performance, such as initial ability. However, the measures for students in Grades 1 and 2 for both mathematics and reading in the fall examined differences between achievement after ELO SAIL and achievement before ELO SAIL and thus provided some control for initial ability.

Lastly, causality may not be inferred from this study due to the lack of an experimental design. The underlying assumption of an experimental design is to randomly administer an intervention program (e.g., ELO SAIL) to only one group and use another group who did not receive the same type of treatment as a comparison. Although the comparison group in this study did not attend ELO SAIL, it is not known whether these students received a similar type of academic or enrichment program during the summer or whether they differed from attendees in other ways (e.g., motivation, academic need).

Results

Findings for Question 1: What were the demographic characteristics of students in Grades K–2 who attended ELO SAIL in 2015?

Table 1 presents the demographic characteristics of the 2,727 students in Grades K–2 who attended ELO SAIL in summer 2015 for 16 or more days. Among these attendees, a little more than one half were male. More than six out of ten of these students were Hispanic/Latino and more than one quarter were Black or African American. Six out of ten attendees received ESOL services, eight out of ten qualified for FARMS services, and one out of ten received special education services.

Table 1
Characteristics of Attendees at 2015 ELO SAIL

	<i>N</i>	%
Total	2,727	100.0
Grade level		
Kindergarten	969	35.5
Grade 1	915	33.6
Grade 2	843	30.9
Gender		
Female	1,292	47.4
Male	1,435	52.6
Race/ethnicity		
American Indian	8	0.3
Asian	170	6.2
Black or African American	742	27.2
Hispanic/Latino	1,672	61.3
White	85	3.1
Two or More Races	50	1.8
Receipt of services during school year 2014–2015		
ESOL	1,639	60.1
FARMS	2,181	80.0
Special education	269	9.9

Note. Limited to students who attended for 16 or more days.

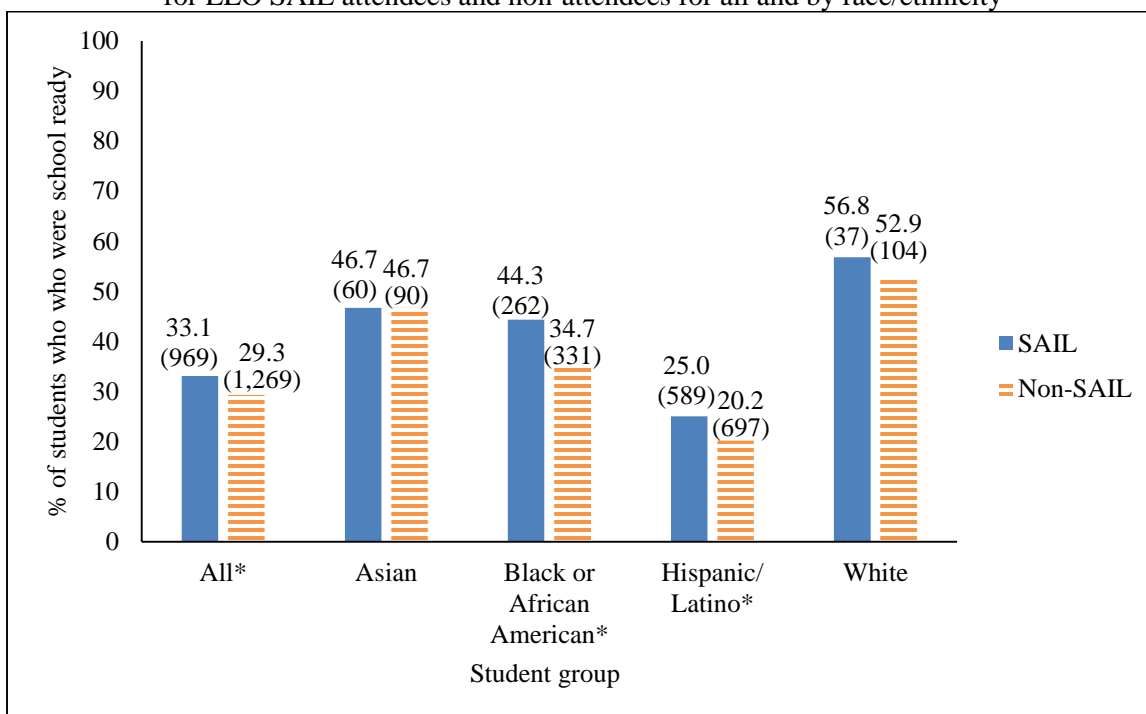
Findings for Question 2: How did the students who participated in ELO SAIL perform in the following fall, compared with students in Title I schools who did not participate?

School Readiness

This section uses results of the Maryland Kindergarten Readiness Assessment (KRA). As noted above, a child who is school ready demonstrates the foundational skills and behaviors that prepare him/her for curriculum based on the kindergarten standards.

Among kindergarten students, a higher percentage of the 969 SAIL attendees (33%) were school ready compared to the 1,269 non-attendees (29%) (Figure 2.1). This difference was statistically significant ($\chi^2 (1) = 3.74, p \leq .05$).

Figure 2.1
Percentage of kindergarten students who were school ready in fall 2015 for ELO SAIL attendees and non-attendees for all and by race/ethnicity



Note. (#) refers to total number of students in group.

* $p \leq .05$, ** $p < .01$, *** $p < .001$

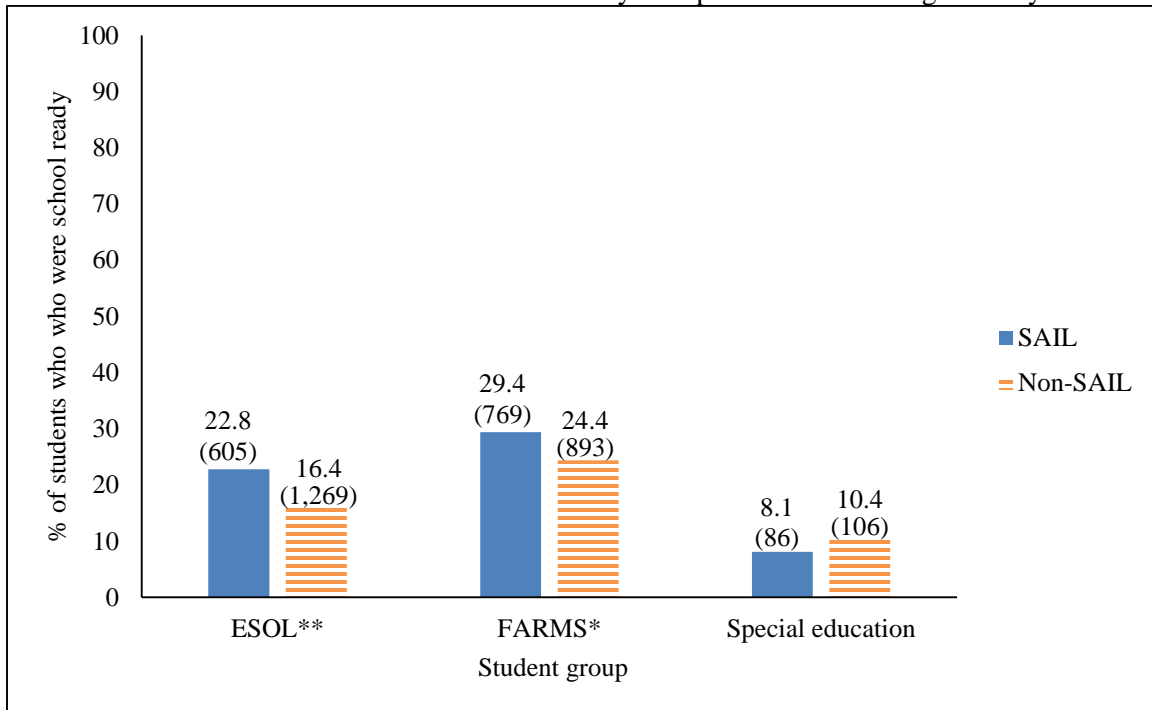
Further, as for all kindergarten students, more ELO SAIL attendees than their non-participating peers in each racial/ethnic subgroup were school ready. This difference was statistically significant for the two largest groups:

- Black or African American students ($\chi^2 (1) = 5.59, p < .05$)
- Hispanic/Latino students ($\chi^2 (1) = 4.11, p < .05$).

Among kindergarten students who received services, more ELO SAIL attendees than non-attendees were school ready for two groups: recipients of ESOL services and recipients of FARMS services (Figure 2.2). Both of these differences were statistically significant: ESOL ($\chi^2(1) = 8.04, p < .01$) and FARMS ($\chi^2(1) = 5.23, p < .05$). However, for students who received special education services the relationship was reversed, although this difference was not statistically significant.

Figure 2.2

Percentage of kindergarten students who were school ready in fall 2015 for ELO SAIL attendees and non-attendees by receipt of services during school year



Note. (#) refers to total number of students in group.

* $p < .05$, ** $p < .01$, *** $p < .001$

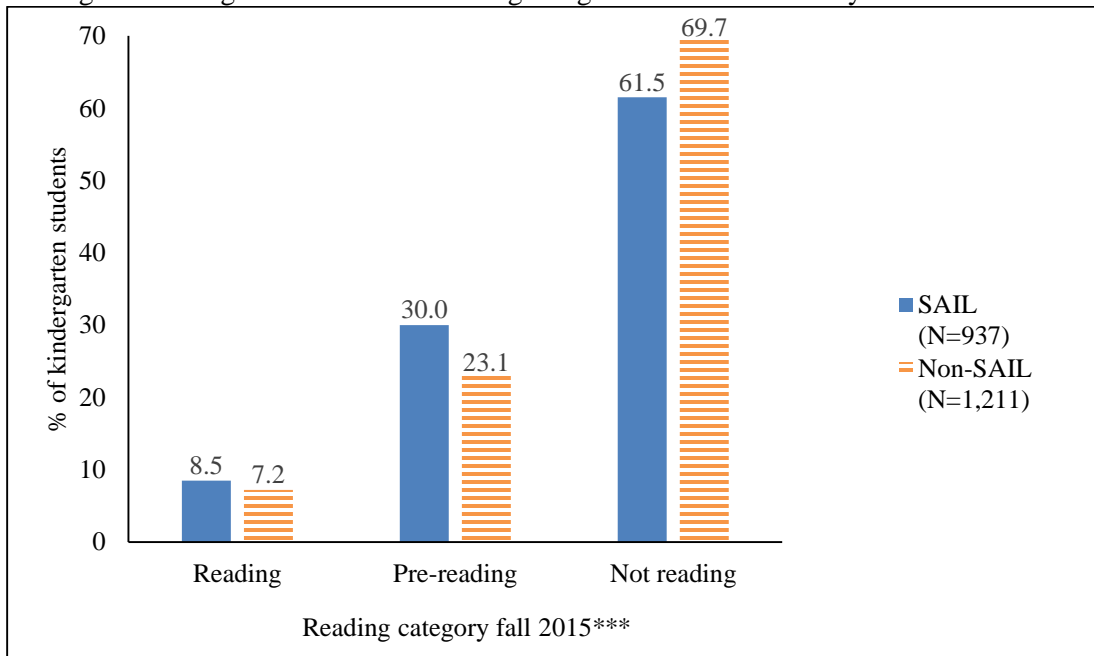
Reading

Kindergarten. As noted above, relatively few kindergarten students (about 15%) had a book level from the fall reading assessments (i.e., AP-PR). Therefore, instead of analyzing each student’s book level, the analyses used three categories of reading performance (as described above):

1. Reading: students who had any book level
2. Pre-reading: students who passed print concepts or reading behaviors
3. Non-reading: students who did not pass print concepts or did not attempt it

For all kindergarten students, there was a statistically significant difference in between ELO SAIL attendees and non-attendees in reading categories ($\chi^2(2) = 16.19, p < .001$) (Figure 2.3)

Figure 2.3
Percentage of kindergarten students in reading categories from fall 2015 by ELO SAIL attendance



