



**Outcome Evaluation of the
English for Speakers of Other Languages
Program in Elementary Schools**

Office of Shared Accountability

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Executive Summary

The Office of Shared Accountability (OSA) has conducted implementation and outcome evaluations of the English for Speakers of Other Languages (ESOL) program in Montgomery County Public Schools (MCPS) elementary schools. These evaluations were requested by the Executive Leadership Team and the Division of English for Speakers of Other Languages/Bilingual Programs. The implementation evaluation is summarized in a report titled “Implementation Evaluation of the English for Speakers of Other Languages (ESOL) Program in Elementary Schools.” This outcome evaluation examines the effects of the instructional services provided through the ESOL program on language acquisition and academic achievement for MCPS elementary ESOL students.

Program Background and Evaluation Questions

The number of elementary ESOL students in MCPS has been growing at a faster pace over recent years. Currently, there are about 14,000 ESOL students enrolled in prekindergarten through Grade 5. Each spring, MCPS administers the standardized Language Assessment System (LAS) Links test to demonstrate ESOL students’ progress and attainment of English language proficiency (ELP) toward Annual Measurable Achievement Objectives (AMAOs) mandated by the state. According to the federal *No Child Left Behind Act of 2001* (NCLB), all students with limited English proficiency (LEP), including ESOL students, are expected to become proficient in English and reach academic standards in reading/language arts and mathematics.

This study examined the annual (i.e., spring-to-spring) progress of LAS Links test scores among elementary ESOL students and the association of LAS Links scores with Maryland School Assessment (MSA) scores in reading and mathematics, guided by two general evaluation questions:

Evaluation Question One

- 1a. How did elementary school ESOL students perform on the LAS Links test of English language skills?
- 1b. How did students’ performance vary by subgroups as defined by receipt of Free and Reduced-price Meals Systems (FARMS) or special education services, race and ethnicity, home language, and gender?
- 1c. How did students in the elementary Multidisciplinary Education, Training, and Support (METS) program perform on the LAS Links test?

Evaluation Question Two

- 2a. Were MSA scale scores in reading or mathematics positively associated with LAS Links overall scale scores for Grades 3–5 ESOL students, after adjusting for differences in student sociodemographic characteristics?
- 2b. What was the relationship between MSA and LAS Links scale scores within subgroups as defined by race and ethnicity and by receipt of FARMS or special education services?

Findings for Evaluation Question One

This study compared LAS Links scale scores of ESOL students with their scores in the previous year; the annual score increases were used as evidence of ESOL students' progress in acquiring English language skills. Three cohorts of Grades 1–5 including 2006–2007, 2007–2008, and 2008–2009 were included in the study. The cohorts of prekindergarten–kindergarten were not included because the LAS Links tests were not taken by prekindergarten students.

Annual Progress in LAS Links Scale Scores

Findings indicate that ESOL students in all grade cohorts made significant gains in LAS Links overall and in subtest scores. The following findings were consistent across subgroups of ESOL students:

- Average increases from the previous year in overall scores were statistically significant ($p < .001$) for all the three cohorts of different grades.
- Grades 1 and 2 cohorts made larger average gains than did Grades 3–5 cohorts in the overall scores across the three cohorts.
- There were greater average increases in reading and writing than in speaking and listening subtest scores, with relatively higher starting scores for the latter subtests.

AMAO I Targets for the Percentage of a 15+ Point Increase

The state has set AMAO I targets for each school year since 2006–2007 on the percentage of ESOL students who should earn at least a 15-point increase from the previous year in LAS Links overall scale scores (Grasmick, 2008). This percentage was computed for each cohort in Grades 1–5, disaggregated by subgroups. Findings indicate that ESOL students in almost all grade cohorts included in this study made considerable progress toward AMAO I.

- All grade cohorts exceeded the AMAO I targets, except for the 2008–2009 Grade 3 cohort.
- All subgroups in the Grades 1 and 2 cohorts exceeded the targets by 16 to 52 percentage points.
- Subgroups in most Grades 3–5 cohorts were above AMAO I targets, with a range from 1 to 49 percentage points.
- All grade levels showed an increase in the percentage of at least a 15-point increase in the 2007–2008 cohorts followed by a decrease in the 2008–2009 cohorts, especially in Grades 2–4.
- Most subgroups in the 2008–2009 Grade 3 cohort failed to meet the AMAO I target.

Differences Between Subgroups in the Percentage of a 15+ Point Increase

ESOL students who were non-White or recipients of special education or FARMS services generally lagged behind their peers across Grades 2–5 cohorts, with respect to the percentage of at least a 15-point increase in LAS Links overall scores. However, the percentage point differences became smaller across the three yearly cohorts in Grades 3–5.

- Percentage point differences related to race and ethnicity narrowed across the Grades 3–5 cohorts, with a slightly higher percentage of at least a 15-point increase for African American and Asian American students than for White students in the 2008–2009 cohort.

- Differences in the percentage of at least a 15-point increase between African American, Asian American, and Hispanic students and their White peers in Grade 2 widened with the largest difference found between Hispanic and White students in the 2008–2009 cohort.
- Percentage point differences between the special education and non-special education groups diminished to almost none for Grades 1 and 3 and also largely decreased for Grades 4 and 5 across the cohorts. For Grade 2, the percentage of at least a 15-point increase was larger for the special education group than for the non-special education group in the 2008–2009 cohort.
- Percentage point differences between the FARMS and non-FARMS groups were mostly negligible and only notable for the 2006–2007 Grade 4 and the 2008–2009 Grade 5 cohorts.

Students in Elementary METS Program

- Elementary METS students in all three cohorts earned a 41- to 64-point increase in LAS Links overall scores.
- At least 80% of the METS students improved 15 points or more in LAS Links overall scores across the three cohorts.

Findings for Evaluation Question Two

A significantly positive association of MSA reading and mathematics scale scores with LAS Links overall scale scores was found for Grades 3–5 ESOL students in 2006 through 2009.

- A one-point increase in LAS Links overall scores was found significantly associated with an increase of 0.5–0.7-point in MSA reading and mathematics scores ($p < .001$), after adjusting for ESOL students' sociodemographic characteristics.
- The associations of LAS Links overall scores with MSA scores were large enough to be of practical significance.
- LAS Links overall scores were a stronger predictor than the sociodemographic characteristics for MSA performances of ESOL students.
- The positive and stronger association between MSA scores and LAS Links overall scores also was found in student subgroups.

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Outcome Evaluation of the English for Speakers of Other Languages Program in Elementary Schools

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Background

Program History and Goals

Operated by the Division of ESOL/Bilingual Programs, the English for Speakers of Other Languages (ESOL) program has been implemented in Montgomery County Public Schools (MCPS) for more than four decades. The program aims to meet the increasingly diversified educational and cultural needs of pre-K through Grade 12 students whose native language is not standard American English. By providing instructional services, the program helps ESOL students function linguistically and culturally in the regular classrooms and eventually in mainstream American society. According to the federal *No Child Left Behind Act of 2001* (NCLB), all students with limited English proficiency (LEP), including ESOL students and reclassified English language learners (R-ELLs) (see Appendix A for classification of English language learners), are expected to become proficient in English and reach academic standards in reading/language arts and mathematics.

ESOL Student Placement and Population

ESOL placement. As mandated by the Maryland State Department of Education (MSDE), a student whose native language is not standard American English is assessed for his/her proficiency in listening, speaking, reading, and writing English on the Language Assessment System Links (LAS Links) placement test. The MCPS Residency and International Admissions Office, school staff, parents, or other family members make referrals for English language proficiency (ELP) testing. Students are given an ELP level based on the result of a test that determines their eligibility and level for ESOL services. An English language learner (ELL) plan is then developed by the school's ELL committee for the student. ESOL students are assigned an appropriate level of ESOL instruction, including beginning (low and high), intermediate (low and high), and advanced levels.

ESOL population. ESOL students come from a variety of cultural, linguistic, socioeconomic, and academic backgrounds. Over 50% of students enrolled in the ESOL program are born in the United States. ESOL students in pre-K through Grade 2 make up more than 70% of the elementary ESOL enrollment and more than 50% of the total ESOL enrollment.

Annual Measurable Objectives and Accountability Requirements

As mandated by the Maryland State Department of Education, MCPS has adopted the LAS Links assessment since spring 2006 to demonstrate the progress and attainment of ELP that kindergarten through Grade 12 ESOL students make toward Annual Measurable Achievement Objectives (AMAOs). The AMAO I targets are defined as the percentage of ESOL students who made at least a 15-point increase from the previous year in LAS Links overall scale scores (Grasmick, 2008). Table 1 presents targets for AMAO I, which were reviewed and approved by the state superintendent of schools.

Table 1
Annual Measurable Achievement Objectives (AMAOs)
For at Least a 15-Point Increase in LAS Links Overall Scale Scores

School year	AMAO I target %
2006–2007	40
2007–2008	48
2008–2009	56
2009–2010	64
2010–2011	72

Data source: Maryland State Department of Education.

School systems are accountable not only for LEP students' acquisition of English language skills but also for their success in content areas measured by the standardized assessments, such as the Maryland State Assessment (MSA) and High School Assessment (HSA), according to the *Bridge to Excellence Act* (MCPS, 2009).

Curriculum and Instruction

Curriculum. To enable ESOL students of all levels to acquire the academic English needed for successful performance across content areas, the ESOL program provides structured, systematic English language development instruction using the rigorous standards-based ESOL curriculum developed by the Division of ESOL/Bilingual Program. The curriculum, designed for culturally and linguistically diverse students, reflects an integration of listening, speaking, reading, and writing skills; it is organized around themes related to mathematics, reading/language arts, social studies, and science. ESOL students are expected to demonstrate satisfactory performance on the common tasks in language skills required by the elementary ESOL curriculum (MCPS, 2009). They also are expected to acquire effective communication skills in English, to develop critical thinking, and to apply learning strategies. The MCPS ESOL curriculum is aligned to the Maryland English language proficiency standards with increasing demands as the grade level increases.

Instruction. The ESOL curriculum is designed to group students by their ELP levels rather than grade levels (MCPS, 2009). ESOL students receive English language instruction appropriate for their ELP levels from an ESOL teacher on a regularly scheduled basis. The amount of ESOL instruction varies by ELP level. The MCPS guidelines for ESOL programs in elementary schools set the minimum ESOL instruction hours per week: 40 minutes four to five days for Level 1 kindergartners (beginner); 50 minutes two to three days for Level 2 kindergartners (intermediate/advanced); 50 and 40 minutes four to five days for Levels 1 and 2 students, respectively, in Grades 1–5; and 40 minutes two to three days for Level 3 Grade 1–5 students.

ESOL instructional models vary from school to school and from class to class; pull-out, plug-in, sheltered, consultative, or any combination of these models are employed based upon student need. The instructional model that is chosen depends on students' ELP levels, the number and distribution of ESOL students and teachers in the school, and the school schedule. ESOL teachers are expected to collaborate with classroom teachers to ensure that ESOL instruction and content area instruction are aligned and coordinated.

Multidisciplinary Education, Training, and Support Program. The Multidisciplinary Education, Training, and Support (METS) program is provided for elementary and secondary ESOL students who have had limited or no previous schooling, or significant schooling gaps due to interrupted or disrupted education. The purpose of the program is to develop English language proficiency while providing additional support in the content areas that will help narrow students' educational gaps and facilitate articulation to non-METS classes. Eligible students may receive ESOL instruction in a multigrade, all day, and self-contained model. Currently there are METS sites at Broad Acres, Chevy Chase, Cresthaven, Sargent Shriver, and South Lake elementary schools.

Evaluation Questions

The purpose of this evaluation was to show the annual increase in the percentage of ESOL students making progress in acquiring English language skills, based on AMAO I targets. In addition, strong associations of MSA scale scores in reading and mathematics with LAS Links overall scale scores were expected for ESOL students in Grades 3–5. The evaluation questions were:

- 1a. How did elementary school ESOL students perform on the LAS Links test of English language skills?
- 1b. How did students' performance vary by subgroups as defined by receipt of FARMS or special education services, race and ethnicity, home language, and gender?
- 1c. How did students in the elementary METS program perform on the LAS Links test?

- 2a. Were MSA scale scores in reading or mathematics positively associated with LAS Links overall scale scores for Grades 3–5 ESOL students, after adjusting for differences in student sociodemographic characteristics?
- 2b. What was the relationship between MSA and LAS Links scale scores within subgroups as defined by race and ethnicity and by receipt of FARMS or special education services?

Methodology

Design

The One Group Pretest/Posttest—No Control Group design was employed in this study. This design is one type of quasi-experimental design as documented in the literature (Cook and Campbell, 1979; Shadish, Cook, & Campbell, 2002).

To investigate evaluation questions 1a through 1c, this study compared ESOL students' average scores on LAS Links tests from spring to spring in two adjacent years. The purpose was to examine whether the average scores increased when ESOL students moved to a higher grade level. This analysis was conducted for both overall scores and area-specific subtest scores (i.e., speaking, listening, reading, and writing). Furthermore, the study estimated the percentage of ESOL students whose overall scores rose 15 or more points from the previous year, based on the targets established to demonstrate the progress toward AMAO I. These analyses were carried out for ESOL student subgroups on sociodemographic characteristics including receipt of FARMS and special education services, race and ethnicity, home language, and gender.

For evaluation questions 2a and 2b, the study investigated the relationship between the LAS Links overall scores and MSA reading and mathematics scores, respectively, for Grades 3–5. The relationship was examined after controlling for differences in ESOL students' sociodemographic characteristics.

Study Samples

Samples for addressing evaluation question 1 included elementary ESOL students who had complete LAS Links scores in all the four English language skill areas for every two adjacent years. There were three cohorts of different grade levels included in the study: 2006–2007, 2007–2008, and 2008–2009. The cohorts of prekindergarten–kindergarten were not included because the LAS Links tests were not taken by prekindergarten students. Details about ESOL enrollments and completion of the LAS Links test are shown in Table B1 in Appendix B.

Samples for addressing evaluation question 2 included ESOL students in Grades 3–5 who had valid scores on both LAS Links and MSA tests in each of the years from 2006 to 2009; students with MSA exemptions were excluded.

Measures

The main outcome measure was LAS Links assessment scores in spring 2006 through spring 2009. ESOL students' MSA reading and mathematics scale scores also were used to examine their associations with LAS Links overall scale scores.

Since spring 2006, the LAS Links assessment has been administered to MCPS kindergarten through Grade 12 ESOL students annually, as mandated by the state. NCLB requires schools to track the annual progress in English language acquisition by English language learners and to establish AMAOs for measuring growth through a standardized assessment of English language skills (i.e., LAS Links).

LAS Links is a norm-referenced assessment that measures the competencies in speaking, listening, reading, and writing and provides information relative to the performance of students in the national norming sample. It makes use of a common scale within each skill area, which demonstrates students' gains annually and as they move to different levels of the test. Particularly, the assessment may demonstrate the student's growth over time and across grades as well as toward the goal of acquiring English language skills necessary for academic success. The assessment results are shown in overall and skill-specific subtest scale scores and proficiency levels.

Further, the LAS Links assessment is loosely aligned with the state's English language proficiency curriculum standards, with test bands appropriate for different grade levels. The content of the LAS Links assessments uses language that has been selected for its appropriateness to specific grades and language that students encounter in the classroom. The content-rich subject matter in LAS Links is inherently appealing to students in both social and school environments.

Data Analysis

T-tests were used to compare students' scores with their scores in the previous year on LAS Links tests; scores in the previous year were used as starting scores. Statistical significances were tested for average annual changes in LAS Links test scores. In addition, the number and percentage of students who earned at least a 15-point increase in overall scores were computed and compared against the AMAO I targets for all subgroups in each grade cohort.

A multiple regression procedure was used to examine whether LAS Links overall scores were positively and significantly related to MSA reading or mathematics scores for ESOL students, while holding sociodemographic variables constant. The regression coefficient (β -value) in the analysis indicates how much a score change in MSA was associated with a one-point score change in LAS Links. Effect sizes also were used to judge whether the observed associations between the two tests were large enough to be of practical significance to educators (American Psychological Association, 2001). Both standardized regression coefficients (β -values) and partial correlation coefficients from the multiple regression analysis can be used as an effect size measure (Kline, 2005). This study used β -values, because they were equal to or smaller than partial correlation coefficients; therefore, it was more conservative to use β -values as an effect size measure. Cohen's guidelines (1988) were used to interpret the magnitude of β -values in this study. The β -values may also indicate whether LAS Links overall scores were a stronger predictor for MSA scores, relative to the sociodemographic variables. More notes about multiple regression analyses are included in Appendix E.

Strengths and Limitations Associated With This Study

By examining ESOL students' English language acquisition by sociodemographic characteristics, this study sheds light on which subgroups of ESOL students were at a disadvantage in acquiring English language skills.

The study samples included only ESOL students with complete LAS Links scores for adjacent years or with valid scores on both LAS Links and MSA tests. Therefore, the results cannot be inferred to all MCPS elementary school ESOL students. Additionally, due to the lack of comparison groups, findings from this study should be interpreted with caution.

Results

Findings are organized by evaluation questions.

Findings for Evaluation Question One

- 1a) How did elementary school ESOL students perform on the LAS Links test of English language skills?
- 1b) How did students' performance vary by subgroups as defined by receipt of Free and Reduced-price Meals Systems (FARMS) or special education services, race and ethnicity, home language, and gender?
- 1c) How did students in the elementary METS program perform on the LAS Links test?

Average Increase in LAS Links Scale Scores

Overall scores. ESOL students in all grade levels across the 2006–2007 to 2008–2009 cohorts made significant improvement ($p < .001$) from the previous year in LAS Links overall scores (Table 2). The increases in the mean overall scores for all students were larger for the Grades 1 and 2 cohorts, ranging from 29 to 63 points, than for the Grades 3–5 cohorts, ranging from 17 to 39 points. Among the three yearly cohorts of different grade levels, the 2007–2008 cohorts earned the largest gains in the average overall scores with the exception of the Grade 5 cohort. The 2008–2009 cohorts of all grade levels earned relatively small gains in the overall scores compared to the two previous cohorts. The performance variation among cohorts may be due to the preexisting differences among the cohorts that started with different scores. The smaller gains in the 2008–2009 cohorts may be due to the higher starting scores. More detailed information about average increases in LAS Links overall scores is included in Table C1 in Appendix C.

Overall scores by subgroup. ESOL students across all subgroups in all grade cohorts made significant gains from the previous year in average LAS Links overall scores ($p < .001$) (Table 2). In all the 2006–2007 and 2008–2009 Grades 1–5 cohorts and the 2007–2008 Grade 1 cohort, ESOL students who were recipients of FARMS or special education services or who were non-White generally gained fewer points from the previous year in the mean overall scores than their peers; there was an exception between the special education and non-special education groups in the 2008–2009 Grade 2 cohort. In the 2007–2008 Grade 2–4 cohorts, the subgroups based on receipt of FARMS services and race and ethnicity made the same or similar point gains, except that Hispanic students received about a 10-point smaller gain than other racial groups did; non-special education students made relatively more gains than the special education students did except for Grade 2. More detailed information about average increases in LAS Links overall scores by subgroups is presented in Tables C1.1 to C5.4 in Appendix C. Mean score increases in home language and gender subgroups also are included in these tables.

Subtest scores. Across grade cohorts, the average spring-to-spring gains in the subtest (speaking, listening, reading, and writing) scores were also significant ($p < .001$) and generally echoed the trend for the average increases in the overall scores (Table 3). Generally, speaking and listening subtests had higher starting scores than reading and writing subtests across grade cohorts. Mean score increases were greater for reading and writing than for speaking and listening with some exceptions in 2007–2008 and 2008–2009 Grade 5 cohorts. Detailed information about average score increases in LAS Links subtests by subgroups is included in Tables C1.1 to C5.4 in Appendix C.

Table 2
Annual Mean Score Increases in LAS Links Overall Scale Scores by Subgroup and Grade Cohort

		2006	2007		2007	2008		2008	2009	
		Mean	Mean	Diff.	Mean	Mean	Diff.	Mean	Mean	Diff.
Grade 1		Cohort 2006–2007 (N = 1,790)			Cohort 2007–2008 (N = 1,906)			Cohort 2008–2009 (N = 2,268)		
	All	413	471	58***	417	480	63***	424	475	51***
Race and ethnicity	AfAm	414	470	56***	414	484	70***	430	477	47***
	AsAm	421	481	60***	429	494	65***	438	489	51***
	Hispanic	409	466	57***	413	473	60***	419	470	51***
	White	413	487	74***	419	496	77***	429	486	57***
Special services	FARMS	410	467	57***	414	475	61***	420	470	50***
	No FARMS	416	478	62***	423	489	66***	432	484	52***
	SpEd	403	449	46***	403	458	55***	402	450	48***
	No SpEd	413	473	60***	418	482	64***	426	478	51***
Grade 2		Cohort 2006–2007 (N = 1,291)			Cohort 2007–2008 (N = 1,459)			Cohort 2008–2009 (N = 1,760)		
	All	457	495	38***	463	511	48***	474	503	29***
Race and ethnicity	AfAm	449	485	36***	461	512	51***	471	500	29***
	AsAm	471	508	37***	466	517	51***	485	517	32***
	Hispanic	453	491	38***	461	508	47***	471	497	26***
	White	466	512	46***	467	519	52***	482	524	42***
Special services	FARMS	453	490	37***	460	508	48***	470	497	27***
	No FARMS	463	504	41***	467	515	48***	481	512	31***
	SpEd	439	474	35***	443	492	49***	456	485	29***
	No SpEd	459	498	39***	465	513	48***	476	505	29***
Grade 3		Cohort 2006–2007 (N = 818)			Cohort 2007–2008 (N = 1,058)			Cohort 2008–2009 (N = 1,276)		
	All	486	511	25***	486	521	36***	503	520	17***
Race and ethnicity	AfAm	489	510	21***	479	520	41***	504	520	16***
	AsAm	490	514	24***	495	530	35***	507	525	18***
	Hispanic	485	509	24***	483	518	35***	502	518	16***
	White	494	533	39***	501	537	36***	509	534	25***
Special services	FARMS	484	507	23***	481	517	36***	502	518	16***
	No FARMS	491	517	26***	495	531	36***	507	524	17***
	SpEd	477	488	11***	474	503	29***	490	503	13***
	No SpEd	488	514	26***	487	524	37***	505	522	17***
Grade 4		Cohort 2006–2007 (N = 683)			Cohort 2007–2008 (N = 727)			Cohort 2008–2009 (N = 949)		
	All	494	523	29***	494	531	37***	509	533	24***
Race and ethnicity	AfAm	481	525	44***	490	535	45***	509	535	26***
	AsAm	504	532	28***	495	538	43***	518	544	26***
	Hispanic	493	517	24***	494	528	34***	508	528	20***
	White	501	550	49***	508	552	44***	507	550	43***
Special services	FARMS	489	515	26***	493	530	37***	507	527	20***
	No FARMS	502	536	34***	497	535	38***	515	543	28***
	SpEd	493	504	11**	485	504	19***	501	519	18***
	No SpEd	494	526	32***	496	536	40***	511	535	24***
Grade 5		Cohort 2006–2007 (N = 561)			Cohort 2007–2008 (N = 586)			Cohort 2008–2009 (N = 570)		
	All	498	537	39***	504	541	37***	515	546	31***
Race and ethnicity	AfAm	505	542	37***	503	540	37***	522	555	33***
	AsAm	500	537	37***	512	551	39***	512	546	34***
	Hispanic	496	533	38***	500	537	37***	512	539	27***
	White	509	555	46***	519	562	43***	535	578	43***
Special services	FARMS	496	533	37***	499	536	37***	512	540	28***
	No FARMS	502	543	41***	515	552	37***	521	556	35***
	SpEd	503	527	24***	499	521	22***	502	523	21***
	No SpEd	498	538	40***	505	544	39***	517	549	32***

Note. Diff. = Difference calculated as mean scale score in Grade 1 minus mean scale score in kindergarten. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3
Annual Mean Scale Score Increases in LAS Links by Subtest and Grade Cohort

Skill areas	2006 Mean	2007 Mean	Diff.	2007 Mean	2008 Mean	Diff.	2008 Mean	2009 Mean	Diff.
Grade 1	Cohort 2006–2007 (N = 1,790)			Cohort 2007–2008 (N = 1,906)			Cohort 2008–2009 (N = 2,268)		
Overall	413	471	58***	417	480	63***	424	475	51***
Speaking	485	505	20***	482	514	32***	490	508	18***
Listening	444	484	40***	446	492	46***	451	487	36***
Reading	383	450	67***	384	458	74***	394	454	60***
Writing	340	447	107***	358	456	98***	365	455	90***
Grade 2	Cohort 2006–2007 (N = 1,291)			Cohort 2007–2008 (N = 1,459)			Cohort 2008–2009 (N = 1,760)		
Overall	457	495	38***	463	511	48***	474	503	29***
Speaking	497	519	22***	497	533	36***	508	526	18***
Listening	475	495	20***	478	511	33***	489	501	12***
Reading	430	478	48***	440	497	57***	451	487	36***
Writing	426	490	64***	437	503	66***	450	497	47***
Grade 3	Cohort 2006–2007 (N = 818)			Cohort 2007–2008 (N = 1,058)			Cohort 2008–2009 (N = 1,276)		
Overall	486	511	25***	486	521	36***	503	520	17***
Speaking	509	529	20***	509	537	28***	525	538	13***
Listening	495	508	13***	488	519	31***	508	518	10***
Reading	465	500	35***	467	518	51***	487	512	25***
Writing	477	508	31***	480	513	33***	495	513	18***
Grade 4	Cohort 2006–2007 (N = 683)			Cohort 2007–2008 (N = 727)			Cohort 2008–2009 (N = 949)		
Overall	494	523	29***	494	531	37***	509	533	24***
Speaking	508	533	25***	511	550	39***	524	544	20***
Listening	502	518	16***	498	524	26***	512	525	13***
Reading	485	520	35***	480	526	46***	503	532	29***
Writing	483	525	42***	489	528	39***	500	532	32***
Grade 5	Cohort 2006–2007 (N = 561)			Cohort 2007–2008 (N = 586)			Cohort 2008–2009 (N = 570)		
Overall	498	537	39***	504	541	37***	515	546	31***
Speaking	512	542	30***	513	554	41***	529	555	26***
Listening	498	533	35***	499	539	40***	509	540	31***
Reading	494	538	44***	501	538	37***	510	548	38***
Writing	491	535	44***	505	536	31***	514	541	27***

Note. Diff. = Difference calculated as mean scale score in Grade 1 minus mean scale score in kindergarten.
*p < .05; **p < .01; ***p < .001.

AMAO I Targets—Percent of a 15+ Point Increase in LAS Links Overall Scale Scores

AMAO I Targets for all Students

Percentages of ESOL students receiving at least a 15-point increase in LAS Links overall scores exceeded the AMAO I target set for each school year in all grade cohorts except for the 2008–2009 Grade 3 cohort (Figure 1). Furthermore, all grade levels experienced an increase in the 2007–2008 cohorts followed by a decrease in the 2008–2009 cohorts. Figure 1 also shows that the percentage remained high for Grade 1 but relatively low for Grade 5; Grades 2–4 showed a greater percentage increase in the 2007–2008 cohort and a sharper percentage decrease in the 2008–2009 cohort. Group sizes for each grade cohort are shown in Table D1 in Appendix D.

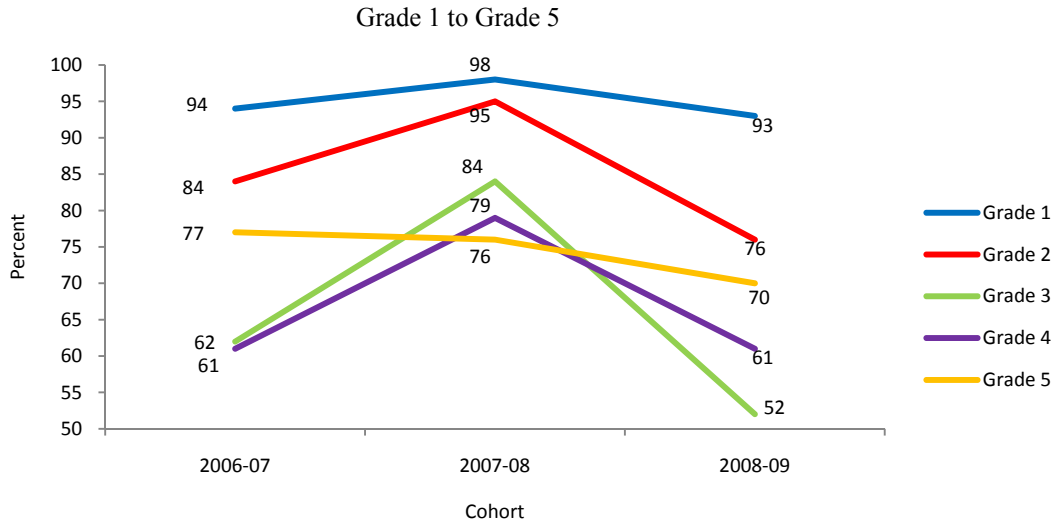


Figure 1. Percent of students with a 15-point or more increase in LAS Links overall scale scores by grade.
 Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.

AMAO I Targets for Subgroups

The percentages of a 15-point or more increase in LAS Links overall scores by subgroups in each of the grade cohorts are described in text and graphs below. The number of students in each grade cohort is shown in Table D2 in Appendix D. Please note that there was a large difference in group size between Hispanic and White students in each grade cohort. Therefore, a random sample of Hispanic students with a similar size to White students was selected for some grade cohorts to check whether the group size affected the differences between Hispanic and White students in the percentage of at least a 15-point increase. The analyses of the random samples showed similar percentage point differences between the racial and ethnic subgroups as the analyses including all Hispanic students did. The results presented below include all Hispanic students.

Grade 1. The percentages of ESOL students with a 15-point or greater increase in LAS Links overall scores for all subgroups in Grade 1 cohorts were far beyond the AMAO I targets, ranging from 86% to 97%, 93% to 100%, and 90% to 93% for the three cohorts, respectively (Figure 1.1). Differences in the percentages between subgroups defined by race and ethnicity and receipt of FARMS or special education services were generally negligible. The difference in the percentage of a 15-point increase between the special education and non-special education groups decreased from 9 percentage points in the 2006–2007 cohort to 2 percentage points in the 2008–2009 cohort.

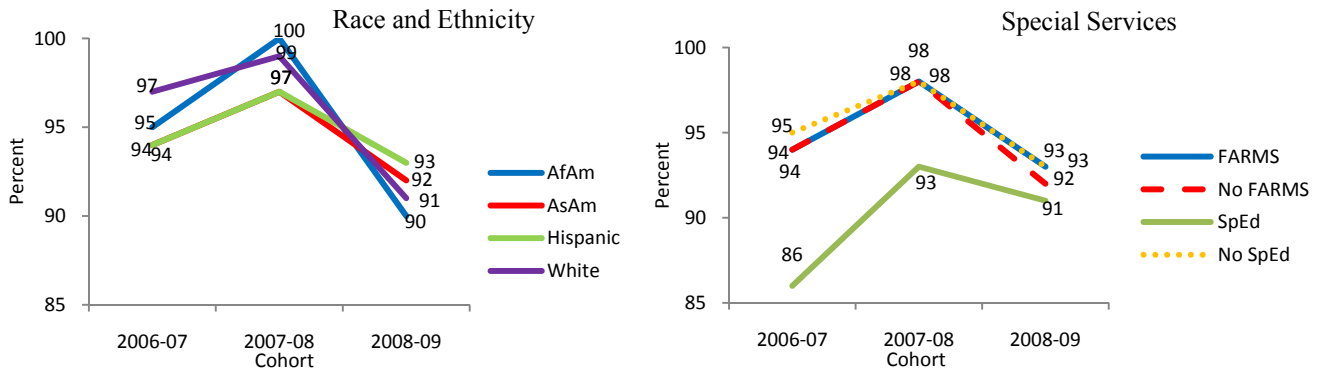


Figure 1.1. Percent of Grade 1 students with a 15-point or more increase in LAS Links overall scale scores by subgroup. Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.