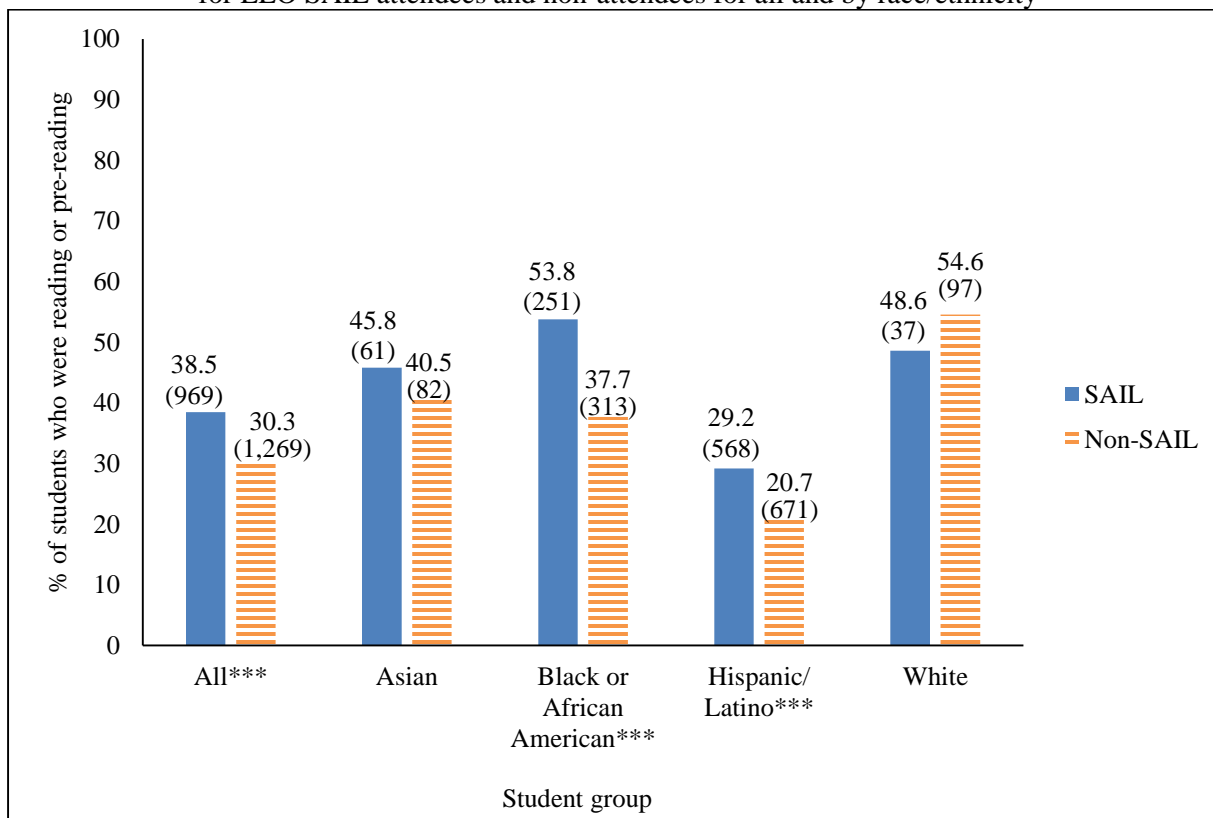
* $p < .05$, ** $p < .01$, *** $p < .001$

To more specifically identify the differences, further analysis used two categories for reading. When combining pre-reading with non-reading into one category, so as to compare readers to all others, the difference in the percentage of readers between SAIL attendees (8.5%) and non-attendees (7.2%) was not statistically significant ($\chi^2(2) = 1.35, p > .05$).

However, when combining reading with pre-reading, so as to compare non-readers to all others, there was a statistically significant difference ($\chi^2(2) = 15.94, p < .001$), in favor of attendees (Figure 2.4). Similarly, in three of the racial subgroups of kindergarten students, there were more students who were pre-readers or readers among ELO SAIL attendees than non-attendees. Two of the differences were statistically significant:

- Black or African American students ($\chi^2(1) = 14.58, p < .001$)
- Hispanic/Latino students ($\chi^2(1) = 12.01, p \leq .001$)

Figure 2.4
 Percentage of kindergarten students who were reading or pre-reading in fall 2015 for ELO SAIL attendees and non-attendees for all and by race/ethnicity

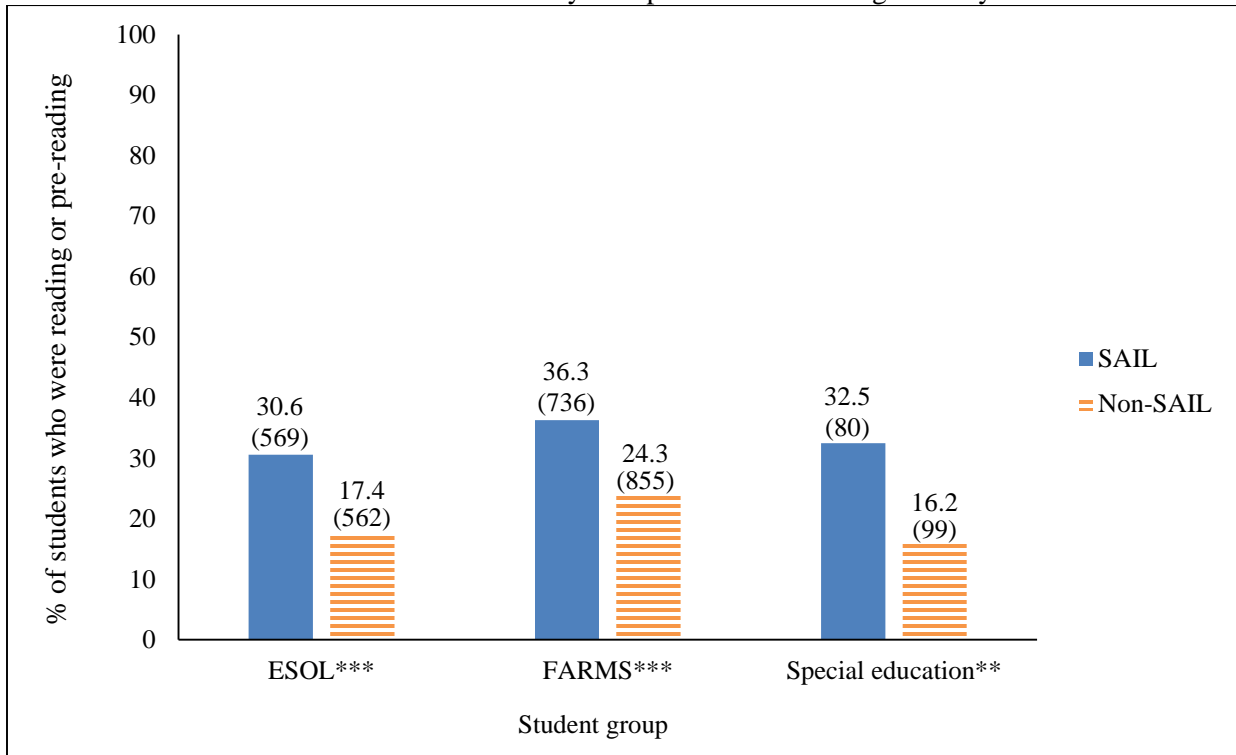


Note. (#) refers to total number of students in group.
 * $p \leq .05$, ** $p < .01$, *** $p < .001$

Likewise, for each group of students that received services, a higher percentage of ELO SAIL participants than nonparticipants were at the pre-reading or reading level (Figure 2.5). Further, the difference for each subgroup was statistically significant in favor of ELO SAIL, as follows:

- ESOL recipients ($\chi^2(1) = 26.74, p < .001$)
- FARMS recipients ($\chi^2(1) = 26.97, p < .001$)
- Special education recipients ($\chi^2(1) = 6.58, p \leq .01$)

Figure 2.5
 Percentage of kindergarten students who were reading or pre-reading in fall 2015 for ELO SAIL attendees and non-attendees by receipt of services during school year

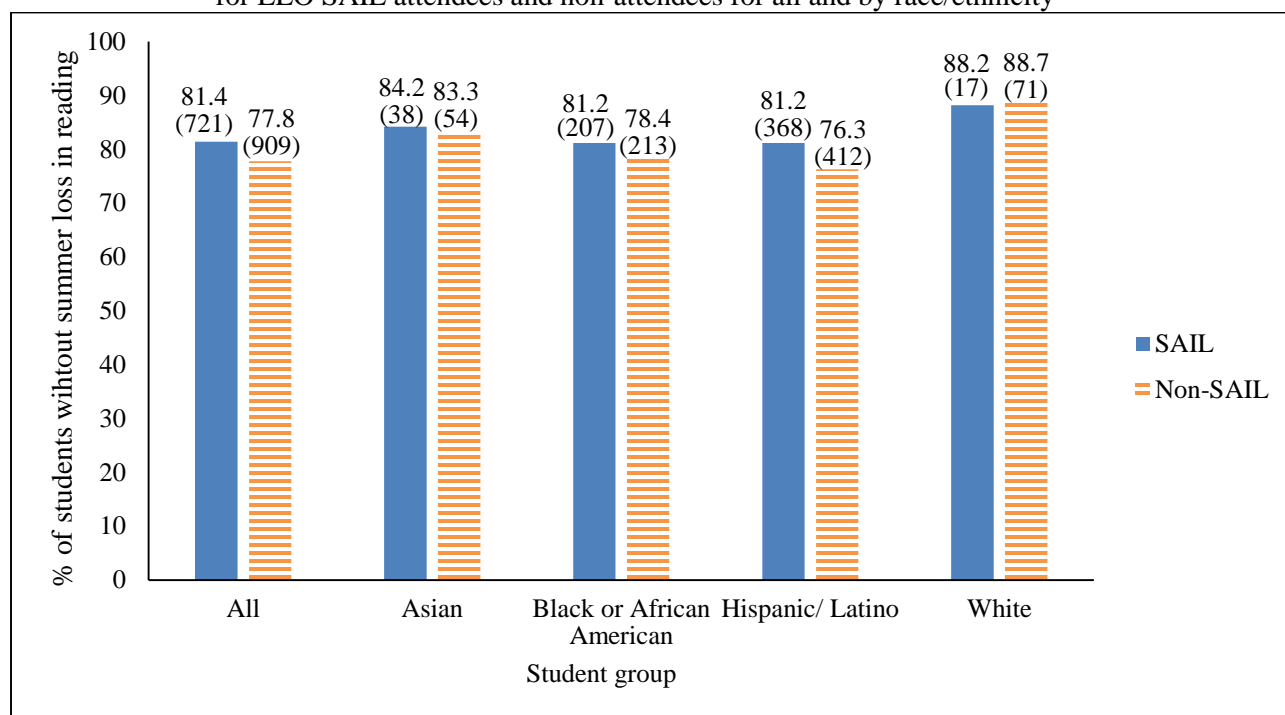


Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p \leq .01$, *** $p < .001$

Grade 1. To analyze fall reading performance for first graders, the focus was whether the student avoided any summer loss in reading. The measure used was whether each student had a fall book level (i.e., after the summer) that was higher or the same as his or her book level in the previous spring (i.e., before the summer).

Figure 2.6 displays the percentage of Grade 1 students without summer loss in reading for ELO SAIL participants and nonparticipants. A higher percentage of ELO SAIL attendees avoided summer reading loss than their peers; however the difference was not significant.