Grade 2. The percentages of a 15-point or greater increase were greatly above the AMAO I targets for all subgroups in Grade 2 cohorts, ranging from 80% to 92%, 94% to 99%, and 72% to 91% for the three cohorts, respectively (Figure 1.2). Differences in the percentages of at least a 15-point increase between the racial and ethnic subgroups were small for the 2006–2007 cohort and negligible for the 2007–2008 cohort, but widened for the 2008–2009 cohort with 91% for White students, followed by 81% for Asian American students, 80% for African American students, and 72% for Hispanic students. There were small or negligible differences in the percentage of at least a 15-point increase between the FARMS and non-FARMS groups and between the special education and non-special education groups; the percentage was 6 points higher for students receiving special education services than for the non-recipients in the 2008–2009 cohort.

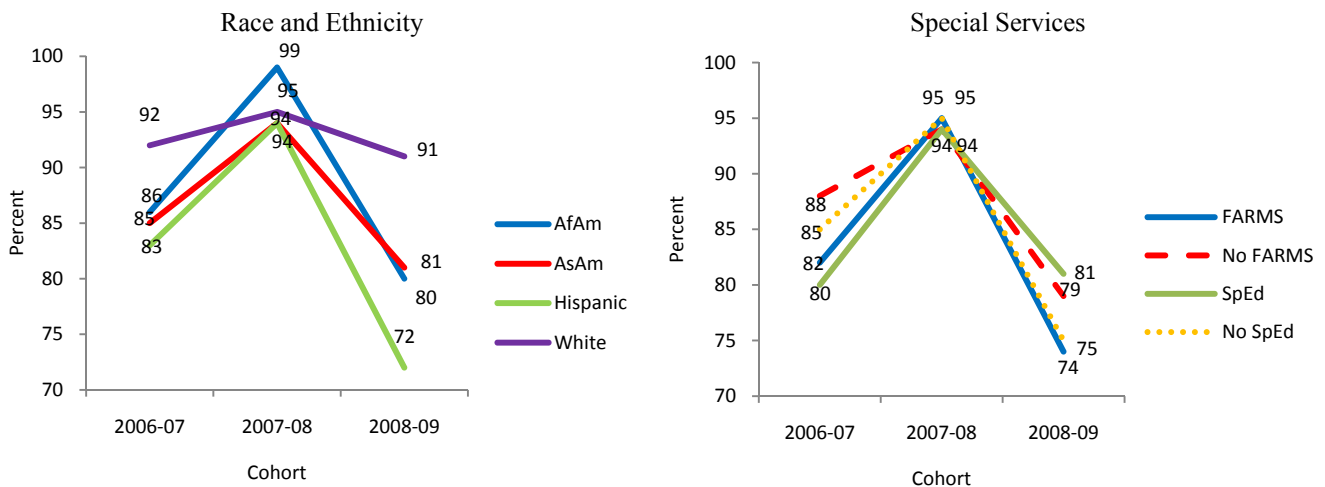


Figure 1.2. Percent of Grade 2 students with a 15-point or more increase in LAS Links overall scale scores by subgroup. Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.

Grade 3. All subgroups in the 2006–2007 and 2007–2008 Grade 3 cohorts met or exceeded the AMAO I targets, with percentages of at least a 15-point increase ranging from 47% to 83% and 79% to 88% for the two cohorts, respectively (Figure 1.3). However, all subgroups except for White students

in the 2008–2009 Grade 3 cohort failed to meet the target, with percentages ranging from 51% to 59%. Although there was a 20 to 29 percentage point difference in the percentage of at least a 15-point increase between White students and other racial and ethnic subgroups for the 2006–2007 cohort, the differences diminished to 2 to 8 points for the later cohorts. There was a 17 percentage point difference between the special education and non-special education groups in the 2006–2007 cohort; but there was no difference between these two groups in the 2008–2009 cohort. Percentage point differences between the FARMS and non-FARMS groups were small and became negligible in the 2008–2009 cohort.

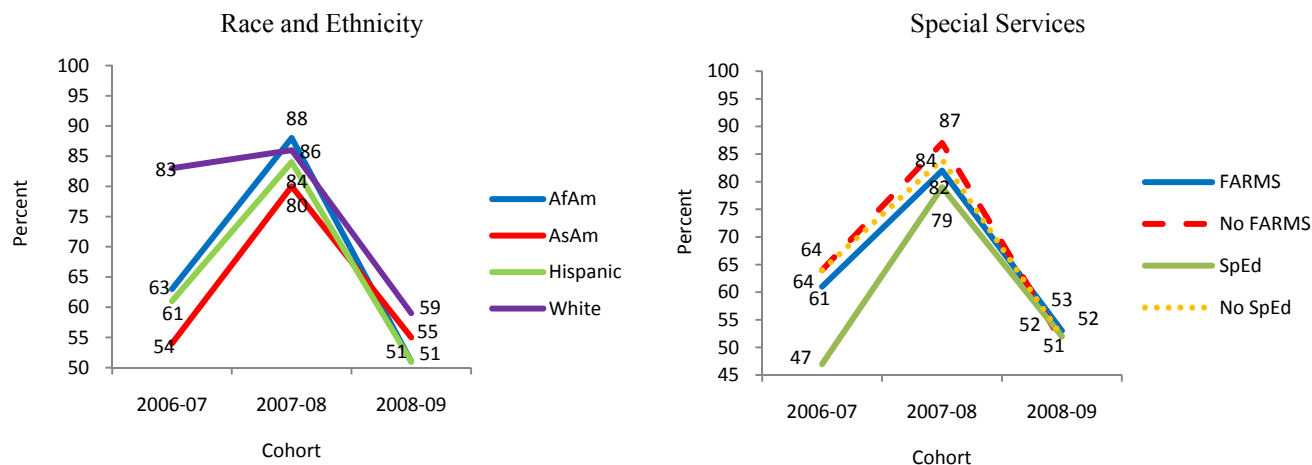


Figure 1.3. Percent of Grade 3 students with a 15-point or more increase in LAS Links overall scale scores by subgroup. Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.

Grade 4. All subgroups in Grade 4 cohorts achieved or exceeded the AMAO I targets, except for students receiving special education services in the 2006–2007 and 2008–2009 cohorts (Figure 1.4). The proportions of a 15-point or greater increase in LAS Links overall scores ranged from 34% to 83%, 57% to 87%, and 52% to 75% for the three cohorts, respectively. Among all racial and ethnic subgroups, the percentage of at least a 15-point increase in the 2006–2007 cohort was 83% for White students, followed by 75% for African American students, 64% for Asian American students, and 55% for Hispanic students. The percentage point differences were smaller but remained relatively large in the 2008–2009 cohort, with a difference of 18 percentage points between White and Hispanic students, 15 between White and Asian American students, 16 between African American and Hispanic students, and 13 between African American and Asian American students; however, the percentage point difference between African American and White students became negligible in the 2007–2008 cohort and none in the 2008–2009 cohort. Across the three cohorts, the difference in the percentage of at least a 15-point increase decreased from 32 to 11 points between the special education and non-special education groups. The percentage difference between the FARMS and non-FARMS groups was small in the 2006–2007 and 2008–2009 cohorts (9 and 5 points), and there was no difference in the 2007–2008 cohort.

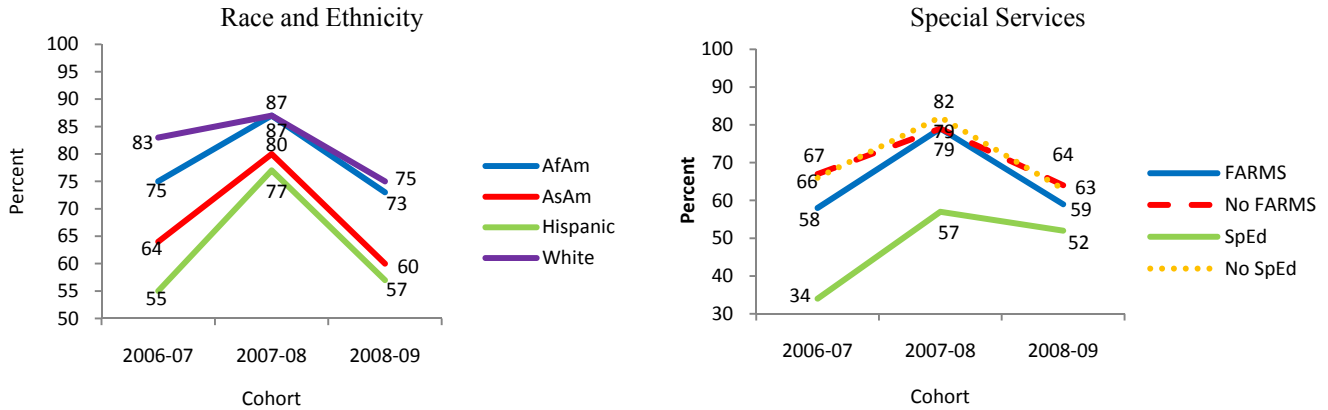


Figure 1.4. Percent of Grade 4 students with a 15-point or more increase in LAS Links overall scale scores by subgroup. Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.

Grade 5. The percentages of a 15-point or greater increase in LAS Links overall scores were above the target set for AMAO I across subgroups of Grade 5 cohorts, ranging from 60% to 87%, 63% to 85%, and 58% to 77% for the three cohorts, respectively (Figure 1.5). The difference in the percentage of at least a 15-point increase was larger between White students and students from other racial and ethnic subgroups in the 2006–2007 cohort, with differences ranging from 9 to 16 percentage points. However, these percentage point differences decreased in the 2008–2009 cohort with African American and Asian American students four to five points higher than White students. Across the three cohorts, the percentage point difference widened from almost none to 10 points between the FARMS and non-FARMS groups but narrowed from 20 to 13 points between the special education and non-special education groups.

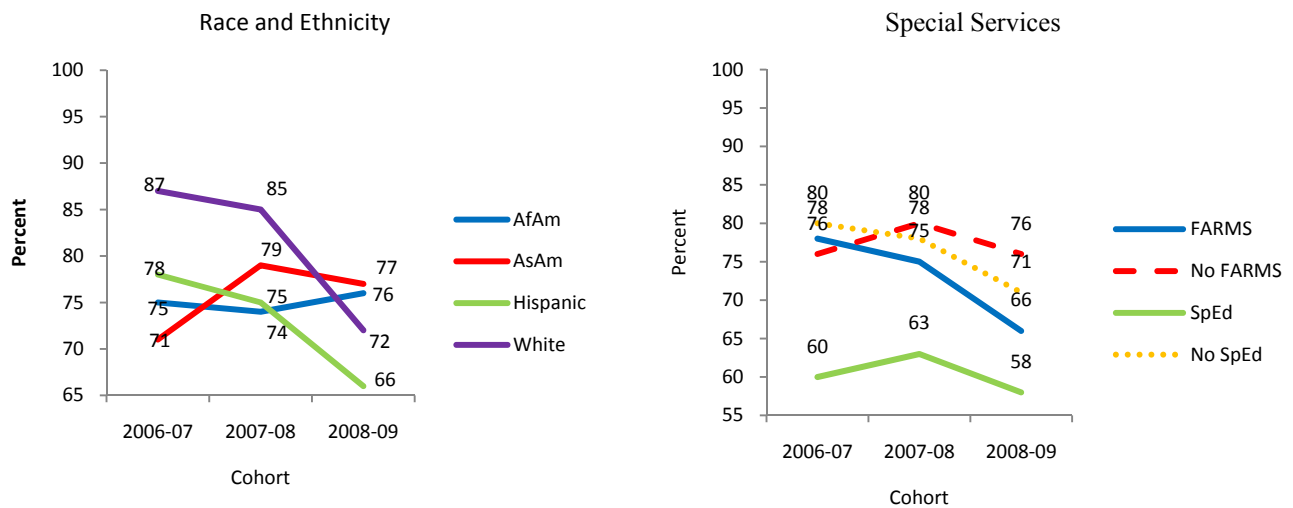


Figure 1.5. Percent of Grade 5 students with a 15-point or more increase in LAS Links overall scale scores by subgroup. Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.

LAS Links Overall Scale Scores for Elementary METS Students

There were small numbers of elementary METS students, with 37 for the 2006–2007 cohort, 48 for the 2007–2008 cohort, and 41 for the 2008–2009 cohort (Table C6, Appendix C). The average spring-to-spring increase in LAS Links overall scores were 53, 52, and 45 points for the three METS cohorts, respectively. Despite the decreasing trend, 95%, 90%, and 83% of the elementary METS students (Figure 1.6) in the three cohorts showed at least a 15-point increase in LAS Links overall scores, which were far beyond the targets for AMAO I (Figure 1.6).

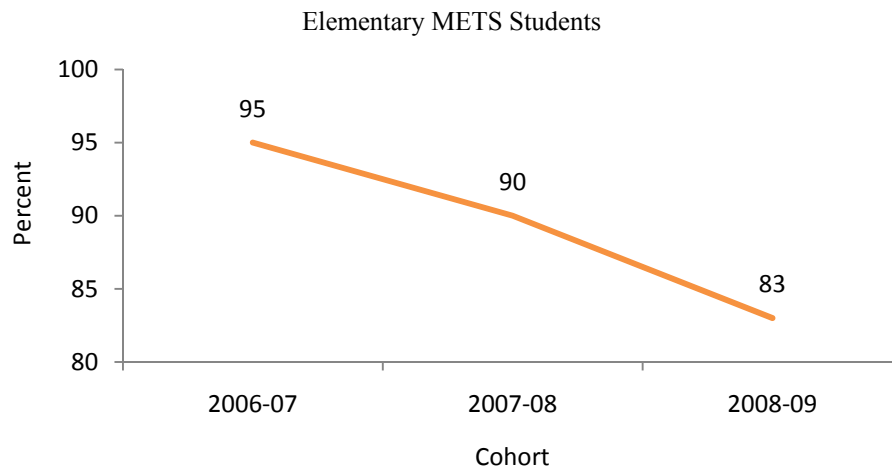


Figure 1.6. Percent of elementary METS students with a 15-point or more increase in LAS Links overall scale scores.
Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.

Findings for Evaluation Question Two

- 2a) Were MSA scale scores in reading or mathematics positively associated with LAS Links overall scale scores for Grade 3–5 ESOL students, after adjusting for differences in student sociodemographic characteristics?
- 2b) What was the relationship between MSA and LAS Links scale scores within subgroups as defined by race and ethnicity and by receipt of FARMS or special education services?

Descriptive statistics of Grades 3–5 MSA reading and mathematics scores and LAS Links overall scores for ESOL students included in the multiple regression analyses are shown in Table E1.1 in Appendix E. ESOL students' average MSA scores in reading and mathematics were above the scale score cutoffs for proficient levels in all the years, except for Grade 5 reading in 2006, which was two points lower than the cutoff (Tables E1.1 and E1.2, Appendix E).

Association of LAS Links Overall Scale Scores with MSA Scale Scores

Multiple regression analyses were used to examine the relationship between LAS Links and MSA scores, while controlling for differences in student sociodemographic characteristics. There were regression models for all subgroups as a whole and regression models for individual subgroups defined by race and ethnicity and receipt of FARMS and special education services.

Multiple regression analyses for all students. The *B*-values (i.e., regression coefficients) from the regression analyses including students from all subgroups together showed that a one-point increase in LAS Links overall scores was significantly associated with a 0.5–0.7-point increase ($p < .001$) in MSA reading and mathematics scores for all grade levels in all the years from 2006 to 2009, after adjusting for ESOL students’ sociodemographic variables (Table 4). In most of these regression models, the R^2 -values showed that about 30% to more than 70% of the variance in ESOL students’ MSA scores could be explained by these students’ LAS Links overall scores and the sociodemographic characteristics together ($p < .001$) (Tables E2.1 and E2.2, Appendix E).

The β -values (i.e., standardized regression coefficients) for LAS Links overall scores ranged from .49 to .74 on MSA reading and mathematics tests in all grade levels of different years (Table 4). These values indicate that the associations of LAS Links overall scores with MSA scores were large enough to be of practical significance. Meanwhile, the β -values for the sociodemographic variables were typically less than .10 for MSA reading and .20 for MSA mathematics tests (Tables E2.1 and E2.2, Appendix E). These findings indicate that the LAS Links scores, relative to special services, race and ethnicity, and gender, were the strongest predictors of MSA reading and mathematics scores. Findings for the sociodemographic variables are summarized in the notes of Appendix E.

Table 4
Relation of MSA Reading and Mathematics Scale Scores With LAS Links Overall Scale Scores
After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 3 LAS Links scale scores on MSA reading scale scores	0.6 (0.0)	.51***	0.5 (0.0)	.50***	0.6 (0.0)	.52***	0.6 (0.0)	.51***
Grade 4 LAS Links scale scores on MSA reading scale scores	0.6 (0.0)	.64***	0.5 (0.0)	.65***	0.6 (0.0)	.65***	0.6 (0.0)	.62***
Grade 5 LAS Links scale scores on MSA reading scale scores	0.5 (0.0)	.64***	0.5 (0.0)	.65***	0.6 (0.0)	.69***	0.6 (0.0)	.74***
Grade 3 LAS Links scale scores on MSA mathematics scale scores	0.7 (0.0)	.52***	0.6 (0.0)	.51***	0.7 (0.0)	.51***	0.6 (0.0)	.49***
Grade 4 LAS Links scale scores on MSA mathematics scale scores	0.7 (0.0)	.62***	0.6 (0.0)	.58***	0.7 (0.0)	.63***	0.6 (0.0)	.51***
Grade 5 LAS Links scale scores on MSA mathematics scale scores	0.7 (0.0)	.57***	0.5 (0.0)	.54***	0.5 (0.0)	.54***	0.5 (0.0)	.57***

Note. Variables of FARMS, special education, race and ethnicity, and gender were controlled.
* $p < .05$; ** $p < .01$; *** $p < .001$.

Multiple regression analyses for subgroups. Results obtained from the multiple regression models for student subgroups on race and ethnicity and receipt of FARMS or special education services echoed the results from the regression models for students from all subgroups together. That is, there was a positive and significant association ($p < .001$) between LAS Links overall scores and MSA scores in reading and mathematics for all subgroups in each grade level (Tables E3.1 to E4.3, Appendix E). After adjusting for other sociodemographic variables, the LAS Links scores remained the stronger predictor of MSA reading and mathematics performances in each of the subgroups. Moreover, differences between subgroups on each sociodemographic variable in the strength of the association of

the two tests (the *B*-value) were small in general; that is, the increase in MSA scores related to a one-point increase in LAS Links scores was mostly about 0.1 points higher for one subgroup than for its counterparts.

Conclusions

The purpose of this evaluation was to investigate the effects of ESOL instructional services in promoting elementary school ESOL students' language acquisition and academic achievements. A summary of findings from the evaluation is presented below by evaluation question.

Findings for Evaluation Question One

This study compared LAS Links scale scores of ESOL students with their scores in the previous year; the annual score increases were used as evidence of ESOL students' progress in acquiring English language skills. Three cohorts of Grades 1–5 including 2006–2007, 2007–2008, and 2008–2009 were included in the study.

Annual Progress in LAS Links Scale Scores

Findings indicate that ESOL students in all grade cohorts made significant gains in LAS Links overall and subtest scores. The following findings were consistent across subgroups of ESOL students.

- Average increases from the previous year in overall scores were statistically significant ($p < .001$) for all the three cohorts of different grades.
- Grades 1 and 2 cohorts made larger average gains than did Grades 3–5 cohorts in the overall scores across the three cohorts. Compared to upper grades, lower grades include more new ESOL students with lower starting scores, which may provide more opportunity for growth. Moreover, younger students are generally more adaptive in learning second languages (Larsen-Freeman, 2008; Mayberry & Lock, 2003) and the LAS Links test is more cognitively demanding for older students; these may explain why lower-grade students showed greater progress than upper-grade students on the LAS Links tests. Additionally, as MSA is taken in Grades 3–5, many schools decrease explicit ESOL instruction in favor of reading instruction; this also may explain the discrepancy in performance on the LAS Links tests between Grades 1–2 and Grades 3–5.
- There were greater average increases in reading and writing than in speaking and listening subtest scores, with relatively higher starting scores for the latter subtests. The findings suggest that ESOL students were more mature in the oral mode (i.e., speaking and listening) while making greater progress in the written mode (i.e., reading and writing).

AMAO I Targets for the Percentage of a 15+ Point Increase

The state has set AMAO I targets for each school year since 2006–2007 on the percentage of ESOL students who should earn at least a 15-point increase from the previous year in LAS Links overall scale scores (Grasmick, 2008). This percentage was computed for each cohort in Grades 1–5, disaggregated by subgroups. Findings indicate that ESOL students in almost all grade cohorts included in this study made considerable progress toward AMAO I.

- All grade cohorts exceeded the AMAO I targets, except for the 2008–2009 Grade 3 cohort.
- All subgroups in the Grades 1 and 2 cohorts went beyond the targets by 16 to 52 percentage points.
- Subgroups in most Grades 3–5 cohorts were above AMAO I targets, with a range from 1 to 49 percentage points.
- All grade levels showed an increase in the percentage of at least a 15-point increase in the 2007–2008 cohorts followed by a decrease in the 2008–2009 cohorts, especially in Grades 2–4.
- Most subgroups in the 2008–2009 Grade 3 cohort failed to meet the AMAO I target.

Differences Between Subgroups in the Percentage of a 15+ Point Increase

ESOL students who were non-White or recipients of special education or FARMS services generally lagged behind their peers across Grades 2–5 cohorts, with respect to the percentage of at least a 15-point increase in LAS Links overall scores. This is consistent with the literature related to the disparity in sociodemographic characteristics (Entwisle, Alexander, & Olson, 1997; Rutherford, 2006; Lee & Burkam, 2002). However, the percentage point differences became smaller across the three yearly cohorts in Grades 3–5.

- Percentage point differences related to race and ethnicity narrowed across the Grades 3–5 cohorts, with a slightly higher percentage of at least a 15-point increase for African American and Asian American students than for White students in the 2008–2009 cohort.
- Differences in the percentage of at least a 15-point increase between African American, Asian American, and Hispanic students and their White peers in Grade 2 widened with the largest difference found between Hispanic and White students in the 2008–2009 cohort.
- Percentage point differences between the special education and non-special education groups diminished to almost none for Grades 1 and 3 and also largely decreased for Grades 4 and 5 across the cohorts. For Grade 2, the percentage of at least a 15-point increase was larger for the special education group than for the non-special education group in the 2008–2009 cohort.
- Percentage point differences between the FARMS and non-FARMS groups were mostly negligible and only notable for the 2006–2007 Grade 4 and the 2008–2009 Grade 5 cohorts.

Students in Elementary METS Program

- Elementary METS students in all the three cohorts earned a 41- to 64-point increase in LAS Links overall scores.
- At least 80% of the METS students improved 15 points or more in LAS Links overall scores across the three cohorts.

Findings for Evaluation Question Two

A significantly positive association of MSA reading and mathematics scale scores with LAS Links overall scale scores was found for Grades 3–5 ESOL students in 2006 through 2009.

- A one-point increase in LAS Links overall scores was found significantly associated with an increase of 0.5–0.7-point in MSA reading and mathematics scores ($p < .001$), after adjusting for ESOL students' sociodemographic characteristics.
- The associations of LAS Links overall scores with MSA scores were large enough to be of practical significance.

- LAS Links overall scores were a stronger predictor than the sociodemographic characteristics for MSA performances of ESOL students.
- The positive and stronger association between MSA scores and LAS Links overall scores also was found in student subgroups.

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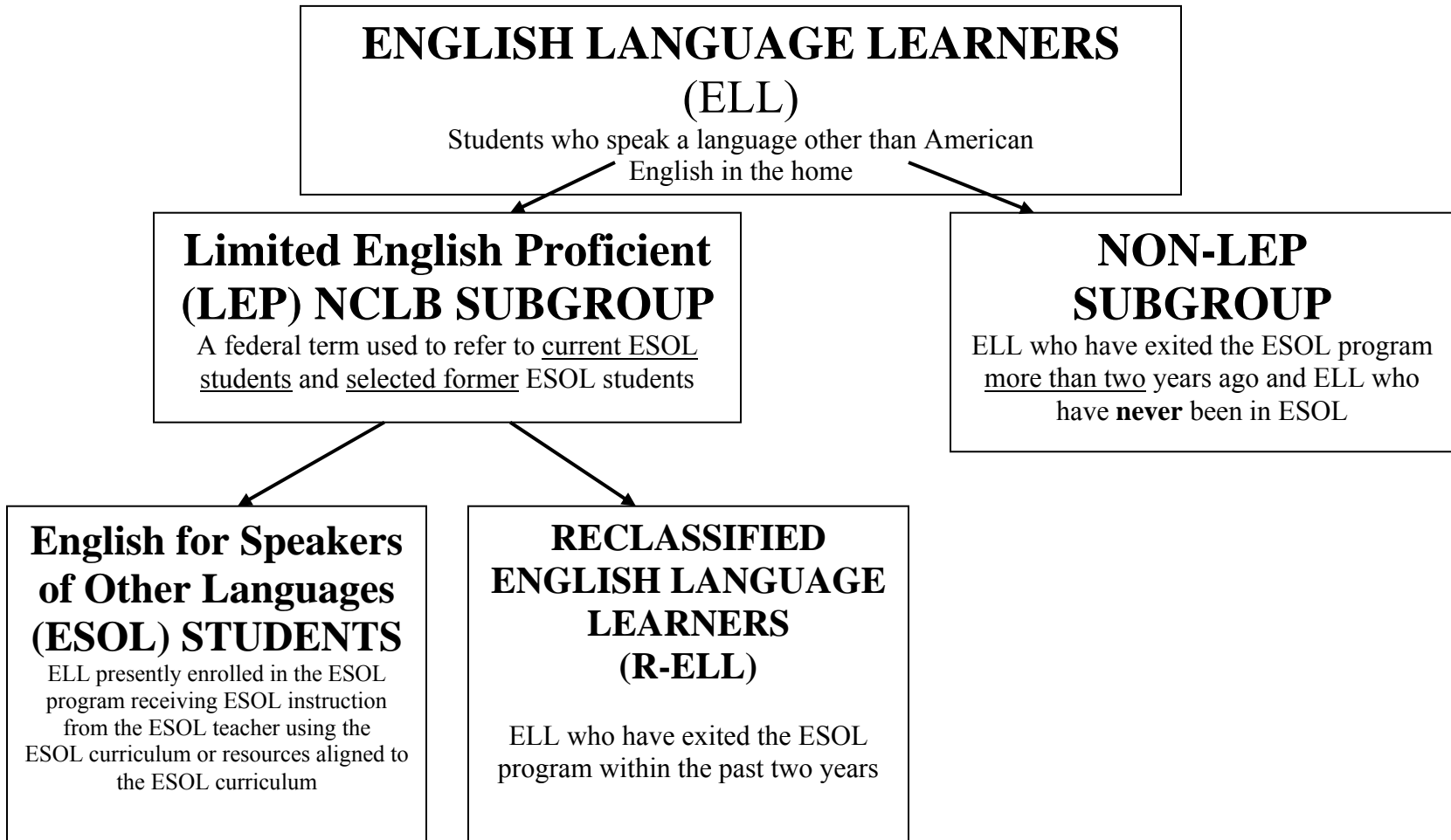
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Appendix A: Classification of English Language Learners

ELL/LEP/R-ELL/ESOL
Understanding the Connection in Montgomery County Public Schools



Appendix B: Elementary ESOL Enrollment and LAS Links Completion

Table B1
Elementary School ESOL Enrollments and Completion of LAS Links Tests by Year

Test Window	Grade	ESOL Enrollment	Completed test		Partial test		No test	
		<i>N</i>	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Spring 2006	Kindergarten	2,748	2,452	89.2	64	2.3	232	8.4
	Grade 1	2,051	1,888	92.1	21	1.0	142	6.9
	Grade 2	1,328	1,202	90.5	28	2.1	98	7.4
	Grade 3	1,179	1,060	89.9	19	1.6	100	8.5
	Grade 4	932	810	86.9	24	2.6	98	10.5
	Grade 5	951	858	90.2	12	1.3	81	8.5
	Total	9,189	8,270	90.0	168	1.8	751	8.2
Spring 2007	Kindergarten	2,846	2,542	89.3	36	1.3	268	9.4
	Grade 1	2,294	2,061	89.8	18	0.8	215	9.4
	Grade 2	1,677	1,502	89.6	9	0.5	166	9.9
	Grade 3	1,227	1,087	88.6	8	0.7	132	10.8
	Grade 4	1,075	912	84.8	6	0.6	157	14.6
	Grade 5	938	820	87.4	6	0.6	112	11.9
	Total	10,057	8,924	88.7	83	0.8	1,050	10.4
Spring 2008	Kindergarten	3,236	2,875	88.8	18	0.6	343	10.6
	Grade 1	2,517	2,253	89.5	7	0.3	257	10.2
	Grade 2	1,962	1,727	88.0	7	0.4	228	11.6
	Grade 3	1,448	1,315	90.8	4	0.3	129	8.9
	Grade 4	1,106	971	87.8	3	0.3	132	11.9
	Grade 5	981	840	85.6	2	0.2	139	14.2
	Total	11,250	9,981	88.7	41	0.4	1,228	10.9
Spring 2009	Kindergarten	3,558	3,351	94.2	15	0.4	192	5.4
	Grade 1	2,845	2,656	93.4	3	0.1	186	6.5
	Grade 2	2,155	2,017	93.6	1	0.0	137	6.4
	Grade 3	1,701	1,564	91.9	8	0.5	129	7.6
	Grade 4	1,269	1,176	92.7	6	0.5	87	6.9
	Grade 5	856	766	89.5	3	0.4	87	10.2
	Total	12,384	11,530	93.1	36	0.3	818	6.6

Note. ESOL enrollment is from each appropriate end-of-year Edload file, which is a comprehensive file of the school year. Students counted as “no test” takers could be a result of those who exited MCPS or exited ESOL during the school year.

Appendix C: Analyses of Data Related to Evaluation Question 1

Table C1

Annual Mean Scale Score Increases in LAS Links by Subtest and by Grade Cohort

		Cohort 2006–2007 (N = 1,790)			Cohort 2007–2008 (N = 1,906)			Cohort 2008–2009 (N = 2,268)		
Grade	Skill areas	2006	2007	Diff.	2007	2008	Diff.	2008	2009	Diff.
		Mean (SD)	Mean (SD)		(t)	Mean (SD)		Mean (SD)	(t)	
Grade 1	Overall	413 (39.2)	471 (31.9)	58 (75.4)***	417 (33.3)	480 (32.3)	63 (96.0)***	424 (37.5)	475 (33.1)	51 (84.7)***
	Speaking	485 (39.6)	505 (30.4)	20 (21.3)***	482 (33.6)	514 (30.4)	32 (39.4)***	490 (34.8)	508 (31.9)	18 (23.7)***
	Listening	444 (37.6)	484 (31.0)	40 (44.3)***	446 (33.9)	492 (31.0)	46 (54.5)***	451 (34.7)	487 (30.4)	36 (49.5)***
	Reading	383 (46.4)	450 (45.7)	67 (64.9)***	384 (42.5)	458 (50.2)	74 (73.7)***	394 (47.7)	454 (46.6)	60 (67.4)***
	Writing	340 (82.1)	447 (58.1)	107 (56.8)***	358 (69.6)	456 (52.3)	98 (64.3)***	365 (78.5)	455 (56.5)	90 (59.9)***
Grade 2	Overall	457 (36.9)	495 (31.5)	38 (46.0)***	463 (31.2)	511 (28.4)	48 (75.9)***	474 (30.8)	503 (29.3)	29 (52.6)***
	Speaking	497 (39.7)	519 (35.9)	22 (18.5)***	497 (32.4)	533 (37.7)	36 (34.5)***	508 (32.0)	526 (35.2)	18 (19.4)***
	Listening	475 (35.8)	495 (35.7)	20 (18.6)***	478 (32.1)	511 (31.6)	33 (35.7)***	489 (30.8)	501 (35.6)	12 (14.7)***
	Reading	430 (48.9)	478 (47.2)	48 (37.3)***	440 (43.3)	497 (46.1)	57 (52.6)***	451 (48.1)	487 (42.6)	36 (37.8)***
	Writing	426 (59.6)	490 (45.0)	64 (45.3)***	437 (52.8)	503 (37.5)	66 (57.7)***	450 (48.6)	497 (41.5)	47 (49.3)***
Grade 3	Overall	486 (41.1)	511 (30.6)	25 (21.2)***	486 (33.7)	521 (25.8)	36 (46.2)***	503 (29.9)	520 (27.1)	17 (24.9)***
	Speaking	509 (44.5)	529 (39.1)	20 (11.9)***	509 (37.7)	537 (34.8)	28 (21.3)***	525 (40.1)	538 (36.3)	13 (10.2)***
	Listening	495 (41.2)	508 (35.6)	13 (8.7)***	488 (35.7)	519 (28.9)	31 (27.6)***	508 (33.7)	518 (34.0)	10 (9.8)***
	Reading	465 (55.6)	500 (41.5)	35 (21.1)***	467 (49.7)	518 (41.3)	51 (38.1)***	487 (46.1)	512 (41.0)	25 (21.8)***
	Writing	477 (53.0)	508 (42.2)	31 (19.6)***	480 (47.3)	513 (37.2)	33 (26.7)***	495 (39.5)	513 (36.3)	18 (19.1)***
Grade 4	Overall	494 (47.2)	523 (37.9)	29 (21.4)***	494 (41.6)	531 (36.3)	37 (32.6)***	509 (33.4)	533 (31.6)	24 (24.9)***
	Speaking	508 (50.1)	533 (40.2)	25 (13.5)***	511 (46.6)	550 (41.6)	39 (21.8)***	524 (41.4)	544 (39.7)	20 (13.4)***
	Listening	502 (42.1)	518 (47.6)	16 (8.6)***	498 (41.7)	524 (48.9)	26 (14.8)***	512 (32.9)	525 (44.0)	13 (9.1)***
	Reading	485 (61.4)	520 (49.3)	35 (18.0)***	480 (53.2)	526 (51.4)	46 (27.0)***	503 (47.7)	532 (40.9)	29 (21.0)***
	Writing	483 (64.3)	525 (49.6)	42 (20.1)***	489 (55.6)	528 (44.6)	39 (22.3)***	500 (43.3)	532 (40.3)	32 (24.1)***
Grade 5	Overall	498 (47.6)	537 (35.4)	39 (28.1)***	504 (46.5)	541 (37.9)	37 (28.1)***	515 (45.5)	546 (39.3)	31 (25.9)***
	Speaking	512 (50.6)	542 (41.4)	30 (15.6)***	513 (49.1)	554 (41.5)	41 (22.1)***	529 (51.3)	555 (46.5)	26 (14.3)***
	Listening	498 (59.4)	533 (47.2)	35 (16.2)***	499 (53.9)	539 (50.8)	40 (18.3)***	509 (57.1)	540 (51.6)	31 (14.7)***
	Reading	494 (55.7)	538 (49.3)	44 (23.4)***	501 (55.8)	538 (50.4)	37 (20.4)***	510 (55.4)	548 (50.3)	38 (20.6)***
	Writing	491 (60.7)	535 (43.5)	44 (21.3)***	505 (57.7)	536 (47.2)	31 (16.6)***	514 (55.7)	541 (45.5)	27 (15.1)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 1 minus mean scale score in kindergarten.