Figure 2.6
 Percentage of Grade 1 students without summer loss in reading in fall 2015
 for ELO SAIL attendees and non-attendees for all and by race/ethnicity



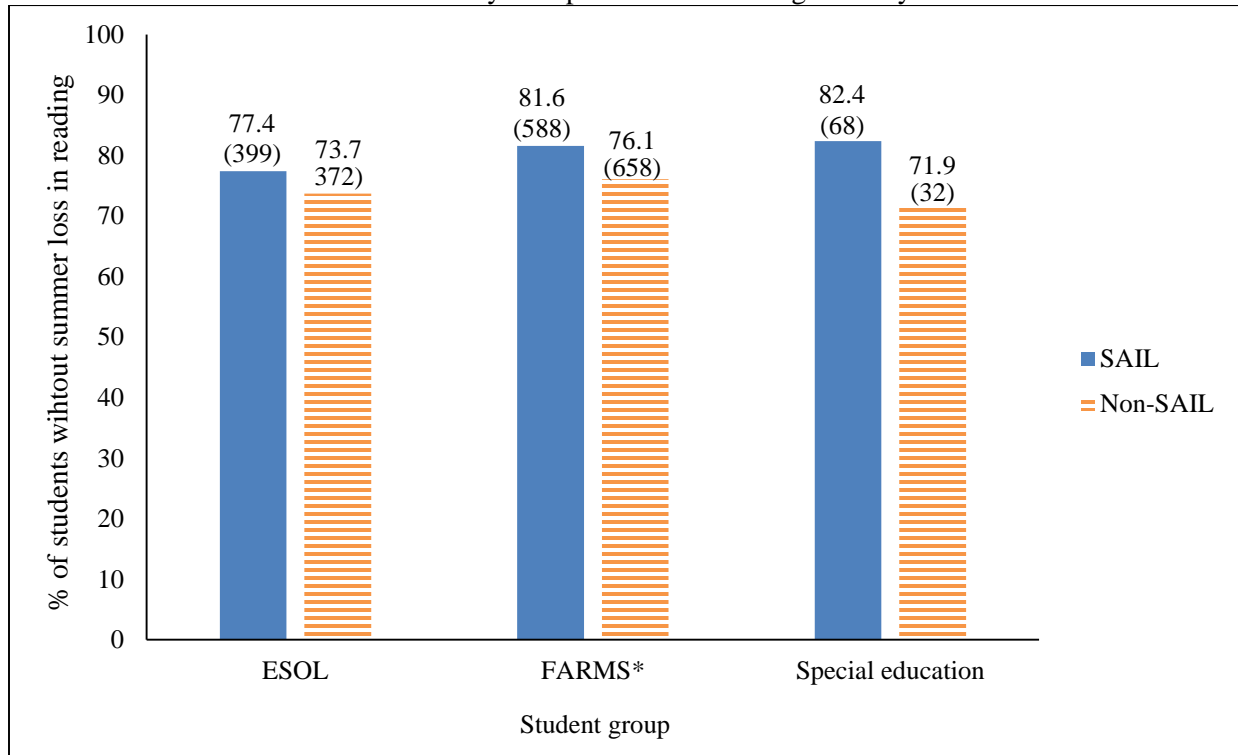
Note. (#) refers to total number of students in group.
 p* < .05, *p* < .01, ****p* < .001

The results were similar for almost all subgroups of first graders. As with all Grade 1 students, more ELO SAIL attendees than non-attendees had fall reading levels at or above their spring reading level among each racial/ethnic group except White students (Figure 2.6 above). None of these differences were statistically significant.

Likewise, for each group of students that received services, a higher percentage of ELO SAIL participants than nonparticipants avoided summer loss (Figure 2.7). Further, the difference for recipients of FARMS was statistically significant ($\chi^2(1) = 5.60, p < .05$), in favor of ELO SAIL.

Figure 2.7

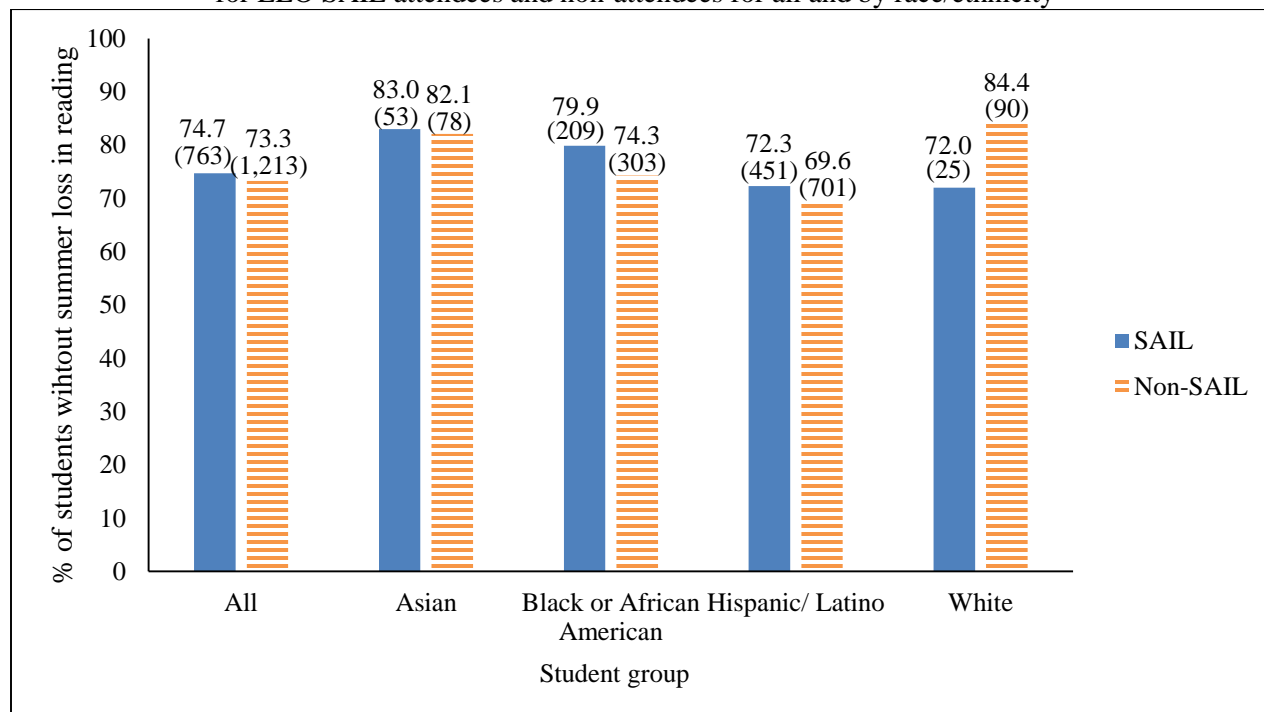
Percentage of Grade 1 students without summer loss in reading in fall 2015 for ELO SAIL attendees and non-attendees by receipt of services during school year



Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

Grade 2. As with Grade 1, analyses focused on whether the student avoided any summer loss in reading. Among all Grade 2 students, a slightly higher percentage of ELO SAIL participants than nonparticipants avoided summer loss in reading (Figure 2.8). This difference was not statistically significant.

Figure 2.8
 Percentage of Grade 2 students without summer loss in reading in fall 2015
 for ELO SAIL attendees and non-attendees for all and by race/ethnicity



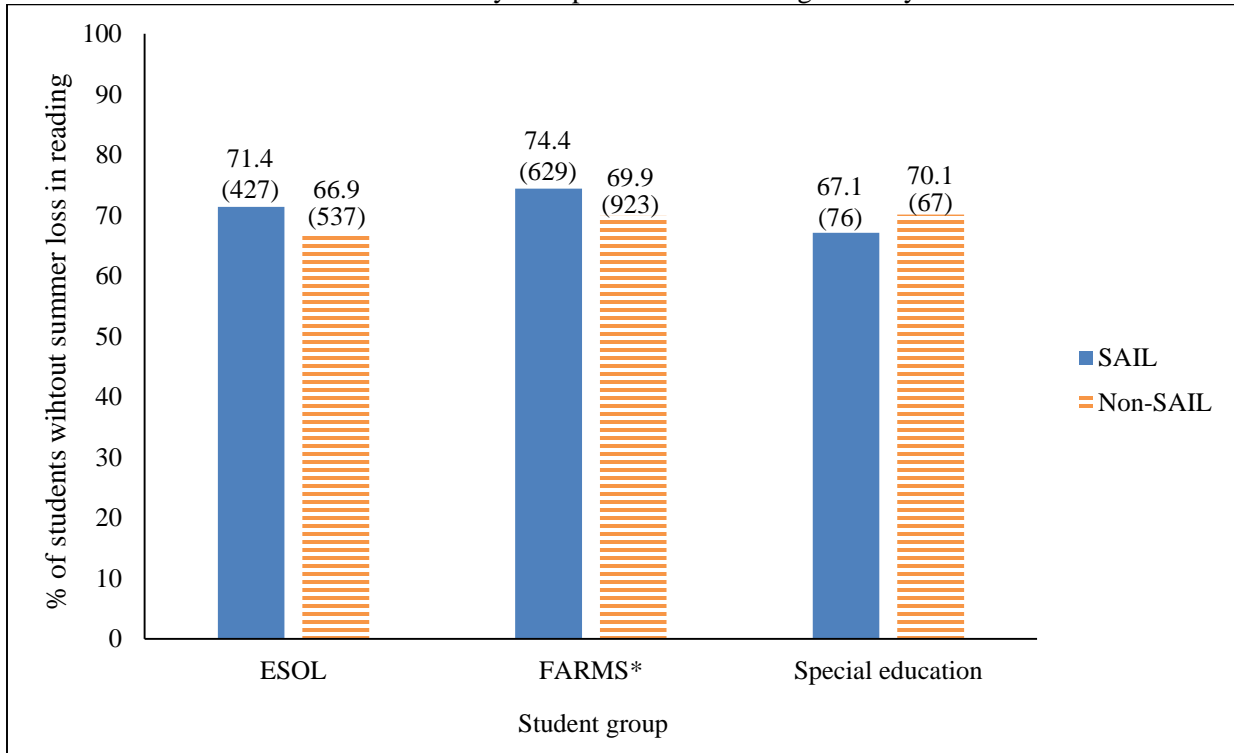
Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

The results were similar for the majority subgroups of second graders. As with all Grade 2 students, a larger percentage of ELO SAIL attendees than non-attendees showed no summer loss in reading among each racial/ethnic group except White students (Figure 2.8 above). None of these differences were statistically significant.

Similarly, for recipients of ESOL and of FARMS, a higher percentage of ELO SAIL participants than nonparticipants avoided summer loss (Figure 2.9). The difference was statistically significant for recipients of FARMS ($\chi^2(1) = 3.77, p \leq .05$), in favor of ELO SAIL.

Figure 2.9

Percentage of Grade 2 students without summer loss in reading in fall 2015 for ELO SAIL attendees and non-attendees by receipt of services during school year



Note. (#) refers to total number of students in group.