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

Table C1.1
Grade 1 Annual Mean Scale Score Increases in LAS Links
by Race and Ethnicity

Skill areas	Cohort 2006–2007 (N = 373)			Cohort 2007–2008 (N = 392)			Cohort 2008–2009 (N = 483)			
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)	
Asian American	Overall	421 (40.5)	481 (32.6)	60 (35.5)***	429 (33.4)	494 (32.0)	65 (43.3)***	438 (37.4)	489 (32.0)	51 (38.4)***
	Speaking	481 (39.1)	501 (32.4)	20 (10.4)***	478 (30.3)	515 (32.0)	37 (21.5)***	488 (36.4)	509 (33.8)	21 (12.1)***
	Listening	452 (37.9)	491 (32.3)	39 (19.6)***	455 (35.4)	499 (29.2)	44 (23.6)***	459 (35.2)	494 (29.8)	35 (21.7)***
	Reading	397 (48.8)	468 (47.9)	71 (29.2)***	402 (46.6)	483 (51.2)	81 (34.1)***	415 (50.0)	476 (45.0)	61 (28.0)***
	Writing	355 (82.4)	467 (54.1)	112 (27.4)***	383 (63.1)	478 (52.7)	95 (29.6)***	389 (73.5)	479 (52.2)	90 (29.6)***
African American	Overall	414 (40.3)	470 (27.4)	56 (23.0)***	414 (33.4)	484 (28.2)	70 (34.3)***	430 (37.4)	477 (27.2)	47 (24.0)***
	Speaking	490 (38.6)	512 (28.5)	22 (7.6)***	485 (36.7)	521 (30.5)	36 (13.1)***	497 (32.6)	512 (28.8)	15 (5.8)***
	Listening	435 (37.7)	479 (32.1)	44 (15.1)***	436 (31.8)	494 (30.9)	58 (23.2)***	450 (34.9)	486 (27.4)	36 (14.1)***
	Reading	381 (51.6)	446 (39.6)	65 (18.5)***	379 (39.0)	461 (43.7)	82 (25.1)***	397 (51.6)	455 (41.0)	58 (20.1)***
	Writing	352 (81.9)	446 (53.4)	94 (16.8)***	359 (70.6)	461 (44.3)	102 (21.9)***	379 (71.6)	458 (49.4)	79 (17.8)***
White	Overall	413 (42.5)	487 (34.8)	74 (19.0)***	419 (37.2)	496 (30.3)	77 (26.7)***	429 (51.4)	486 (43.3)	57 (16.5)***
	Speaking	488 (39.4)	522 (35.8)	33 (7.7)***	485 (36.3)	528 (32.0)	43 (11.6)***	487 (45.5)	514 (32.3)	27 (6.2)***
	Listening	452 (43.9)	494 (30.3)	42 (9.8)***	450 (36.5)	503 (27.4)	53 (15.0)***	458 (43.2)	493 (35.9)	35 (9.6)***
	Reading	381 (46.7)	468 (51.9)	87 (18.9)***	389 (45.4)	474 (50.8)	85 (19.5)***	403 (64.7)	468 (62.6)	65 (13.5)***
	Writing	334 (83.8)	467 (58.9)	133 (16.4)***	354 (84.5)	480 (52.1)	126 (17.3)***	368 (95.4)	468 (76.6)	100 (13.8)***
Hispanic	Overall	409 (37.7)	466 (30.8)	57 (60.8)***	413 (32.0)	473 (31.2)	60 (75.7)***	419 (34.9)	470 (31.6)	51 (70.8)***
	Speaking	485 (39.9)	503 (28.6)	18 (15.3)***	482 (33.8)	512 (29.1)	30 (28.7)***	490 (33.5)	507 (31.6)	17 (18.7)***
	Listening	443 (36.3)	481 (29.8)	38 (35.8)***	445 (32.9)	489 (31.3)	44 (41.7)***	447 (33.1)	484 (30.0)	37 (41.4)***
	Reading	378 (43.7)	442 (43.0)	64 (52.8)***	379 (39.7)	448 (47.6)	69 (57.9)***	386 (42.0)	445 (43.4)	59 (57.7)***
	Writing	333 (81.1)	439 (58.2)	106 (44.2)***	350 (68.1)	446 (50.3)	96 (50.1)***	354 (77.4)	445 (54.0)	91 (47.3)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 1 minus mean scale score in kindergarten.

p* < .05; *p* < .01; ****p* < .001.

Table C1.2
Grade 1 Annual Mean Scale Score Increases in LAS Links
by Receipt of Free and Reduced-price Meals System and Special Education Services

Skill areas	Cohort 2006–2007 (N = 1,052)			Cohort 2007–2008 (N = 1,167)			Cohort 2008–2009 (N = 1,395)			
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)	
FARMS	Overall	410 (38.3)	467 (31.6)	57 (58.9)***	414 (32.4)	475 (30.9)	61 (76.6)***	420 (34.5)	470 (30.8)	50 (68.7)***
	Speaking	484 (38.8)	503 (29.0)	19 (15.9)***	481 (33.2)	512 (28.8)	31 (31.0)***	489 (33.2)	506 (31.4)	17 (17.8)***
	Listening	441 (36.4)	480 (30.8)	39 (34.9)***	444 (33.2)	489 (31.4)	45 (42.2)***	447 (32.9)	483 (29.7)	36 (40.3)***
	Reading	380 (45.9)	444 (44.7)	64 (50.1)***	378 (40.5)	451 (47.9)	73 (57.8)***	387 (43.0)	446 (42.2)	59 (56.4)***
	Writing	337 (82.1)	440 (57.5)	103 (45.6)***	352 (67.5)	448 (49.4)	96 (50.2)***	358 (75.7)	446 (52.0)	88 (46.3)***
No FARMS	Overall	416 (40.2)	478 (31.4)	62 (47.8)***	423 (34.0)	489 (32.7)	66 (58.7)***	432 (41.0)	484 (34.7)	52 (50.4)***
	Speaking	486 (40.7)	507 (32.0)	21 (14.2)***	482 (34.2)	517 (32.5)	35 (24.5)***	491 (37.3)	512 (32.4)	21 (15.7)***
	Listening	449 (39.0)	489 (30.5)	40 (27.6)***	451 (34.6)	498 (29.3)	47 (34.6)***	457 (36.8)	492 (30.8)	35 (29.0)***
	Reading	387 (46.9)	458 (45.8)	71 (41.8)***	393 (44.0)	471 (51.3)	78 (45.9)***	405 (52.5)	466 (50.6)	61 (38.5)***
	Writing	344 (82.0)	458 (57.5)	114 (37.7)***	67 (71.9)	470 (53.9)	103 (40.2)***	376 (81.8)	469 (60.3)	94 (38.1)***
SpEd	Overall	403 (37.4)	449 (39.9)	46 (16.9)***	403 (34.8)	458 (44.5)	55 (19.2)***	402 (42.8)	450 (43.4)	48 (22.7)***
	Speaking	474 (29.5)	487 (27.2)	13 (5.4)***	470 (27.2)	497 (36.0)	27 (9.9)***	470 (42.7)	489 (31.6)	19 (6.2)***
	Listening	437 (37.6)	469 (38.0)	32 (11.0)***	438 (39.2)	473 (44.3)	35 (10.9)***	433 (40.0)	469 (42.8)	36 (12.2)***
	Reading	370 (46.0)	426 (56.8)	56 (14.0)***	366 (45.0)	432 (58.8)	66 (16.4)***	372 (52.9)	424 (58.3)	52 (18.4)***
	Writing	333 (80.9)	416 (69.8)	83 (11.5)***	340 (70.9)	431 (62.8)	91 (14.4)***	335 (87.3)	421 (69.3)	86 (14.8)***
No SpEd	Overall	413 (39.2)	473 (30.7)	60 (73.9)***	418 (33.0)	482 (30.5)	64 (95.2)***	426 (36.5)	478 (31.2)	51 (81.6)***
	Speaking	485 (40.1)	506 (30.2)	21 (20.7)***	483 (33.9)	516 (29.5)	33 (38.1)***	492 (33.6)	510 (31.4)	18 (22.9)***
	Listening	445 (37.6)	485 (30.1)	40 (43.0)***	447 (33.4)	493 (29.1)	46 (53.9)***	452 (33.9)	488 (28.7)	36 (48.0)***
	Reading	384 (46.3)	452 (44.4)	68 (63.6)***	386 (42.0)	460 (48.8)	74 (72.1)***	396 (46.8)	456 (44.7)	60 (64.9)***
	Writing	340 (82.2)	450 (56.6)	110 (55.9)***	360 (69.3)	459 (50.8)	99 (62.9)***	367 (77.3)	458 (54.4)	91 (58.2)***

Note. SD = Standard Deviation; FARMS = Free and Reduced-price Meals System; SpEd = special education.
 Diff. = Difference calculated as mean scale score in Grade 1 minus mean scale score in kindergarten.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table C1.3
Grade 1 Annual Mean Scale Score Increases in LAS Links
by Gender

		Cohort 2006–2007 (N = 921)			Cohort 2007–2008 (N = 1019)			Cohort 2008–2009 (N = 1214)		
Skill areas		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
Male	Overall	408 (37.9)	467 (32.6)	59 (54.2)***	414 (34.2)	477 (32.3)	63 (69.6)***	421 (38.0)	472 (32.7)	51 (61.9)***
	Speaking	483 (38.1)	502 (31.5)	19 (15.0)***	480 (34.1)	513 (30.6)	33 (28.3)***	487 (34.9)	506 (30.6)	19 (17.8)***
	Listening	443 (38.0)	482 (32.1)	39 (30.6)***	446 (35.0)	492 (31.7)	46 (38.3)***	449 (34.6)	486 (30.6)	37 (36.6)***
	Reading	379 (44.9)	446 (46.6)	67 (46.3)***	381 (43.1)	455 (50.1)	74 (53.6)***	390 (48.3)	450 (46.4)	60 (50.0)***
	Writing	331 (82.3)	439 (59.8)	108 (39.7)***	350 (72.5)	453 (51.6)	103 (47.4)***	358 (80.4)	448 (56.7)	90 (42.5)***
Female	Overall	417 (40.0)	476 (30.7)	59 (52.4)***	421 (31.8)	483 (32.0)	62 (66.4)***	429 (36.6)	480 (33.1)	51 (57.7)***
	Speaking	487 (41.1)	508 (28.8)	21 (15.1)***	484 (32.9)	516 (30.0)	32 (27.4)***	493 (34.6)	511 (33.1)	18 (15.7)***
	Listening	446 (37.1)	486 (29.7)	40 (32.3)***	447 (32.7)	493 (30.1)	46 (39.0)***	453 (34.7)	488 (30.2)	35 (33.3)***
	Reading	387 (47.6)	454 (44.4)	67 (45.4)***	388 (41.5)	463 (49.9)	75 (50.5)***	399 (46.7)	459 (46.4)	60 (45.2)***
	Writing	349 (80.9)	456 (55.0)	107 (40.7)***	368 (64.8)	461 (52.7)	93 (43.8)***	373 (75.6)	463 (55.2)	90 (42.4)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 1 minus mean scale score in kindergarten.

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

Table C1.4
Grade 1 Annual Mean Scale Score Increases in LAS Links
by Home Language

		Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009				
Home language	N	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	N	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	N	2007 Mean (SD)	2009 Mean (SD)	Diff. (t)
Amharic	45	406 (33.2)	466 (21.8)	60 (12.8)***	44	424 (26.1)	484 (25.5)	60 (15.9)***	56	441 (39.6)	488 (25.3)	47 (11.1)***
Spanish	1,115	409 (37.4)	466 (30.5)	57 (61.0)***	1,220	414 (32.1)	474 (31.2)	60 (76.2)***	1,460	419 (34.8)	470 (31.8)	51 (71.3)***
Chinese ^a	87	425 (40.8)	488 (32.7)	63 (18.2)***	98	436 (34.0)	504 (28.3)	68 (25.3)***	131	443 (41.1)	499 (31.2)	56 (19.6)***
Vietnamese	100	422 (32.6)	474 (26.8)	52 (21.7)***	88	423 (29.0)	488 (28.4)	65 (23.2)***	113	430 (34.6)	479 (36.4)	49 (18.0)***
Korean	40	415 (42.6)	492 (34.7)	77 (13.0)***	32	435 (35.9)	497 (37.2)	62 (13.4)***	48	437 (41.0)	490 (29.4)	53 (13.1)***
French ^b	72	417 (42.8)	474 (29.5)	57 (12.8)***	71	410 (41.6)	488 (27.7)	79 (20.2)***	77	420 (38.8)	475 (28.2)	55 (15.1)***
Other ^c	331	418 (44.0)	480 (34.5)	62 (30.1)***	352	422 (34.3)	490 (32.2)	68 (41.2)***	383	434 (41.1)	484 (33.4)	50 (31.3)***

Note. SD = Standard Deviation.

Diff. = Difference is calculated as mean scale score in Grade 1 minus mean scale score in kindergarten.

^aIncludes Cantonese, Mandarin, Taiwanese.

^bIncludes French Creoles and Pidgin.

^cIncludes English.