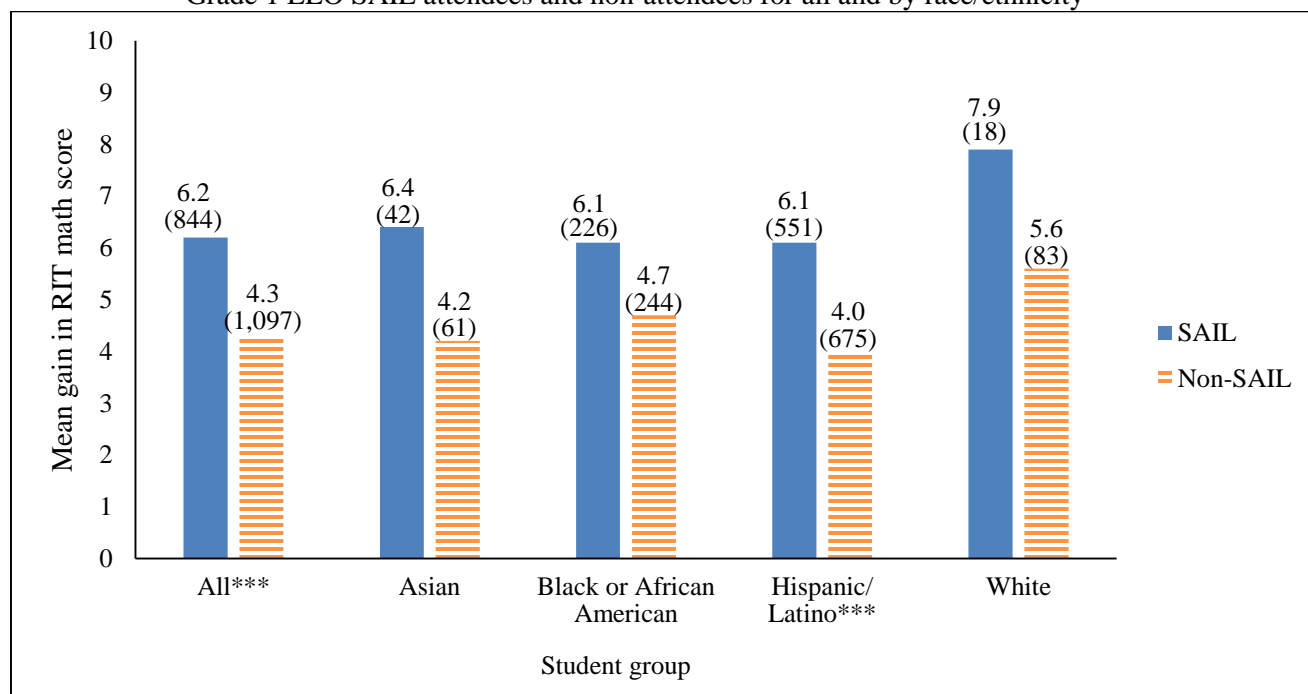
* $p < .05$, ** $p < .01$, *** $p < .001$

Mathematics

Kindergarten. There are no findings with respect to mathematics performance by kindergarten students because less than 20 students had math scores from fall 2015.

Grade 1. For mathematics, the analyses for first graders examined changes in RIT scores between spring (prior to ELO SAIL) and fall (after ELO SAIL). These changes were summarized by calculating the mean gain across each group of students, as seen in Figure 2.10. Specifically, the results indicated that, on average, students who attended ELO SAIL increased their RIT score by 6.2 points in fall 2015 (after ELO SAIL) compared to their score in spring 2015 (before ELO SAIL), while nonparticipants, on average, increased their RIT score by 4.3 points. Thus, the mean RIT gain was higher for ELO SAIL participants than for nonparticipants. This difference was statistically significant in favor of ELO SAIL ($t(1,939) = 4.93, p < .001$).

Figure 2.10
 Mean gain in MAP-P RIT mathematics score from prior spring to fall for Grade 1 ELO SAIL attendees and non-attendees for all and by race/ethnicity



Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

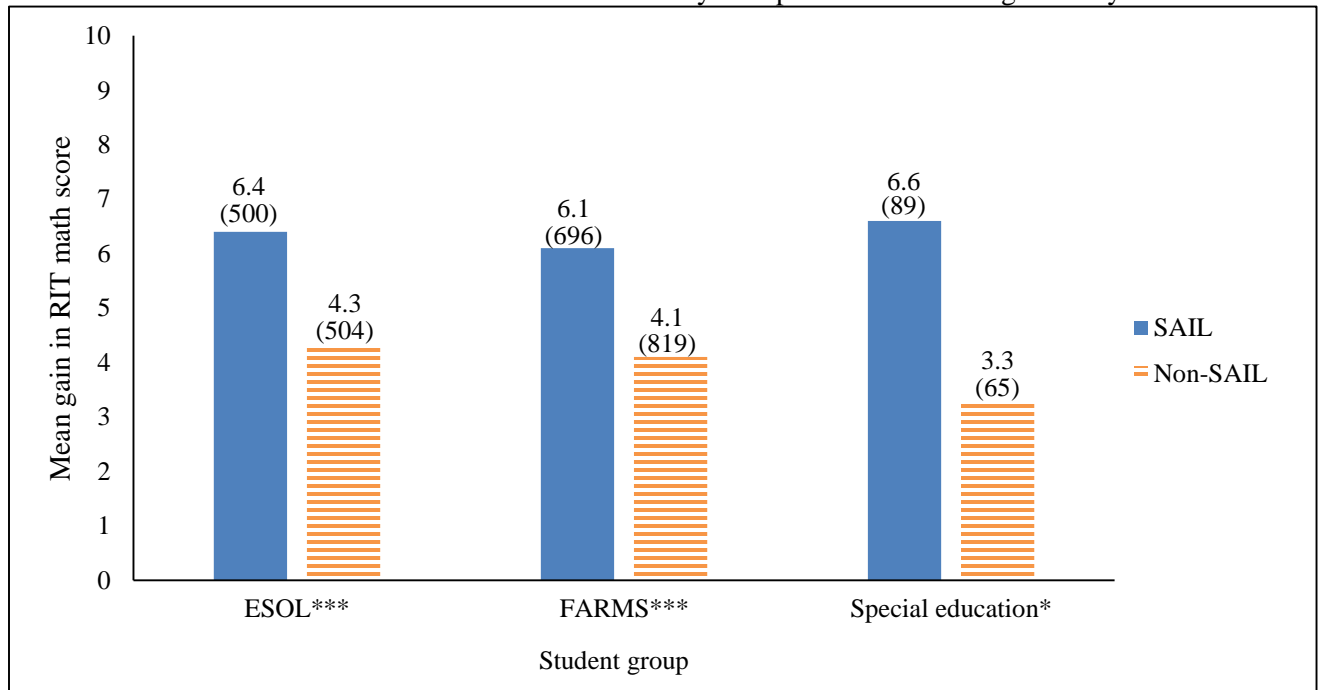
There was a consistent pattern of stronger performance of ELO SAIL participants when analyzing subgroups of 1st graders. As with all Grade 1 students, mean gains in mathematics scores were higher among ELO SAIL than non-ELO SAIL students for every racial subgroup (Figure 2.10 above). The difference for Hispanic/Latino students was statistically significant ($t(1,224) = 4.48, p < .001$).

This pattern of stronger performance by ELO SAIL attendees also was evident for each of the Grade 1 service receipt groups (Figure 2.11). Each of these differences was statistically significant in favor of ELO SAIL:

- ESOL recipients ($t(1,002) = 3.90, p < .001$).
- FARMS recipients ($t(1,513) = 4.85, p < .001$).
- Special education recipients ($t(152) = 2.13, p < .05$).

Figure 2.11

Mean gain in MAP-P RIT mathematics score from prior spring to fall for Grade 1 ELO SAIL attendees and non-attendees by receipt of services during school year

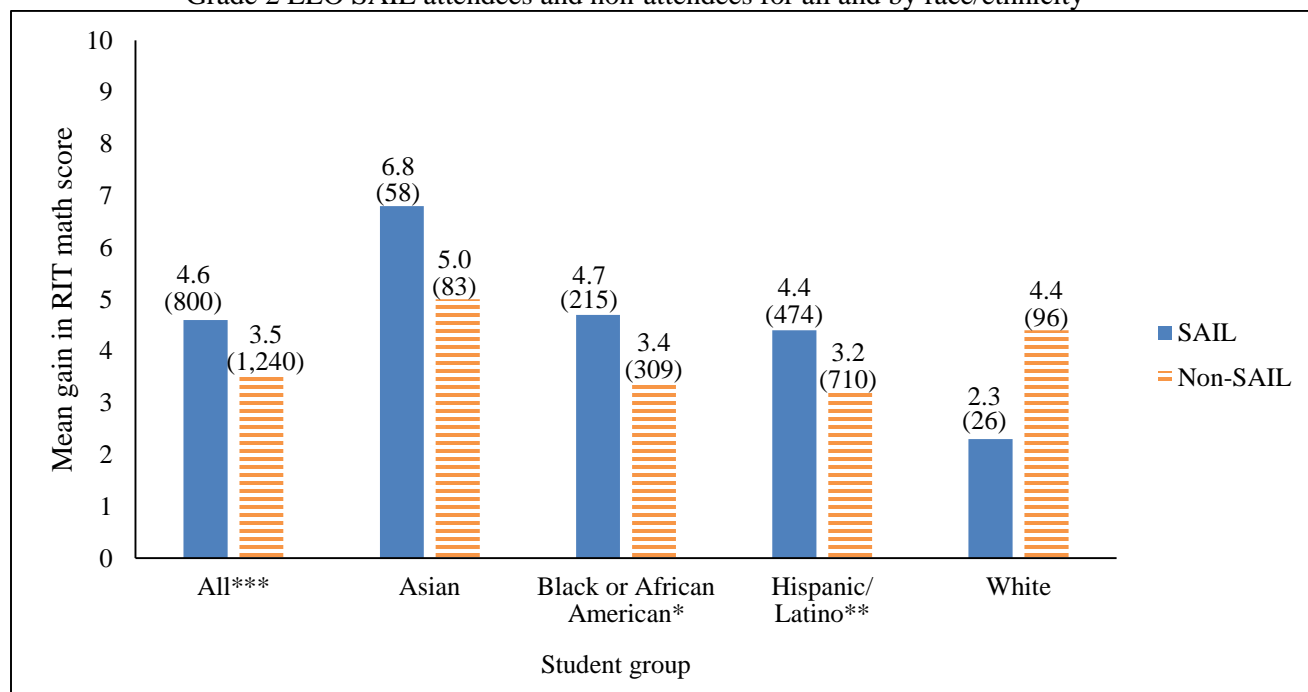


Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

Grade 2. For mathematics, the analyses for second graders examined changes in RIT scores between spring (prior to ELO SAIL) and fall (after ELO SAIL), as with first graders. These changes were summarized by calculating the mean gain across each group of students, as seen in Figure 2.12. The mean RIT gain was higher for ELO SAIL participants than for nonparticipants. This difference was statistically significant in favor of ELO SAIL ($t(2,038) = 3.49, p < .001$).

Figure 2.12

Mean gain in MAP-P RIT mathematics score from prior spring to fall for Grade 2 ELO SAIL attendees and non-attendees for all and by race/ethnicity



Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

There was a consistent pattern of stronger performance of ELO SAIL participants when analyzing subgroups of 2nd graders. As with all Grade 2 students, mean gains in mathematics scores were higher among ELO SAIL than non-ELO SAIL students for every racial subgroup except White students (Figure 2.12 above). Two differences were statistically significant in favor of ELO SAIL:

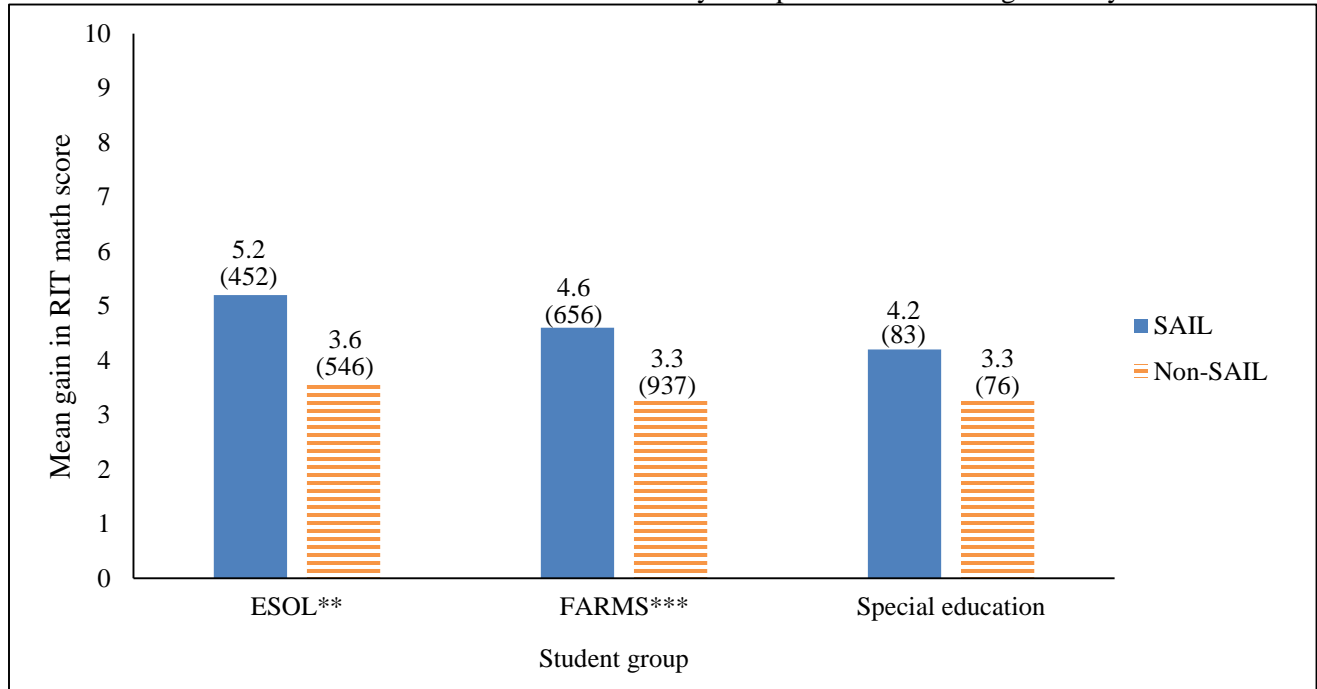
- Black or African American ($t(522) = 2.01, p < .05$).
- Hispanic/Latino students ($t(1,182) = 2.79, p < .01$).