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

Table C2.1
Grade 2 Annual Mean Scale Score Increases in LAS Links
by Race and Ethnicity

Skill areas	Cohort 2006–2007 (N = 248)			Cohort 2007–2008 (N = 286)			Cohort 2008–2009 (N = 351)			
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)	
Asian American	Overall	471 (32.2)	508 (28.8)	37 (25.4)***	466 (34.3)	517 (32.9)	51 (35.6)***	485 (29.0)	517 (28.5)	32 (29.3)***
	Speaking	493 (33.3)	517 (33.4)	24 (11.1)***	490 (33.7)	531 (37.7)	41 (18.4)***	507 (30.6)	528 (31.8)	21 (11.1)***
	Listening	485 (31.7)	509 (34.0)	24 (11.1)***	480 (34.6)	514 (35.5)	34 (15.6)***	495 (28.5)	513 (36.2)	18 (10.1)***
	Reading	452 (51.3)	501 (46.0)	49 (16.6)***	451 (49.3)	512 (53.5)	61 (21.9)***	472 (50.0)	510 (44.7)	38 (16.1)***
	Writing	453 (49.5)	509 (39.5)	56 (21.7)***	445 (52.9)	512 (38.9)	67 (29.0)***	469 (46.5)	518 (36.4)	49 (24.9)***
African American	Overall	449 (42.5)	485 (36.1)	36 (10.1)***	461 (27.8)	512 (24.7)	51 (30.6)***	471 (29.8)	500 (28.7)	29 (19.3)***
	Speaking	496 (51.5)	517 (44.6)	21 (4.0)***	504 (27.8)	537 (34.3)	33 (10.9)***	511 (30.1)	529 (35.1)	18 (6.7)***
	Listening	464 (40.7)	484 (42.4)	20 (4.5)***	470 (33.5)	511 (29.0)	40 (13.2)***	484 (36.0)	496 (32.5)	12 (4.7)***
	Reading	420 (53.4)	463 (47.4)	43 (9.9)***	436 (39.3)	498 (40.0)	62 (22.0)***	445 (43.3)	482 (46.9)	37 (12.4)***
	Writing	417 (58.2)	478 (52.6)	61 (11.8)***	436 (52.6)	504 (37.8)	68 (19.7)***	444 (45.5)	495 (36.7)	51 (18.2)***
White	Overall	466 (39.0)	512 (30.6)	46 (14.7)***	467 (40.3)	519 (34.4)	52 (18.3)***	482 (42.3)	524 (30.6)	42 (11.7)***
	Speaking	510 (41.2)	534 (37.0)	24 (5.0)***	504 (41.1)	538 (37.2)	34 (7.2)***	512 (47.1)	547 (40.5)	35 (6.6)***
	Listening	487 (32.4)	510 (35.5)	23 (7.2)***	486 (38.7)	519 (33.4)	33 (8.8)***	499 (31.1)	520 (35.0)	21 (5.6)***
	Reading	437 (51.5)	496 (44.4)	59 (13.0)***	442 (52.7)	508 (53.7)	66 (13.3)***	457 (55.7)	509 (42.3)	52 (10.9)***
	Writing	430 (70.9)	511 (46.5)	81 (13.4)***	437 (60.2)	513 (48.1)	76 (15.4)***	461 (67.4)	521 (46.3)	60 (9.8)***
Hispanic	Overall	453 (35.7)	491 (29.6)	38 (37.1)***	461 (29.8)	508 (26.4)	47 (58.0)***	471 (29.4)	497 (27.1)	26 (40.3)***
	Speaking	496 (38.7)	518 (34.4)	22 (14.8)***	497 (31.6)	533 (38.2)	36 (26.5)***	508 (31.1)	524 (35.2)	16 (13.6)***
	Listening	472 (35.5)	491 (33.3)	19 (13.7)***	478 (30.3)	510 (30.5)	32 (28.0)***	488 (30.2)	497 (34.6)	9 (9.3)***
	Reading	425 (44.9)	472 (45.1)	47 (29.6)***	438 (40.5)	492 (42.8)	54 (41.4)***	445 (45.6)	479 (38.1)	34 (30.2)***
	Writing	419 (59.0)	484 (42.6)	65 (36.7)***	434 (52.0)	499 (35.4)	65 (43.9)***	444 (46.1)	489 (40.2)	45 (38.9)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 2 minus mean scale score in Grade 1.

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

Table C2.2
Grade 2 Annual Mean Scale Score Increases in LAS Links
by Receipt of Free and Reduced-price Meals System and Special Education Services

Skill areas	Cohort 2006–2007 (N = 802)			Cohort 2007–2008 (N = 926)			Cohort 2008–2009 (N = 1130)			
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)	
FARMS	Overall	453 (36.9)	490 (31.3)	37 (33.2)***	460 (31.2)	508 (27.1)	48 (59.1)***	470 (29.8)	497 (27.3)	27 (41.8)***
	Speaking	496 (41.1)	517 (36.9)	21 (13.1)***	496 (31.5)	533 (38.0)	37 (27.7)***	507 (31.1)	523 (35.0)	16 (13.4)***
	Listening	472 (36.1)	490 (35.5)	18 (13.0)***	476 (31.8)	510 (30.6)	34 (28.1)***	487 (31.3)	497 (35.0)	10 (9.9)***
	Reading	425 (46.5)	471 (45.5)	46 (28.2)***	436 (42.0)	492 (45.0)	56 (42.5)***	445 (46.5)	481 (40.1)	36 (31.3)***
	Writing	420 (59.3)	483 (45.4)	63 (34.4)***	433 (54.6)	500 (36.3)	67 (43.3)***	444 (46.7)	490 (39.6)	46 (39.4)***
No FARMS	Overall	463 (36.0)	504 (30.0)	41 (33.3)***	467 (30.8)	515 (30.0)	48 (47.8)***	481 (31.5)	512 (30.3)	31 (32.3)***
	Speaking	498 (37.1)	522 (34.0)	24 (13.8)***	497 (34.1)	534 (37.1)	37 (20.5)***	510 (33.4)	532 (34.9)	22 (14.6)***
	Listening	480 (34.7)	502 (34.8)	22 (13.9)***	481 (32.6)	515 (33.1)	34 (22.0)***	494 (29.3)	510 (35.2)	16 (11.4)***
	Reading	439 (51.2)	490 (47.5)	51 (24.6)***	447 (44.7)	506 (47.0)	59 (31.2)***	461 (49.3)	498 (44.9)	37 (21.5)***
	Writing	436 (58.8)	501 (42.1)	65 (29.8)***	443 (49.1)	509 (39.0)	66 (40.0)***	461 (50.0)	510 (41.6)	50 (29.8)***
SpEd	Overall	439 (30.3)	474 (35.4)	35 (13.6)***	443 (41.0)	492 (37.5)	49 (22.3)***	456 (33.7)	485 (31.5)	29 (18.8)***
	Speaking	487 (34.1)	503 (30.1)	16 (5.7)***	481 (31.6)	517 (39.4)	36 (11.4)***	496 (30.7)	510 (36.4)	14 (5.4)***
	Listening	465 (33.8)	472 (40.8)	7 (2.2)*	468 (40.9)	495 (41.4)	27 (8.3)***	474 (34.3)	477 (39.3)	3 (1.2)
	Reading	408 (45.8)	455 (52.3)	47 (10.7)***	417 (55.7)	475 (56.0)	58 (13.9)***	428 (46.9)	473 (43.3)	45 (15.4)***
	Writing	399 (55.4)	466 (53.7)	67 (13.3)***	408 (69.2)	483 (46.7)	75 (15.8)***	426 (53.0)	481 (40.7)	55 (16.0)***
No SpEd	Overall	459 (37.0)	498 (30.0)	39 (44.1)***	465 (29.4)	513 (26.6)	48 (72.6)***	476 (29.8)	505 (28.4)	29 (49.4)***
	Speaking	498 (40.1)	521 (36.1)	23 (17.6)***	498 (32.1)	535 (37.1)	37 (32.6)***	510 (31.9)	528 (34.7)	18 (18.6)***
	Listening	476 (35.8)	498 (34.0)	22 (19.1)***	479 (31.0)	513 (30.0)	34 (34.9)***	491 (29.9)	504 (34.2)	13 (15.1)***
	Reading	433 (48.6)	481 (45.9)	48 (35.9)***	443 (41.1)	500 (44.4)	57 (50.9)***	453 (47.7)	489 (42.3)	36 (34.9)***
	Writing	430 (59.3)	493 (43.0)	63 (43.5)***	440 (50.0)	505 (35.9)	65 (56.1)***	452 (47.4)	499 (41.2)	47 (46.8)***

Note. SD = Standard Deviation; FARMS = Free and Reduced-price Meals System; SpEd = special education.
 Diff. = Difference calculated as mean scale score in Grade 2 minus mean scale score in Grade 1.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table C2.3
Grade 2 Annual Mean Scale Score Increases in LAS Links
by Gender

		Cohort 2006–2007 (N = 707)			Cohort 2007–2008 (N = 765)			Cohort 2008–2009 (N = 951)		
Skill areas		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
Male	Overall	453 (36.7)	492 (31.5)	39 (34.8)***	458 (32.7)	507 (29.3)	49 (51.8)***	472 (29.7)	500 (28.5)	28 (38.1)***
	Speaking	494 (39.5)	517 (35.7)	23 (15.0)***	493 (32.7)	530 (37.6)	37 (25.6)***	507 (30.7)	525 (32.6)	18 (14.5)***
	Listening	473 (36.6)	493 (36.2)	20 (13.7)***	477 (34.0)	509 (33.3)	32 (23.3)***	489 (30.6)	499 (35.7)	10 (8.9)***
	Reading	427 (48.2)	473 (48.7)	46 (25.7)***	436 (44.3)	492 (46.0)	56 (37.1)***	448 (46.4)	486 (41.3)	38 (28.8)***
	Writing	421 (59.0)	486 (45.0)	65 (34.5)***	430 (55.9)	498 (38.8)	68 (40.4)***	446 (48.8)	493 (41.2)	47 (34.5)***
		Cohort 2006–2007 (N = 584)			Cohort 2007–2008 (N = 694)			Cohort 2008–2009 (N = 809)		
Female	Overall	461 (36.6)	499 (31.1)	38 (30.2)***	467 (28.9)	515 (26.6)	48 (56.4)***	476 (31.9)	506 (29.8)	30 (36.3)***
	Speaking	501 (39.5)	522 (35.9)	21 (11.2)***	501 (31.7)	537 (37.4)	36 (23.2)***	509 (33.4)	528 (37.9)	19 (12.9)***
	Listening	478 (34.7)	497 (35.0)	19 (12.6)***	479 (30.0)	515 (29.3)	36 (27.7)***	490 (31.0)	504 (35.3)	14 (12.1)***
	Reading	434 (49.4)	484 (44.7)	50 (27.4)***	446 (41.5)	503 (45.7)	57 (37.3)***	454 (50.0)	490 (44.1)	36 (24.5)***
	Writing	433 (59.7)	495 (44.5)	62 (29.5)***	444 (48.2)	509 (35.2)	65 (41.7)***	453 (48.1)	502 (41.2)	49 (35.6)***

Note. SD = Standard Deviation.
Diff. = Difference calculated as mean scale score in Grade 2 minus mean scale score in Grade 1.
p* < .05; *p* < .01; ****p* < .001.

Table C2.4
Grade 2 Annual Mean Scale Score Increases in LAS Links by Home Language

		Cohort 2006–2007			Cohort 2007–2008				Cohort 2008–2009			
Home language	N	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	N	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	N	2007 Mean (SD)	2009 Mean (SD)	Diff. (t)
Amharic	28	451 (63.5)	490 (47.0)	39 (2.8)**	40	462 (21.9)	511 (18.6)	49 (16.4)***	45	473 (27.1)	504 (25.1)	31 (11.6)***
Spanish	816	453 (35.9)	491 (29.9)	38 (37.2)***	940	461 (29.7)	508 (26.4)	47 (58.2)***	1146	471 (29.4)	497 (27.3)	26 (40.8)***
Chinese ^a	48	476 (34.8)	511 (28.7)	34 (10.8)***	67	472 (30.8)	521 (33.2)	49 (17.4)***	77	493 (27.5)	525 (28.1)	32 (14.0)***
Vietnamese	65	469 (31.6)	503 (28.1)	34 (14.4)***	81	465 (22.5)	513 (29.4)	48 (20.9)***	75	483 (28.3)	511 (28.6)	28 (12.6)***
Korean	31	478 (28.1)	524 (23.4)	46 (10.9)***	25	458 (56.6)	517 (46.6)	59 (8.4)***	28	490 (22.4)	529 (28.1)	39 (10.6)***
French ^b	51	452 (36.2)	489 (30.5)	37 (11.1)***	63	462 (30.4)	517 (24.5)	55 (18.4)***	54	473 (29.6)	502 (25.5)	29 (9.6)***
Other ^c	252	462 (35.7)	503 (32.4)	41 (21.7)***	243	464 (36.7)	516 (32.1)	52 (34.0)***	335	478 (35.2)	512 (31.1)	34 (23.5)***

Note. SD = Standard Deviation.
Diff. = Difference calculated as mean scale score in Grade 2 minus mean scale score in Grade 1.
^aIncludes Cantonese, Mandarin, Taiwanese.
^bIncludes French Creoles and Pidgin.
^cIncludes English.
p* < .05; *p* < .01; ****p* < .001.

Table C3.1
Grade 3 Annual Mean Scale Score Increases in LAS Links
by Race and Ethnicity

Skill areas	Cohort 2006–2007 (N = 128)			Cohort 2007–2008 (N = 177)			Cohort 2008–2009 (N = 224)			
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)	
Asian American	Overall	490 (50.9)	514 (42.9)	24 (6.5)***	495 (32.8)	530 (25.8)	35 (18.2)***	507 (33.3)	525 (35.5)	18 (8.9)***
	Speaking	505 (51.5)	523 (48.0)	18 (4.2)***	506 (37.6)	538 (36.9)	32 (9.9)***	519 (39.5)	532 (41.3)	13 (4.4)***
	Listening	494 (43.9)	506 (43.6)	12 (2.6)**	498 (35.6)	522 (29.6)	24 (8.8)***	508 (36.4)	521 (39.9)	13 (4.5)***
	Reading	480 (61.3)	513 (54.9)	33 (6.8)***	485 (49.3)	539 (44.4)	54 (16.2)***	499 (54.5)	525 (50.4)	26 (7.8)***
	Writing	482 (67.8)	515 (60.8)	33 (6.4)***	495 (42.0)	523 (33.1)	28 (9.7)***	502 (39.2)	522 (43.7)	20 (7.6)***
African American	Overall	489 (30.4)	510 (22.5)	21 (7.8)***	479 (35.0)	520 (22.3)	41 (16.4)***	504 (26.9)	520 (24.0)	16 (9.1)***
	Speaking	521 (35.2)	530 (31.1)	9 (2.1)*	509 (39.6)	539 (32.7)	30 (8.2)***	529 (35.2)	544 (34.9)	15 (3.9)***
	Listening	498 (41.0)	508 (31.7)	10 (2.2)*	481 (33.1)	519 (26.7)	38 (11.0)***	508 (30.1)	515 (32.5)	7 (2.5)*
	Reading	463 (54.1)	499 (31.4)	36 (6.8)***	456 (49.1)	516 (40.2)	60 (14.8)***	486 (45.5)	509 (42.3)	23 (6.6)***
	Writing	476 (39.1)	506 (35.2)	30 (7.9)***	573 (53.7)	508 (33.1)	35 (8.2)***	496 (39.4)	515 (30.7)	18 (7.6)***
White	Overall	494 (34.9)	533 (27.5)	39 (8.7)***	501 (34.1)	537 (29.0)	36 (12.1)***	509 (35.9)	534 (25.2)	25 (6.5)***
	Speaking	510 (49.0)	544 (47.5)	34 (4.1)***	522 (37.0)	549 (34.7)	27 (5.8)***	524 (46.9)	547 (38.5)	23 (3.4)**
	Listening	499 (31.6)	522 (31.4)	23 (4.7)***	505 (43.6)	529 (30.1)	24 (5.3)***	510 (41.7)	528 (33.6)	18 (3.2)**
	Reading	481 (46.1)	529 (44.8)	48 (7.7)***	479 (52.7)	535 (40.7)	56 (12.0)***	496 (48.4)	530 (34.3)	33 (6.9)***
	Writing	486 (47.1)	537 (37.7)	51 (9.3)***	499 (40.4)	538 (45.5)	39 (8.1)***	507 (42.3)	531 (35.2)	24 (5.6)***
Hispanic	Overall	485 (40.5)	509 (27.5)	24 (17.7)***	483 (32.8)	518 (25.0)	35 (37.4)***	502 (28.9)	518 (24.6)	16 (21.2)***
	Speaking	509 (43.3)	529 (36.7)	21 (10.3)***	509 (37.2)	536 (34.5)	27 (16.2)***	526 (40.4)	538 (34.7)	12 (7.6)***
	Listening	495 (41.4)	508 (34.3)	13 (7.3)***	485 (34.5)	517 (28.7)	32 (23.8)***	507 (32.9)	517 (32.5)	10 (7.8)***
	Reading	461 (54.6)	495 (37.0)	34 (17.6)***	463 (48.3)	511 (38.4)	48 (29.3)***	484 (43.0)	508 (37.3)	24 (18.4)***
	Writing	476 (51.4)	504 (36.8)	28 (15.7)***	476 (46.9)	509 (36.6)	33 (22.3)***	491 (38.9)	509 (34.2)	18 (15.1)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 3 minus mean scale score in Grade 2.

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

Table C3.2
Grade 3 Annual Mean Scale Score Increases in LAS Links
by Receipt of Free and Reduced-price Meals System and Special Education Services

		Cohort 2006–2007 (N = 497)			Cohort 2007–2008 (N = 702)			Cohort 2008–2009 (N = 851)		
Skill areas		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
FARMS	Overall	484 (40.8)	507 (28.4)	23 (16.4)***	481 (34.3)	517 (24.7)	36 (35.5)***	502 (28.9)	518 (25.0)	16 (22.3)***
	Speaking	509 (43.5)	528 (37.0)	19 (9.0)***	508 (38.5)	535 (34.2)	27 (16.4)***	527 (40.3)	539 (35.2)	12 (8.3)***
	Listening	494 (40.9)	506 (35.6)	12 (6.5)***	484 (35.2)	516 (28.1)	32 (23.4)***	506 (31.9)	517 (33.0)	11 (8.2)***
	Reading	459 (55.1)	494 (37.9)	35 (16.3)***	461 (49.6)	510 (39.4)	49 (29.2)***	484 (45.1)	509 (38.5)	25 (18.9)***
	Writing	473 (52.2)	503 (40.2)	30 (14.7)***	474 (48.5)	507 (36.9)	33 (20.7)***	491 (38.6)	509 (33.5)	18 (15.8)***
No FARMS	Overall	491 (41.4)	517 (32.9)	26 (13.5)***	495 (30.4)	531 (25.4)	36 (30.9)***	507 (31.7)	524 (30.5)	17 (12.5)***
	Speaking	509 (46.0)	531 (42.1)	22 (7.8)***	512 (35.8)	542 (35.6)	29 (14.1)***	523 (39.6)	536 (38.3)	13 (6.0)***
	Listening	497 (41.5)	512 (35.4)	15 (5.8)***	497 (35.1)	525 (29.4)	28 (14.8)***	511 (37.1)	522 (36.0)	11 (5.4)***
	Reading	475 (55.1)	510 (44.9)	35 (13.4)***	479 (47.6)	533 (41.1)	54 (25.0)***	494 (47.3)	519 (44.8)	25 (11.2)***
	Writing	483 (53.7)	515 (44.3)	32 (13.0)***	492 (42.4)	525 (35.1)	33 (17.4)***	501 (40.5)	521 (40.2)	20 (10.9)***
SpEd	Overall	477 (40.6)	488 (40.9)	11 (4.6)***	474 (30.3)	503 (28.7)	29 (13.0)***	490 (31.9)	503 (37.5)	13 (5.4)***
	Speaking	505 (43.6)	506 (44.8)	1 (0.3)	501 (28.0)	522 (32.4)	21 (7.5)***	514 (39.6)	522 (40.4)	8 (2.3)*
	Listening	483 (34.5)	483 (43.4)	0 (0.1)	475 (35.4)	506 (35.8)	31 (9.5)***	496 (37.1)	498 (42.9)	2 (0.4)
	Reading	452 (58.0)	479 (49.1)	27 (5.7)***	456 (54.3)	497 (41.7)	41 (8.1)***	469 (54.9)	493 (52.2)	24 (5.7)***
	Writing	469 (53.7)	484 (52.2)	15 (4.7)***	467 (44.5)	490 (45.8)	23 (5.6)***	481 (39.5)	499 (44.3)	18 (5.1)***
No SpEd	Overall	488 (41.1)	514 (27.5)	26 (21.0)***	487 (33.8)	524 (24.5)	37 (44.6)***	505 (29.3)	522 (24.6)	17 (24.8)***
	Speaking	510 (44.6)	532 (37.2)	22 (12.4)***	510 (38.6)	539 (34.7)	29 (20.2)***	527 (40.0)	540 (35.3)	13 (10.0)***
	Listening	497 (41.7)	512 (33.1)	15 (9.0)***	490 (35.4)	521 (27.4)	31 (26.0)***	509 (33.0)	521 (31.9)	12 (10.4)***
	Reading	467 (55.0)	503 (39.5)	36 (20.4)***	469 (48.9)	521 (40.5)	52 (38.5)***	490 (44.4)	515 (38.7)	25 (21.4)***
	Writing	478 (52.8)	511 (39.7)	33 (19.2)***	482 (47.4)	516 (35.0)	34 (26.6)***	496 (39.2)	515 (34.8)	19 (18.7)***

Note. SD = Standard Deviation; FARMS = Free and Reduced-price Meals System; SpEd = special education.
 Diff. = Difference calculated as mean scale score in Grade 3 minus mean scale score in Grade 2.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table C3.3
Grade 3 Annual Mean Scale Score Increases in LAS Links
by Gender

		Cohort 2006–2007 (N = 440)			Cohort 2007–2008 (N = 564)			Cohort 2008–2009 (N = 668)		
Skill areas		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
Male	Overall	484 (42.5)	509 (32.0)	25 (15.4)***	482 (33.3)	518 (25.8)	36 (34.8)***	500 (29.7)	517 (27.8)	17 (16.8)***
	Speaking	508 (46.2)	529 (40.1)	21 (9.4)***	508 (36.5)	534 (33.6)	26 (14.9)***	523 (40.1)	536 (38.0)	13 (7.6)***
	Listening	493 (41.3)	508 (36.8)	15 (6.8)***	486 (36.1)	518 (29.5)	32 (20.9)***	505 (34.7)	516 (35.3)	11 (6.4)***
	Reading	463 (56.0)	499 (43.7)	36 (15.1)***	462 (51.7)	513 (42.8)	51 (26.7)***	483 (45.8)	509 (41.9)	26 (15.7)***
	Writing	472 (55.5)	503 (42.8)	31 (13.5)***	475 (47.7)	508 (37.3)	33 (18.8)***	491 (38.4)	509 (36.8)	18 (13.6)***
Female	Overall	490 (39.4)	513 (28.7)	23 (14.7)***	490 (33.7)	526 (25.3)	36 (30.1)***	507 (29.9)	523 (25.9)	16 (18.8)***
	Speaking	511 (42.4)	530 (37.9)	19 (7.5)***	511 (38.9)	542 (35.7)	31 (15.3)***	528 (40.0)	540 (34.3)	12 (6.8)***
	Listening	497 (41.0)	509 (34.3)	12 (5.5)***	491 (35.2)	520 (28.1)	29 (18.1)***	510 (32.6)	521 (32.4)	11 (7.7)***
	Reading	468 (55.1)	503 (38.8)	35 (14.8)***	472 (46.7)	523 (39.1)	51 (27.5)***	492 (46.1)	516 (39.7)	24 (15.1)***
	Writing	483 (49.3)	513 (41.1)	30 (14.6)***	487 (46.0)	519 (36.3)	32 (19.0)***	499 (40.3)	518 (35.3)	19 (13.5)***

Note. SD = Standard Deviation.
Diff. = Difference calculated as mean scale score in Grade 3 minus mean scale score in Grade 2.
p* < .05; *p* < .01; ****p* < .001.

Table C3.4
Grade 3 Annual Mean Scale Score Increases in LAS Links
by Home Language

		Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009				
Home language	N	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	N	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	N	2007 Mean (SD)	2009 Mean (SD)	Diff. (t)
Amharic	12	497 (33.4)	518 (19.3)	22 (3.3)	26	480 (21.6)	521 (16.6)	41 (8.7)***	35	506 (20.0)	518 (26.4)	12 (3.2)**
Spanish	554	485 (39.8)	509 (27.2)	24 (17.8)***	694	483 (33.0)	518 (25.1)	35 (37.5)***	839	502 (28.9)	518 (24.6)	16 (21.2)***
Chinese ^a	37	500 (43.2)	521 (32.5)	21 (3.8)**	31	504 (22.3)	538 (17.3)	34 (7.7)***	53	505 (44.9)	526 (42.8)	21 (4.3)***
Vietnamese	29	494 (41.0)	516 (26.8)	22 (4.7)***	50	495 (34.3)	525 (22.1)	30 (9.2)***	71	506 (27.6)	520 (35.4)	14 (3.9)***
Korean	16	469 (75.8)	515 (59.1)	46 (2.8)*	20	501 (40.4)	540 (28.6)	39 (4.7)***	23	509 (37.3)	531 (48.4)	21 (2.6)*
French ^b	33	479 (31.4)	509 (20.5)	30 (6.1)***	42	480 (34.5)	522 (23.7)	42 (9.8)***	60	506 (29.0)	527 (27.8)	21 (8.3)***
Other ^c	136	489 (42.2)	515 (40.6)	26 (8.1)***	195	491 (35.6)	529 (28.1)	38 (20.7)***	195	506 (30.8)	526 (23.5)	20 (10.1)***

Note. SD = Standard Deviation.
Diff. = Difference calculated as mean scale score in Grade 3 minus mean scale score in Grade 2.
^aIncludes Cantonese, Mandarin, Taiwanese.
^bIncludes French Creoles and Pidgin.
^cIncludes English.
p* < .05; *p* < .01; ****p* < .001.

Table C4.1
Grade 4 Annual Mean Scale Score Increases in LAS Links
by Race and Ethnicity

Skill areas	Cohort 2006–2007 (N = 121)			Cohort 2007–2008 (N = 116)			Cohort 2008–2009 (N = 138)			
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)	
Asian American	Overall	504 (42.0)	532 (33.7)	28 (9.8)***	495 (47.9)	538 (47.6)	43 (14.1)***	518 (36.8)	544 (38.6)	26 (9.7)***
	Speaking	509 (44.7)	532 (38.3)	23 (6.1)***	501 (44.3)	544 (46.2)	43 (10.3)***	524 (42.9)	546 (45.3)	22 (5.4)***
	Listening	509 (42.8)	526 (44.9)	17 (4.3)***	498 (49.4)	535 (56.9)	37 (8.0)***	516 (32.9)	538 (52.1)	22 (5.3)***
	Reading	503 (50.9)	538 (43.9)	35 (8.5)***	491 (60.1)	542 (59.0)	51 (11.9)***	522 (54.8)	548 (45.3)	26 (6.7)***
	Writing	498 (52.0)	535 (44.2)	37 (7.9)***	492 (66.2)	531 (56.0)	39 (7.9)***	511 (47.4)	546 (46.6)	35 (9.8)***
African American	Overall	481 (52.9)	525 (37.8)	44 (9.2)***	490 (32.1)	535 (33.3)	45 (13.6)***	509 (25.1)	535 (24.8)	26 (14.0)***
	Speaking	508 (50.1)	539 (38.6)	31 (5.0)***	509 (40.3)	556 (36.6)	47 (10.2)***	527 (34.6)	548 (34.0)	21 (6.7)***
	Listening	494 (46.8)	528 (48.6)	34 (5.3)***	491 (39.5)	525 (48.9)	34 (6.6)***	513 (30.5)	530 (36.3)	17 (4.6)***
	Reading	462 (72.0)	519 (52.0)	57 (8.1)***	474 (45.4)	529 (47.1)	55 (12.3)***	499 (43.4)	535 (37.5)	36 (10.7)***
	Writing	462 (73.9)	516 (41.2)	54 (8.0)***	487 (39.7)	530 (43.3)	43 (9.9)***	499 (29.0)	530 (34.1)	31 (12.2)***
White	Overall	501 (54.1)	550 (45.6)	49 (10.0)***	508 (39.2)	552 (26.6)	44 (8.4)***	507 (42.1)	550 (33.0)	43 (10.1)***
	Speaking	509 (45.5)	548 (52.8)	39 (6.0)***	526 (55.6)	567 (39.5)	41 (4.1)***	511 (49.1)	558 (41.2)	47 (8.3)***
	Listening	500 (44.1)	545 (60.9)	45 (7.4)***	507 (32.8)	535 (47.5)	28 (3.8)**	515 (37.7)	534 (49.0)	19 (3.1)**
	Reading	501 (72.5)	554 (51.2)	53 (7.6)***	494 (52.3)	548 (39.3)	54 (6.1)***	502 (54.4)	553 (37.9)	51 (8.3)***
	Writing	495 (81.4)	555 (53.1)	60 (7.1)***	509 (56.8)	558 (34.1)	49 (6.2)***	501 (55.1)	558 (39.7)	57 (8.6)***
Hispanic	Overall	493 (46.0)	517 (35.9)	24 (14.8)***	494 (41.5)	528 (33.6)	34 (25.2)***	508 (32.7)	528 (29.6)	20 (17.9)***
	Speaking	508 (52.3)	530 (38.5)	22 (9.5)***	513 (47.1)	549 (41.1)	36 (16.5)***	525 (41.2)	541 (38.9)	16 (8.8)***
	Listening	502 (40.7)	510 (44.2)	8 (3.8)***	499 (40.6)	520 (46.4)	21 (10.4)***	511 (32.8)	520 (42.1)	9 (5.6)***
	Reading	482 (59.1)	510 (46.7)	28 (12.2)***	478 (52.5)	520 (49.8)	42 (20.7)***	500 (45.2)	525 (39.1)	25 (15.7)***
	Writing	480 (61.9)	519 (49.9)	39 (16.3)***	487 (55.0)	524 (41.6)	37 (17.7)***	498 (43.0)	526 (38.3)	28 (17.8)***

Note. SD = Standard Deviation.
Diff. = Difference calculated as mean scale score in Grade 4 minus mean scale score in Grade 3.
*p < .05; **p < .01; ***p < .001.

Table C4.2
Grade 4 Annual Mean Scale Score Increases in LAS Links
by Receipt of Free and Reduced-price Meals System and Special Education Services

		Cohort 2006–2007 (N = 415)			Cohort 2007–2008 (N = 487)			Cohort 2008–2009 (N = 629)		
Skill areas		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
FARMS	Overall	489 (48.2)	515 (36.5)	26 (15.2)***	493 (40.8)	530 (34.4)	37 (26.9)***	507 (32.7)	527 (29.5)	20 (19.3)***
	Speaking	507 (52.7)	526 (38.7)	19 (8.5)***	511 (45.0)	549 (41.7)	38 (18.4)***	524 (41.0)	541 (37.9)	17 (9.6)***
	Listening	499 (41.9)	509 (45.8)	10 (4.6)***	497 (41.4)	522 (48.2)	25 (11.6)***	510 (32.7)	520 (41.9)	10 (5.9)***
	Reading	477 (61.3)	509 (48.5)	32 (14.0)***	478 (52.5)	522 (48.6)	44 (21.5)***	497 (46.1)	524 (38.9)	27 (16.7)***
	Writing	475 (66.5)	516 (47.8)	41 (16.0)***	487 (54.7)	527 (42.0)	40 (18.9)***	496 (42.7)	526 (38.7)	30 (19.1)***
		Cohort 2006–2007 (N = 268)			Cohort 2007–2008 (N = 240)			Cohort 2008–2009 (N = 320)		
No FARMS	Overall	502 (44.3)	536 (36.5)	34 (15.4)***	497 (43.1)	535 (39.7)	38 (18.4)***	515 (34.1)	543 (33.0)	28 (16.1)***
	Speaking	512 (45.9)	543 (40.5)	31 (11.2)***	512 (49.8)	550 (41.5)	38 (11.9)***	523 (42.2)	549 (42.5)	26 (9.5)***
	Listening	507 (42.2)	531 (47.5)	24 (7.9)***	500 (42.3)	528 (50.1)	28 (9.3)***	516 (32.9)	535 (46.4)	19 (7.3)***
	Reading	498 (59.5)	536 (46.2)	38 (11.3)***	486 (54.5)	534 (55.9)	48 (16.5)***	514 (49.0)	547 (40.9)	33 (12.8)***
	Writing	495 (58.7)	537 (49.7)	42 (13.4)***	492 (57.4)	530 (49.5)	38 (11.9)***	508 (43.5)	544 (41.0)	36 (14.8)***
		Cohort 2006–2007 (N = 92)			Cohort 2007–2008 (N = 98)			Cohort 2008–2009 (N = 134)		
SpEd	Overall	493 (42.2)	504 (38.3)	11 (3.2)**	485 (40.9)	504 (44.4)	19 (8.7)***	501 (27.9)	519 (32.0)	18 (7.9)***
	Speaking	510 (51.3)	513 (37.4)	3 (0.6)	505 (39.3)	525 (48.6)	20 (4.8)***	520 (29.8)	530 (39.1)	10 (2.8)**
	Listening	499 (47.2)	494 (51.8)	5 (0.9)	484 (45.9)	488 (52.9)	4 (1.3)	507 (33.6)	508 (49.5)	1 (0.2)
	Reading	481 (51.5)	503 (46.3)	22 (4.8)***	474 (51.8)	499 (54.9)	25 (7.0)***	490 (43.9)	519 (38.7)	29 (7.4)***
	Writing	484 (48.0)	510 (52.9)	26 (5.6)***	480 (51.8)	506 (56.2)	26 (6.8)***	488 (45.2)	520 (42.8)	32 (8.8)***
		Cohort 2006–2007 (N = 591)			Cohort 2007–2008 (N = 629)			Cohort 2008–2009 (N = 815)		
No SpEd	Overall	494 (47.9)	526 (37.1)	32 (22.1)***	496 (41.5)	536 (33.0)	40 (32.4)***	511 (34.0)	535 (31.0)	24 (23.7)***
	Speaking	508 (50.0)	536 (39.8)	28 (14.5)***	512 (47.6)	553 (39.1)	41 (21.7)***	525 (43.0)	546 (39.4)	21 (13.3)***
	Listening	503 (41.3)	522 (45.9)	19 (9.9)***	500 (40.6)	529 (45.8)	29 (15.3)***	513 (32.7)	528 (42.4)	15 (9.9)***
	Reading	486 (62.9)	523 (49.2)	37 (17.4)***	482 (53.4)	530 (49.6)	48 (26.6)***	505 (48.0)	534 (40.9)	29 (19.7)***
	Writing	482 (66.5)	527 (48.7)	45 (20.3)***	490 (56.1)	531 (41.6)	41 (21.4)***	502 (42.7)	534 (39.6)	32 (22.4)***

Note. SD = Standard Deviation; FARMS = Free and Reduced-price Meals System; SpEd = special education.