This pattern of stronger performance by ELO SAIL attendees also was evident for each of the Grade 2 service receipt groups (Figure 2.13). These differences were statistically significant in favor of ELO SAIL for two groups:

- ESOL recipients ($t(996) = 3.16, p < .01$).
- FARMS recipients ($t(1,591) = 3.49, p \leq .001$).

Figure 2.13

Mean gain in MAP-P RIT mathematics score from prior spring to fall for Grade 2 ELO SAIL attendees and non-attendees by receipt of services during school year



Note. (#) refers to total number of students in group.

* $p < .05$, ** $p < .01$, *** $p < .001$

Findings for Question 3: How did the students who participated in ELO SAIL perform in the following spring, compared with their peers in Title I schools who did not attend?

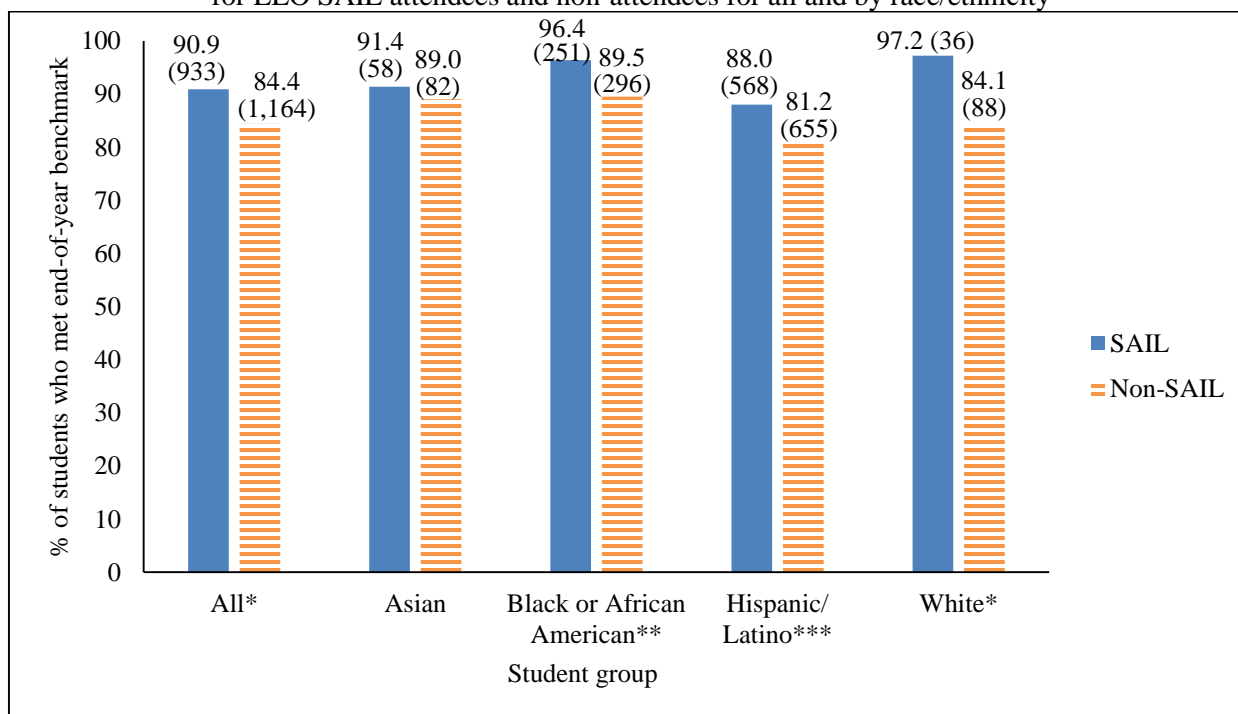
Reading

The measure of reading performance was meeting the end-of-year grade-level reading benchmark on AP-PR (i.e., Level 4 for kindergarten, Level 16 for Grade 1, and Level M for Grade 2) by spring 2016, after the ELO SAIL session.

Kindergarten. Among all kindergarten students, a higher percentage of SAIL participants met the end-of-year benchmark in reading than nonparticipants (Figure 3.1). This difference was statistically significant ($\chi^2(1) = 19.85, p < .001$).

Figure 3.1

Percentage of kindergarten students who met the end-of-year AP-PR reading benchmark in spring 2016 for ELO SAIL attendees and non-attendees for all and by race/ethnicity



Note. (#) refers to total number of students in group.

* $p < .05$, ** $p < .01$, *** $p < .001$

The reading performance of ELO SAIL participants versus nonparticipants for kindergarten subgroups was similar to that for all kindergarten students. More ELO SAIL students than their nonparticipating peers met the end-of-year reading benchmark within each racial/ethnic subgroup (Figure 3 above). Three of these differences were statistically significant in favor of ELO SAIL:

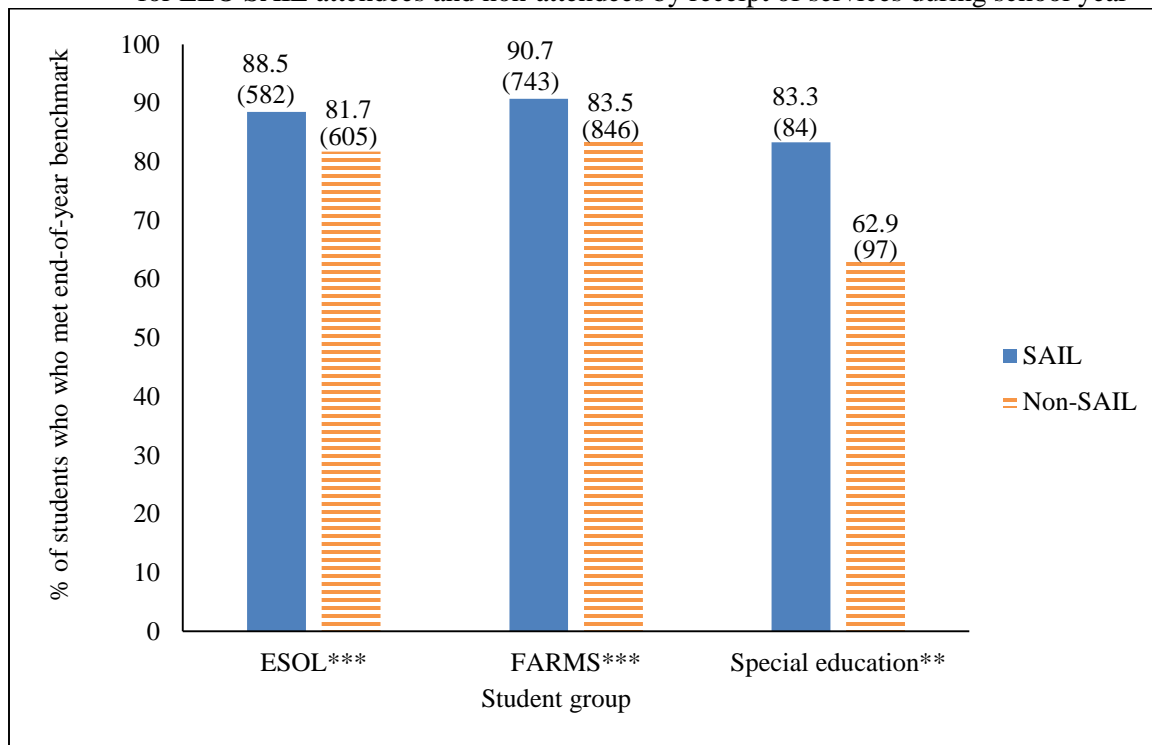
- Black or African American students: ($\chi^2(1) = 9.51, p \leq .01$).
- Hispanic/Latino students ($\chi^2(1) = 10.70, p < .001$).
- White students: ($\chi^2(1) = 4.14, p \leq .05$).

As with all kindergarten students, a higher percentage of ELO SAIL participants than nonparticipants met the end-of-year reading benchmark within each service receipt group (Figure 3.2). All three of these differences were statistically significant in favor of ELO SAIL:

- ESOL recipients ($\chi^2(1) = 10.87, p \leq .001$).
- FARMS recipients ($\chi^2(1) = 18.26, p < .001$).
- Special education recipients ($\chi^2(1) = 9.41, p < .01$).

Figure 3.2

Percentage of kindergarten students who met the end-of-year AP-PR reading benchmark in spring 2016 for ELO SAIL attendees and non-attendees by receipt of services during school year

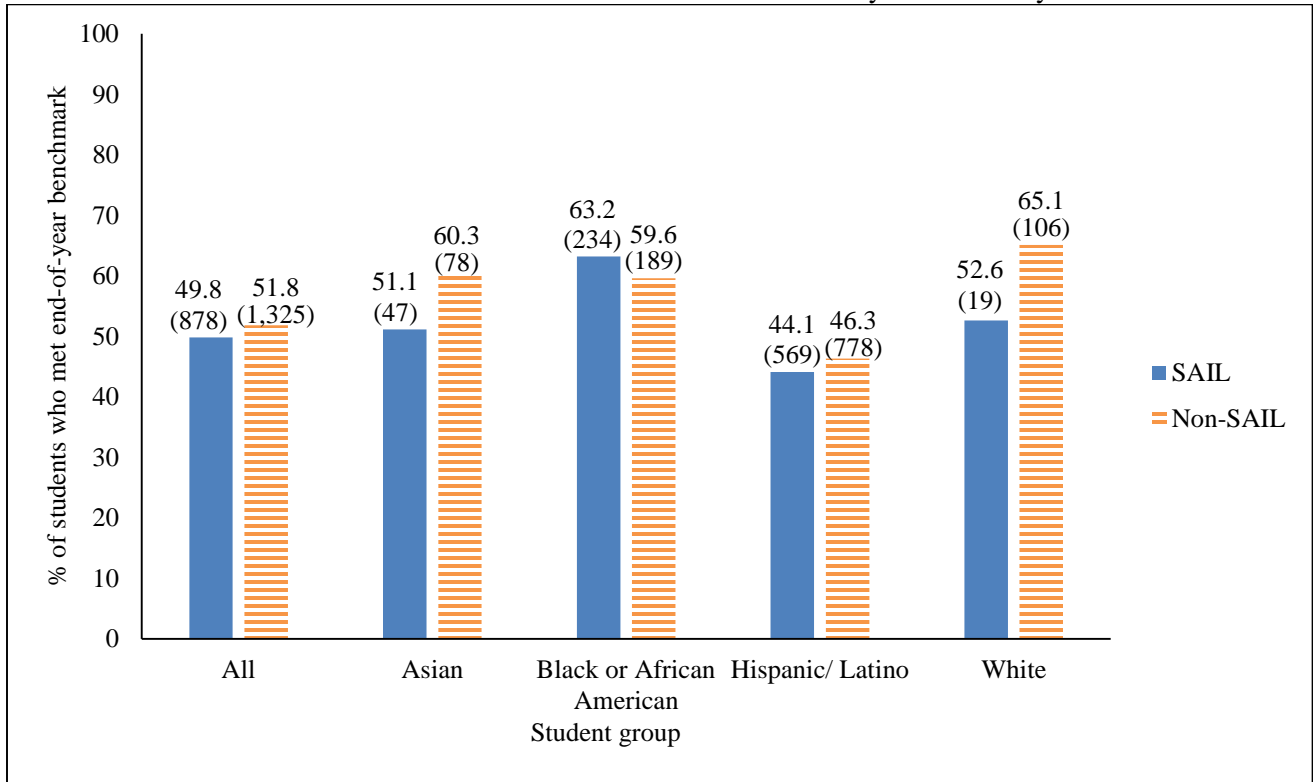


Note. (#) refers to total number of students in group.

* $p < .05$, ** $p \leq .01$, *** $p < .001$

Grade 1. A smaller percentage of Grade 1 ELO SAIL participants than nonparticipants met the end-of-year reading benchmark (Figure 3.3). This difference was not statistically significant.

Figure 3.3
 Percentage of Grade 1 students who met the end-of-year AP-PR reading benchmark in spring 2016 for ELO SAIL attendees and non-attendees for all and by race/ethnicity



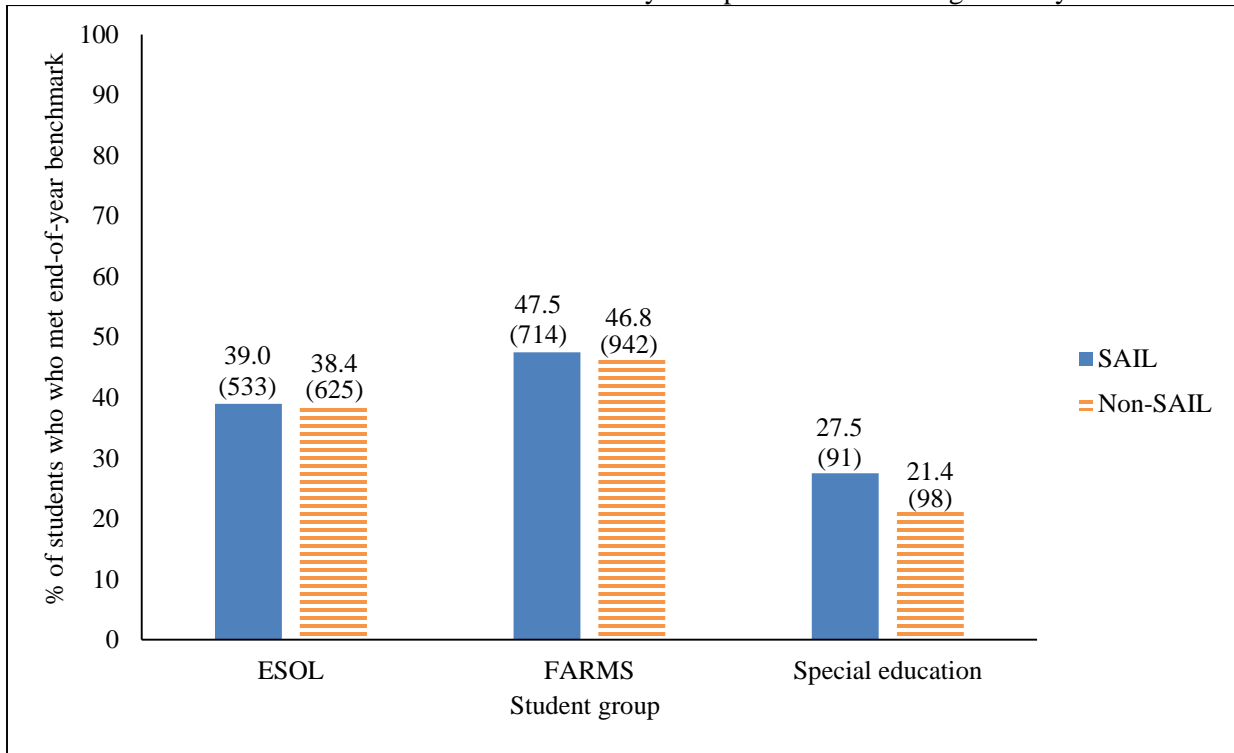
Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

The reading performance of ELO SAIL participants versus nonparticipants for Grade 1 subgroups varied across subgroups. As for all first graders, fewer ELO SAIL students than their nonparticipating peers met the end-of-year reading benchmark within three of the racial/ethnic subgroups (Figure 3.3 above). None of these differences was statistically significant.

However, unlike all first graders, at least slightly more ELO SAIL participants than nonparticipants met the end-of-year reading benchmark for Black or African American students (Figure 3.3 above) and for each of the service receipt subgroups (Figure 3.4). None of these differences was statistically significant.

Figure 3.4

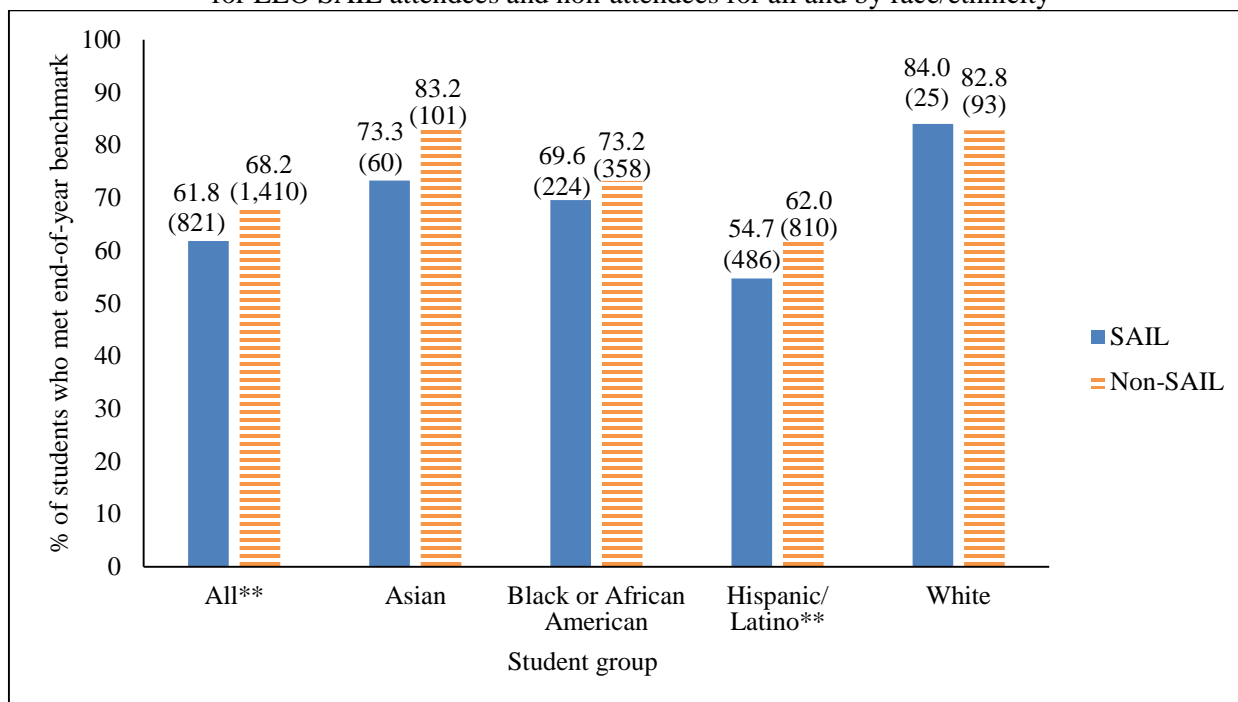
Percentage of Grade 1 students who met the end-of-year AP-PR reading benchmark in spring 2016 for ELO SAIL attendees and non-attendees by receipt of services during school year



Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

Grade 2. Overall, fewer Grade 2 ELO SAIL high-attendance participants than nonparticipants met the end-of-year reading benchmark in spring 2016 (Figure 3.5). This difference was statistically significant ($\chi^2(1) = 9.45, p < .01$), in favor of nonparticipants.

Figure 3.5
 Percentage of Grade 2 students who met the end-of-year AP-PR reading benchmark in spring 2016 for ELO SAIL attendees and non-attendees for all and by race/ethnicity



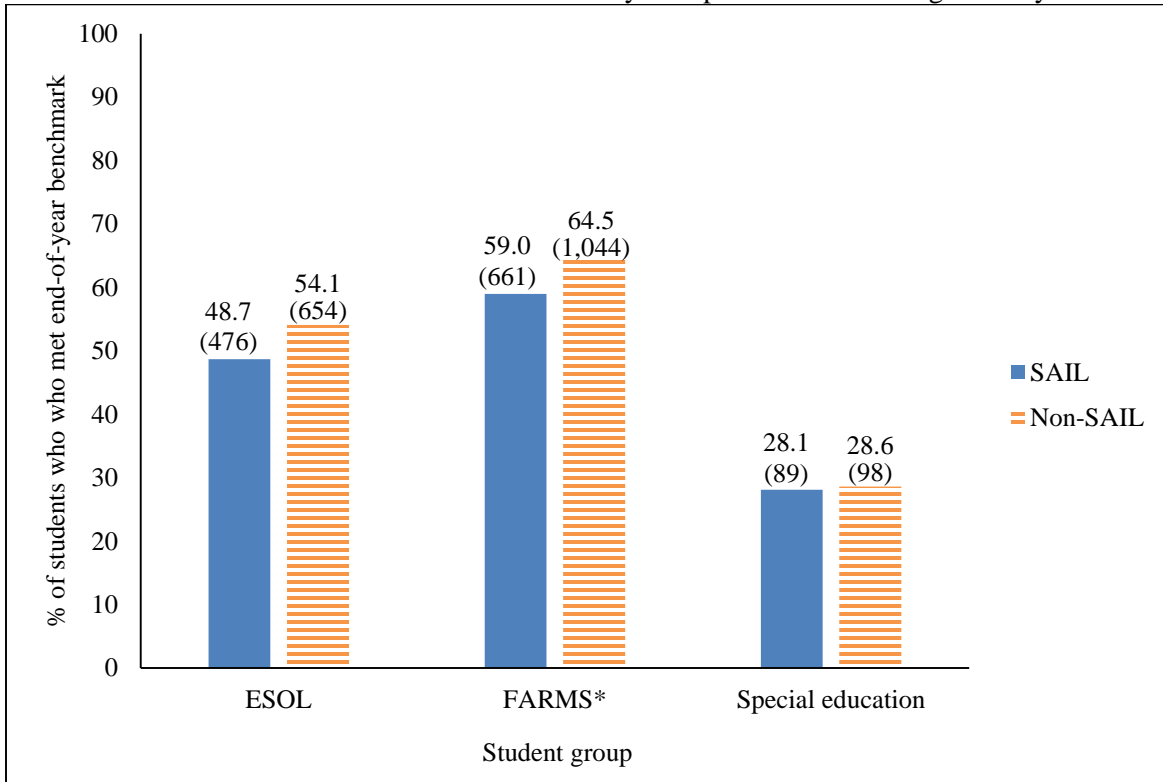
Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p \leq .01$, *** $p < .001$

The reading performance of ELO SAIL participants versus nonparticipants did not vary across Grade 2 subgroups with one exception. As for all second graders, more of the nonparticipants than participants met the end of year reading benchmark among all racial ethnic subgroups, except for White students (Figure 3.5 above). This difference was statistically significant for Hispanic/Latino students ($\chi^2(1) = 6.60, p \leq .01$), in favor of nonparticipants.

With respect to service recipients, fewer ELO SAIL participants than nonparticipants met the end-of-year reading benchmark in all three subgroups (Figure 3.6). This difference was statistically significant for FARMS recipients ($\chi^2 (1) = 5.14, p \leq .05$), in favor of nonparticipants.

Figure 3.6

Percentage of Grade 2 students who met the end-of-year AP-PR reading benchmark in spring 2016 for ELO SAIL attendees and non-attendees by receipt of services during school year



Note. (#) refers to total number of students in group.

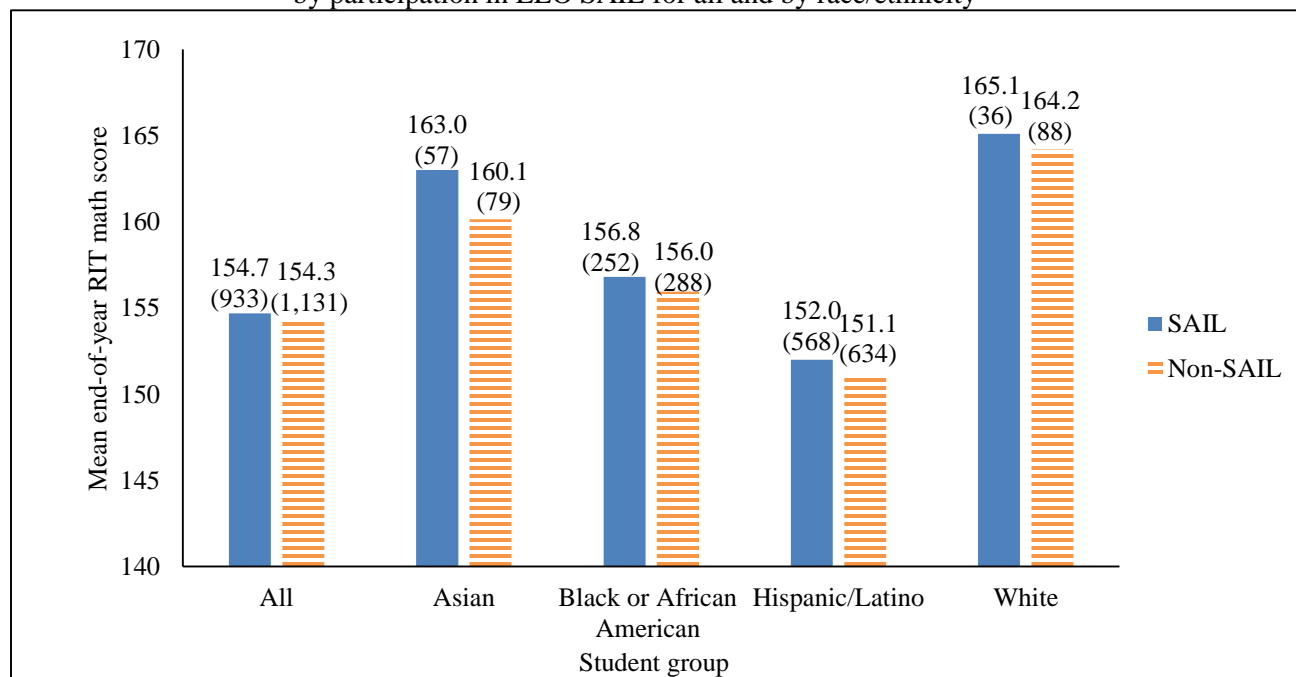
* $p < .05$, ** $p < .01$, *** $p < .001$

Mathematics

The measure to analyze mathematics performance at the end of the year was the MAP-P RIT score in mathematics from spring 2016, following the ELO SAIL session.

Kindergarten. Across all kindergarten students, the mean end-of-year RIT score in mathematics of ELO SAIL participants was slightly higher than the nonparticipants (Figure 3.7). This difference was not statistically significant.

Figure 3.7
Mean end-of-year MAP-P RIT scores in mathematics in spring 2016 for kindergarten students by participation in ELO SAIL for all and by race/ethnicity

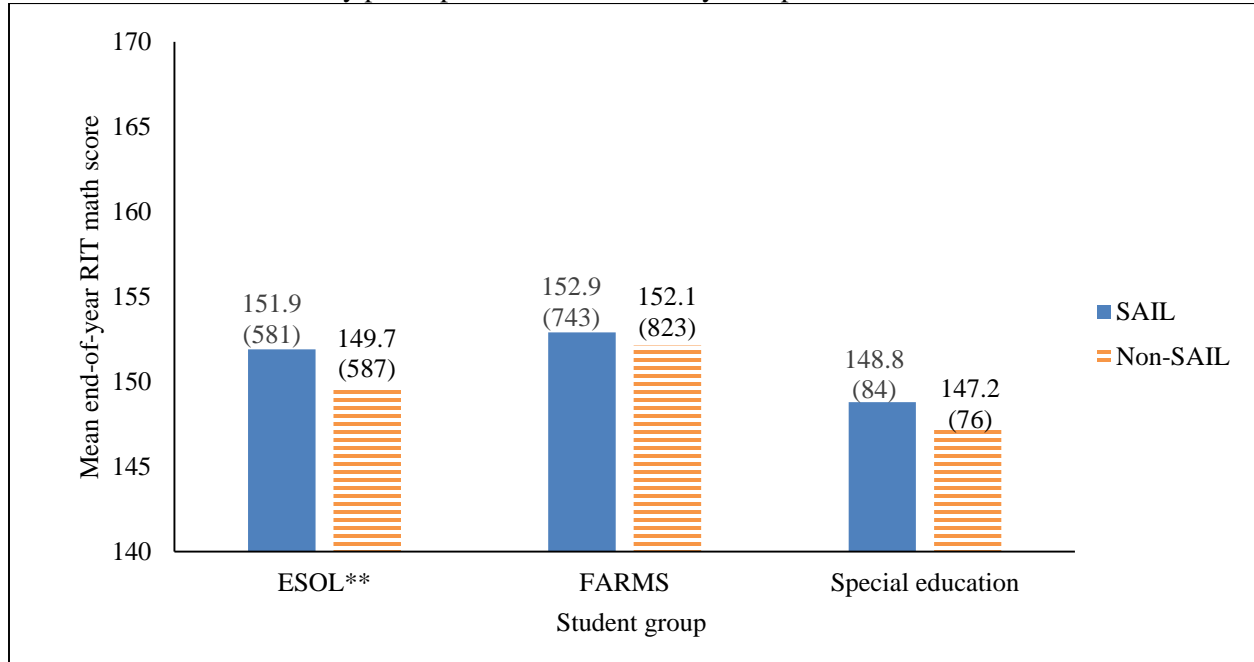


Note. (#) refers to total number of students in group.
* $p < .05$, ** $p < .01$, *** $p < .001$

There was little variation in the pattern of results for kindergarten subgroups. For each racial/ethnic subgroup, the mean RIT score in mathematics was at least slightly higher for ELO SAIL attendees than non-attendees (Figure 3.7 above). None of these differences were statistically significant.

Likewise, among kindergarteners who receive services, the mean end-of-year RIT score in mathematics was slightly higher for ELO SAIL participants than non-participants (Figure 3.8). This difference was statistically significant in favor of ELO SAIL for one group, ESOL recipients: ($t(1,166) = 2.98, p < .01$).

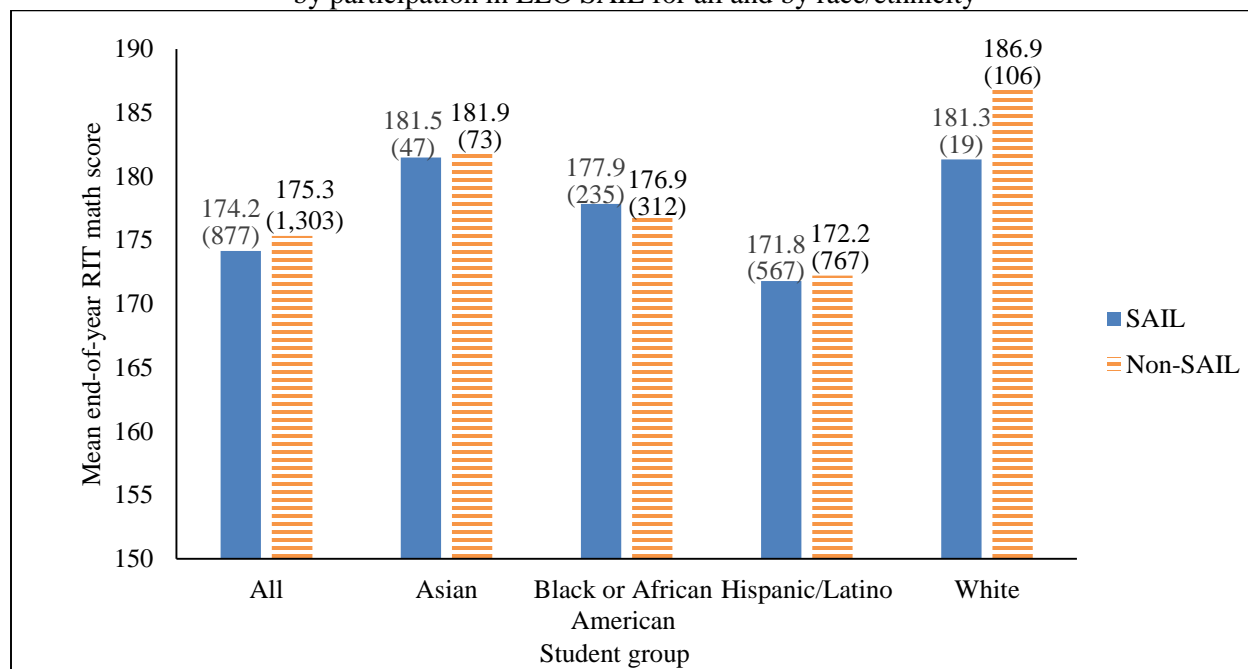
Figure 3.8
 Mean end-of-year MAP-P RIT scores in mathematics in spring 2016 for kindergarten students by participation in ELO SAIL by receipt of services



Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

Grade 1. The mean end-of-year RIT score in mathematics of ELO SAIL Grade 1 students was slightly smaller than the mean for non-participating first graders (Figure 3.9). The difference was not statistically significant.

Figure 3.9
 Mean end-of-year MAP-P RIT scores in mathematics in spring 2016 for Grade 1 students by participation in ELO SAIL for all and by race/ethnicity

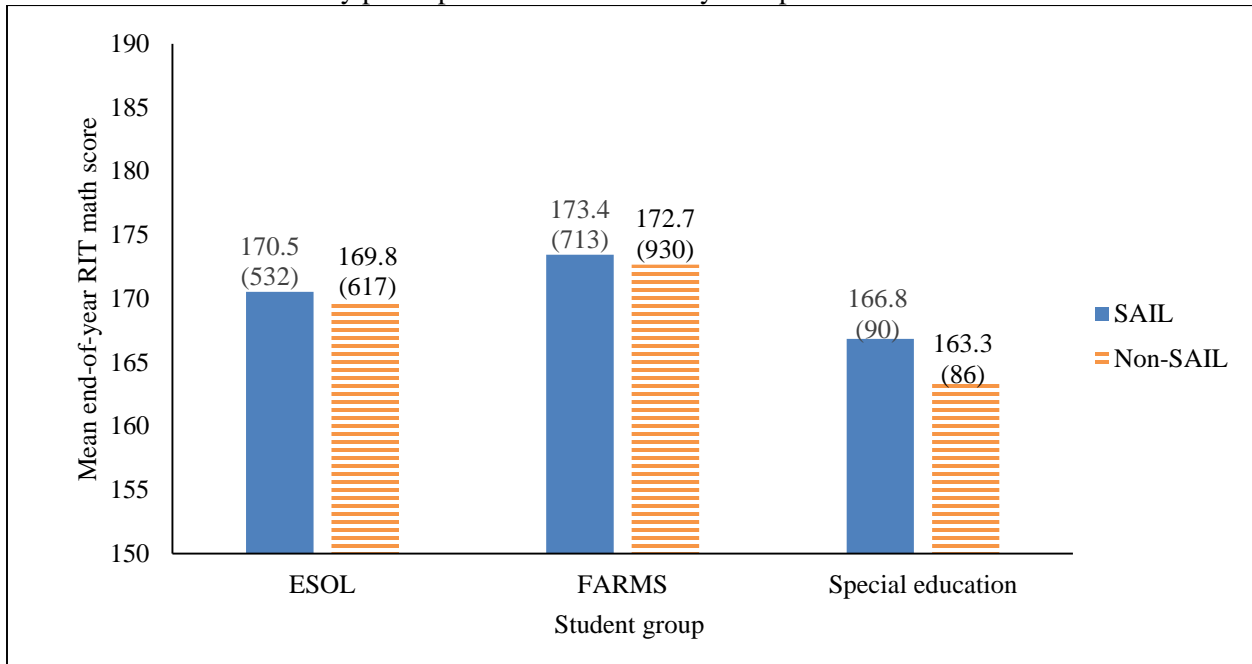


Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

There was variation in the pattern of results for Grade 1 subgroups. As for all first graders, the mean RIT score in mathematics was at least slightly lower for ELO SAIL attendees than non-attendees among three racial/ethnic subgroups (Figure 3.9 above). None of these differences were statistically significant.

However, unlike all first graders, the mean RIT score in mathematics was at least slightly higher among ELO SAIL participants than nonparticipants for Black or African American students (Figure 3.9 above) and for each of the service receipt subgroups (Figure 3.10). However, none of these differences was statistically significant.

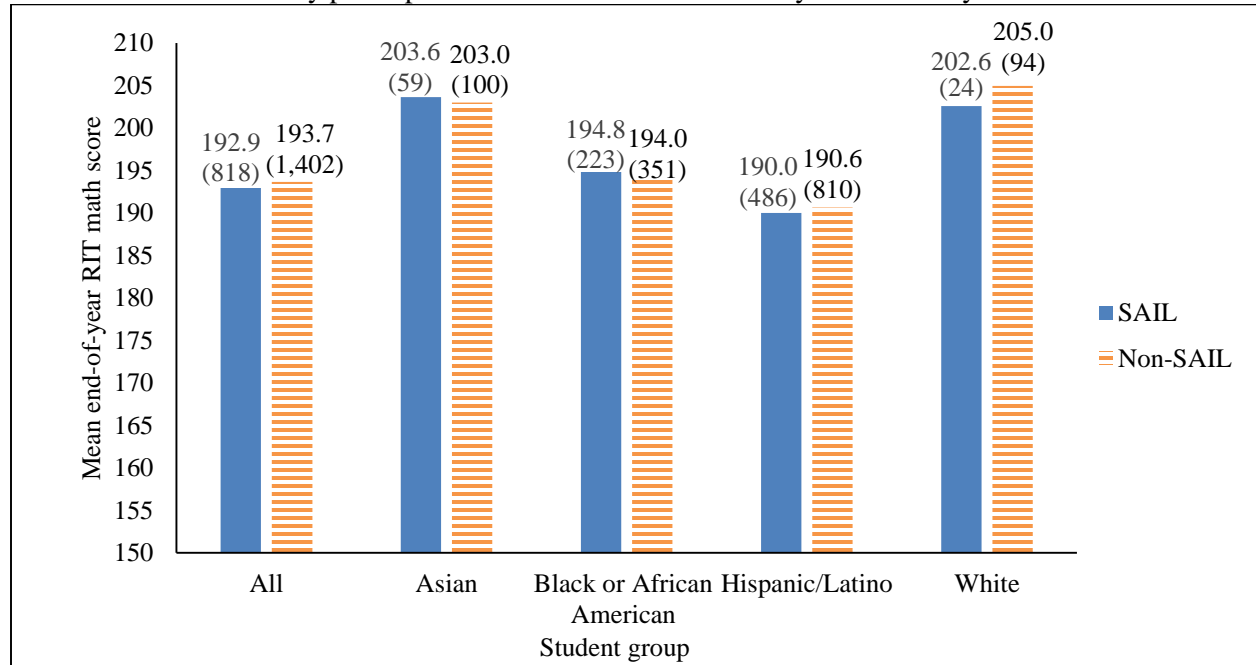
Figure 3.10
 Mean end-of-year MAP-P RIT scores in mathematics in spring 2016 for Grade 1 students by participation in ELO SAIL by receipt of services



Note. (#) refers to total number of students in group.
 * $p < .05$, ** $p < .01$, *** $p < .001$

Grade 2. As with the findings for Grade 1, ELO SAIL participants in Grade 2 performed lower than their nonparticipant peers, as measured by the mean RIT score in mathematics (Figure 3.11). The difference was not statistically significant.

Figure 3.11
Mean end-of-year MAP-P RIT scores in mathematics in spring 2016 for Grade 2 students by participation in ELO SAIL for all and by race/ethnicity

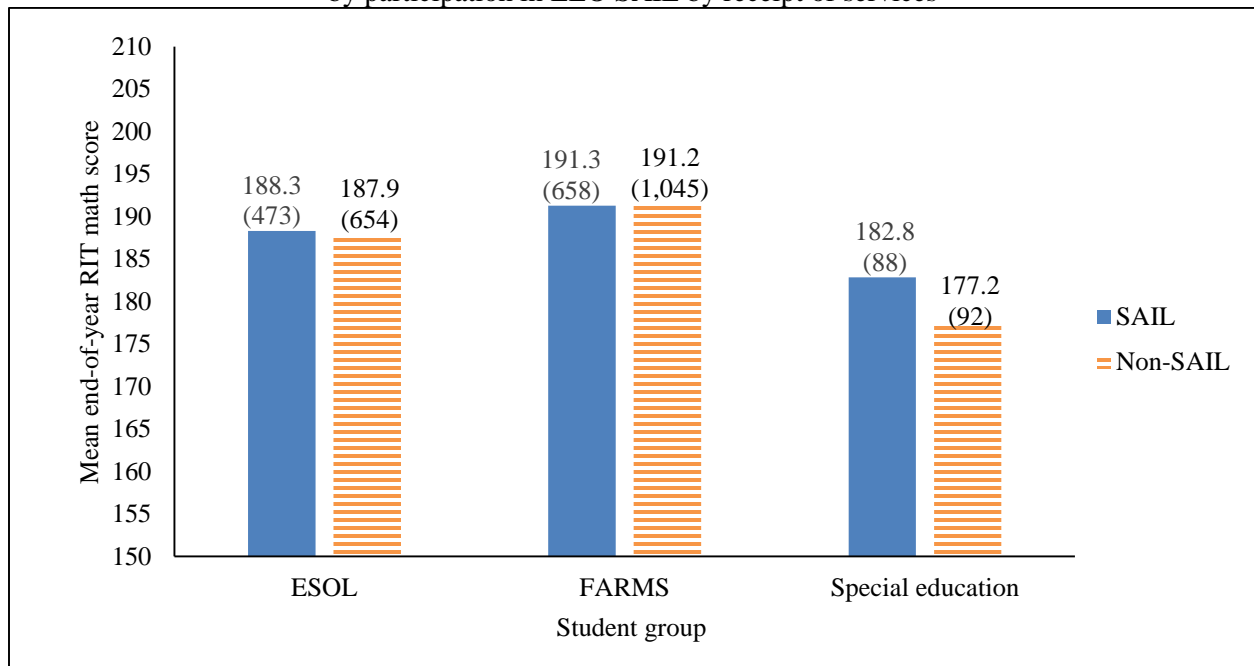


Note. (#) refers to total number of students in group.
* $p < .05$, ** $p < .01$, *** $p < .001$

There was variation in the pattern of results for Grade 2 subgroups. As for all Grade 2 students, the mean RIT score in mathematics was at least slightly lower for ELO SAIL attendees than non-attendees among both Hispanic/Latino and White students (Figure 3.11 above). None of these differences was statistically significant.

However, unlike all second graders, the mean RIT score in mathematics was at least slightly higher among ELO SAIL participants than nonparticipants for Asian and Black or African American students (Figure 3.11 above) and for each of the service receipt subgroups (Figure 3.12). Only the difference among special education recipients was statistically significance ($t(178) = 1.96, p = .05$).

Figure 3.12
 Mean end-of-year MAP-P RIT scores in mathematics in spring 2016 for Grade 2 students by participation in ELO SAIL by receipt of services



Note. (#) refers to total number of students in group.
 * $p \leq .05$, ** $p < .01$, *** $p < .001$

Discussion

There were four main findings with respect to the impact of ELO SAIL 2015 on fall performance. First, there was a strong positive impact on reading performance in fall for kindergarteners; this finding differed from earlier evaluations of ELO SAIL, perhaps because the analysis utilized a pre-reading category and included them with readers instead of with non-readers. Second, there was little evidence of a positive impact on reading in the fall by first and second graders, like evaluations of more recent ELO SAIL sessions (i.e., 2012, 2013 and 2014). However, evaluations of earlier ELO SAIL sessions (i.e., 2002, 2003, and 2007) did find positive results for reading by students in Grade 1 or 2 or both. Third, there was evidence of a positive impact from ELO SAIL 2015 on mathematics performance in the fall for both Grades 1 and 2 students. Similarly, analyses of every year of ELO SAIL, except 2012, found a positive impact on mathematics in the fall for Grade 1, Grade 2, or both. Fourth, there was evidence for a positive impact of ELO SAIL on fall performance on every measure at every grade level for FARMS recipients. Likewise, evaluations of ELO SAIL in previous summers frequently found positive results on at least some measures for ESOL recipients or FARMS recipients.

With respect to the impact of ELO SAIL on spring academic performance, three of the main findings were similar to those found for ELO SAIL in 2012, 2013, and 2014: positive impact on kindergarten reading; little positive impact on kindergarten math and on Grade 1 reading; and negative impact on Grade 2 reading. Unlike the evaluations of earlier ELO SAIL sessions, this one did not confirm a negative impact on mathematics for first and second graders.

Recommendations

Based on the above findings, the following recommendations are proposed for ELO SAIL:

- Continue providing ELO SAIL to students from low-income families, due to the positive impact on students receiving FARMS.
- Continue with the reading curriculum for kindergarten and with the mathematics curriculum for Grades 1 and 2, due to their positive impacts on fall achievement.
- Analyze the reading curriculum to understand why the impact for Grades 1 and 2 students is less positive than for kindergarteners.
- Focus future research on understanding the lack of positive results for spring performance, including more detailed analyses that consider ability prior to ELO SAIL.
- In future research, include analysis of mathematics performance in fall for kindergarteners, because this study lacked data to analyze this area.

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Appendix

Table A
Characteristics of Attendees and Non-attendees at 2015 ELO SAIL

	Attendees ^a		Non-attendees	
	<i>N</i> ^a	%	<i>N</i>	%
Total	2,727	100.0	4,256	100.0
Grade level				
Kindergarten	969	35.5	1,269	29.8
Grade 1	915	33.6	1,449	34.1
Grade 2	843	30.9	1,538	36.1
Gender				
Female	1,292	47.4	2,147	50.4
Male	1,435	52.6	2,109	49.6
Race/ethnicity				
American Indian	8	0.3	11	0.3
Asian	170	6.2	283	6.6
Black or African American	742	27.2	1,086	25.5
Hispanic/Latino	1,672	61.3	2,399	56.4
White	85	3.1	339	8.0
Two or More Races	50	1.8	137	3.2
Pacific Islander	0	0	1	0.0
Receipt of services during school year 2014–2015				
ESOL	1,639	60.1	2,007	47.2
FARMS	2,181	80.0	2,995	70.4
Special education	269	9.9	317	7.4

^aLimited to students who attended for 16 or more days.