Diff. = Difference calculated as mean scale score in Grade 4 minus mean scale score in Grade 3.

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

Table C4.3
Grade 4 Annual Mean Scale Score Increases in LAS Links
by Gender

Skill areas	Cohort 2006–2007 (N = 362)			Cohort 2007–2008 (N = 385)			Cohort 2008–2009 (N = 512)		
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
Male									
Overall	491 (49.1)	520 (39.9)	30 (15.7)***	491 (42.0)	529 (37.4)	38 (25.2)***	508 (33.6)	532 (32.5)	24 (19.6)***
Speaking	506 (51.3)	533 (44.1)	27 (10.6)***	510 (45.5)	549 (40.8)	39 (15.9)***	523 (40.9)	544 (39.6)	21 (10.8)***
Listening	500 (43.6)	516 (48.9)	16 (6.1)***	495 (41.6)	523 (51.2)	28 (12.0)***	513 (32.2)	525 (47.2)	12 (6.5)***
Reading	481 (64.2)	517 (50.9)	36 (12.7)***	477 (56.1)	524 (51.7)	47 (20.3)***	499 (49.5)	531 (41.2)	32 (16.8)***
Writing	477 (67.8)	518 (51.0)	41 (14.7)***	482 (56.3)	522 (45.8)	40 (16.8)***	498 (44.6)	529 (41.2)	31 (17.2)***
Female									
Overall	498 (44.6)	527 (35.4)	29 (14.5)***	498 (40.8)	534 (35.0)	36 (20.9)***	512 (33.0)	534 (30.6)	22 (15.6)***
Speaking	512 (48.7)	532 (35.4)	20 (8.3)***	513 (47.9)	551 (42.5)	38 (14.9)***	526 (41.9)	544 (39.9)	18 (8.0)***
Listening	504 (40.5)	521 (46.1)	17 (6.0)***	501 (41.7)	524 (46.2)	23 (9.0)***	512 (33.6)	525 (39.9)	13 (6.5)***
Reading	489 (58.0)	524 (47.2)	35 (12.8)***	485 (49.5)	528 (51.1)	43 (17.9)***	508 (45.2)	532 (40.7)	24 (12.8)***
Writing	489 (59.6)	531 (47.1)	42 (14.9)***	477 (52.6)	508 (39.9)	31 (11.6)***	503 (41.5)	536 (39.0)	33 (16.8)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 4 minus mean scale score in Grade 3.

*p < .05; **p < .01; ***p < .001.

Table C4.4
Grade 4 Annual Mean Scale Score Increases in LAS Links by Home Language

Home language	N	Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009				
		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2007 Mean (SD)	2009 Mean (SD)	Diff. (t)		
Amharic	13	498 (27.4)	539 (36.2)	41 (4.8)***	9	498 (17.9)	546 (21.8)	48 (4.6)**	30	514 (25.5)	539 (25.3)	25 (7.2)***
Spanish	428	493 (45.5)	517 (35.9)	24 (14.6)***	490	494 (41.9)	527 (33.8)	33 (25.1)***	625	508 (32.7)	527 (29.5)	19 (17.9)***
Chinese ^a	26	516 (29.0)	533 (32.4)	17 (3.6)**	32	495 (49.3)	544 (42.7)	49 (7.0)***	27	518 (50.7)	551 (39.9)	33 (4.0)***
Vietnamese	24	517 (30.6)	537 (38.4)	19 (4.1)***	21	509 (34.0)	543 (32.9)	34 (6.0)***	39	522 (21.2)	538 (29.7)	16 (3.9)***
Korean	16	494 (44.4)	533 (32.8)	39 (5.0)***	13	490 (46.9)	550 (49.1)	60 (6.1)***	13	503 (58.1)	544 (69.7)	41 (5.3)***
French ^b	37	486 (53.6)	539 (33.1)	53 (7.3)***	35	492 (30.2)	534 (31.6)	42 (8.8)***	41	504 (33.4)	543 (27.1)	39 (8.7)***
Other ^c	139	492 (55.0)	533 (42.4)	41 (12.7)***	127	495 (43.1)	537 (42.6)	42 (16.1)***	174	512 (33.0)	542 (31.4)	30 (13.8)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 4 minus mean scale score in Grade 3.

^aIncludes Cantonese, Mandarin, Taiwanese.

^bIncludes French Creoles and Pidgin.

^cIncludes English.

*p < .05; **p < .01; ***p < .001.

Table C5.1
Grade 5 Annual Mean Scale Score Increases in LAS Links
by Race and Ethnicity

Skill areas	Cohort 2006–2007 (N = 93)			Cohort 2007–2008 (N = 100)			Cohort 2008–2009 (N = 105)			
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)	
Asian American	Overall	500 (49.1)	537 (34.7)	37 (10.8)***	512 (40.1)	551 (37.1)	39 (12.4)***	512 (51.6)	546 (49.2)	34 (11.4)***
	Speaking	500 (49.2)	531 (43.2)	31 (6.3)***	512 (37.9)	549 (40.9)	37 (9.6)***	516 (49.8)	547 (52.3)	31 (8.5)***
	Listening	502 (63.6)	536 (46.8)	34 (6.5)***	504 (49.1)	550 (55.9)	46 (8.4)***	509 (62.3)	541 (60.6)	32 (6.7)***
	Reading	502 (58.9)	549 (44.6)	47 (9.7)***	519 (53.0)	557 (48.5)	38 (9.6)***	514 (62.1)	556 (56.6)	42 (9.2)***
	Writing	496 (61.0)	534 (41.7)	38 (7.4)***	517 (52.5)	549 (43.1)	33 (6.4)***	512 (58.3)	541 (52.2)	29 (7.1)***
African American	Overall	505 (32.7)	542 (28.8)	37 (11.6)***	503 (43.9)	540 (32.8)	37 (10.5)***	522 (36.7)	555 (30.5)	33 (12.1)***
	Speaking	523 (39.6)	550 (36.2)	27 (6.5)***	517 (46.7)	555 (37.1)	38 (8.6)***	538 (37.4)	561 (40.5)	23 (5.8)***
	Listening	505 (47.9)	541 (43.0)	36 (6.0)***	503 (51.4)	538 (43.9)	35 (6.6)***	509 (54.7)	553 (44.1)	44 (7.8)***
	Reading	494 (46.3)	540 (42.4)	46 (9.2)***	496 (60.0)	533 (48.0)	37 (7.1)***	516 (46.4)	554 (42.5)	38 (9.0)***
	Writing	498 (43.5)	537 (39.7)	39 (7.9)***	499 (45.5)	534 (41.7)	35 (7.9)***	526 (42.8)	552 (40.0)	26 (6.2)***
White	Overall	509 (61.5)	555 (45.4)	46 (7.3)***	519 (55.8)	562 (54.2)	43 (8.3)***	535 (40.7)	578 (30.5)	43 (8.6)***
	Speaking	513 (68.6)	562 (45.9)	49 (5.2)***	521 (57.7)	569 (46.1)	48 (5.8)***	534 (43.8)	577 (39.3)	44 (6.7)***
	Listening	503 (72.4)	550 (50.8)	47 (5.2)***	516 (67.6)	567 (67.9)	51 (5.0)***	523 (60.9)	566 (45.4)	43 (4.1)***
	Reading	513 (67.6)	557 (56.7)	44 (5.5)***	520 (67.5)	554 (68.6)	34 (4.9)***	536 (49.8)	591 (45.6)	55 (7.2)***
	Writing	507 (67.8)	553 (61.5)	46 (5.4)***	518 (66.4)	561 (69.8)	43 (6.2)***	548 (52.4)	578 (53.0)	30 (4.2)***
Hispanic	Overall	496 (48.3)	533 (35.0)	38 (22.2)***	500 (47.2)	537 (35.9)	37 (21.4)***	512 (45.3)	539 (36.2)	27 (18.7)***
	Speaking	513 (50.5)	541 (40.6)	28 (11.8)***	512 (51.4)	554 (41.9)	42 (17.2)***	530 (54.8)	554 (45.9)	24 (9.2)***
	Listening	495 (59.0)	529 (47.3)	34 (12.5)***	494 (53.6)	533 (47.1)	39 (14.1)***	507 (55.4)	533 (49.4)	26 (10.3)***
	Reading	489 (54.8)	533 (50.2)	44 (18.4)***	496 (52.9)	532 (47.5)	36 (15.9)***	504 (54.7)	538 (46.8)	34 (14.8)***
	Writing	487 (62.9)	533 (42.3)	46 (17.6)***	501 (60.1)	530 (44.9)	29 (12.1)***	507 (56.2)	533 (40.2)	26 (11.1)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale score in Grade 5 minus mean scale score in Grade 4.

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

Table C5.2
Grade 5 Annual Mean Scale Score Increases in LAS Links
by Receipt of Free and Reduced-price Meals System and Special Education Services

		Cohort 2006–2007 (N = 364)			Cohort 2007–2008 (N = 396)			Cohort 2008–2009 (N = 363)		
Skill areas		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
FARMS	Overall	496 (47.6)	533 (35.5)	37 (23.2)***	499 (45.0)	536 (36.2)	37 (23.5)***	512 (46.2)	540 (38.2)	28 (19.6)***
	Speaking	513 (49.7)	540 (39.2)	27 (12.5)***	509 (47.9)	553 (39.8)	44 (19.0)***	529 (54.2)	552 (46.1)	22 (9.5)***
	Listening	495 (60.8)	530 (47.5)	35 (12.8)***	493 (51.9)	532 (48.0)	39 (14.9)***	508 (56.0)	536 (50.4)	28 (11.1)***
	Reading	490 (56.5)	532 (50.6)	42 (17.7)***	495 (54.5)	531 (49.1)	36 (16.1)***	504 (54.7)	538 (47.4)	34 (16.2)***
	Writing	489 (60.5)	533 (43.5)	44 (18.4)***	436 (10.6)	510 (38.2)	75 (3.8)	508 (56.8)	534 (43.1)	26 (11.5)***
No FARMS	Overall	502 (47.5)	543 (34.3)	41 (16.2)***	515 (47.8)	552 (39.2)	37 (15.3)***	521 (43.8)	556 (39.0)	35 (17.3)***
	Speaking	510 (52.3)	545 (45.1)	35 (9.6)***	522 (50.7)	558 (44.9)	36 (11.4)***	528 (46.0)	562 (46.6)	34 (11.5)***
	Listening	504 (56.2)	541 (46.0)	37 (9.9)***	511 (56.0)	552 (53.9)	41 (10.7)***	510 (59.0)	548 (52.9)	38 (9.7)***
	Reading	500 (53.5)	550 (44.6)	50 (15.6)***	514 (56.6)	552 (50.2)	38 (12.6)***	521 (54.7)	564 (51.2)	43 (12.9)***
	Writing	496 (61.2)	539 (43.6)	43 (11.2)***	515 (58.4)	547 (48.3)	32 (8.8)***	525 (52.4)	553 (47.1)	28 (9.9)***
SpEd	Overall	503 (28.9)	527 (30.1)	24 (10.1)***	499 (40.8)	521 (43.8)	22 (7.8)***	502 (41.9)	523 (49.8)	21 (5.9)***
	Speaking	520 (43.0)	537 (40.4)	17 (4.4)***	506 (38.7)	541 (46.3)	35 (7.7)***	523 (43.2)	532 (56.8)	9 (1.5)
	Listening	492 (44.3)	515 (40.5)	23 (5.2)***	489 (50.1)	508 (57.4)	19 (3.8)***	489 (56.6)	512 (61.4)	23 (3.8)***
	Reading	500 (40.8)	528 (41.6)	28 (6.4)***	498 (46.6)	518 (54.5)	20 (4.1)***	498 (49.1)	524 (51.7)	26 (5.0)***
	Writing	502 (33.5)	529 (41.4)	27 (7.3)***	475 (59.3)	504 (62.2)	29 (5.1)***	500 (50.1)	524 (63.6)	24 (4.4)***
No SpEd	Overall	498 (50.2)	538 (36.0)	40 (26.9)***	505 (47.2)	544 (36.1)	39 (27.4)***	517 (45.7)	549 (36.7)	32 (25.7)***
	Speaking	511 (51.7)	543 (41.5)	32 (15.1)***	514 (50.3)	556 (40.6)	42 (20.8)***	530 (52.3)	558 (44.1)	28 (14.9)***
	Listening	499 (61.7)	537 (47.6)	38 (15.4)***	500 (54.3)	543 (48.4)	43 (18.2)***	511 (56.8)	544 (48.9)	33 (14.3)***
	Reading	492 (57.9)	540 (50.4)	48 (22.9)***	502 (57.0)	541 (49.2)	39 (20.4)***	512 (56.0)	551 (49.4)	39 (20.1)***
	Writing	489 (64.3)	536 (43.9)	47 (20.3)***	505 (57.1)	538 (46.2)	33 (16.7)***	516 (56.2)	543 (42.1)	27 (14.5)***

Note. SD = Standard Deviation; FARMS = Free and Reduced-price Meals System; SpEd = special education.
 Diff. = Difference calculated as mean scale score in Grade 5 minus mean scale score in Grade 4.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table C5.3
Grade 5 Annual Mean Scale Score Increases in LAS Links
by Gender

Skill areas	Cohort 2006–2007 (N = 324)			Cohort 2007–2008 (N = 309)			Cohort 2008–2009 (N = 305)		
	2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2008 Mean (SD)	2009 Mean (SD)	Diff. (t)
Male									
Overall	497 (48.0)	535 (36.9)	38 (22.0)***	502 (45.4)	537 (37.0)	35 (20.3)***	513 (43.8)	542 (40.6)	29 (18.5)***
Speaking	512 (49.5)	542 (40.1)	30 (12.6)***	513 (48.2)	552 (40.3)	39 (14.6)***	530 (48.9)	554 (47.8)	24 (9.2)***
Listening	498 (59.9)	533 (49.0)	35 (12.4)***	498 (54.4)	536 (52.3)	38 (12.4)***	507 (58.3)	538 (51.6)	31 (10.6)***
Reading	492 (55.9)	535 (51.8)	43 (16.8)***	498 (56.2)	535 (51.0)	37 (14.3)***	508 (53.9)	544 (52.3)	37 (15.5)***
Writing	487 (62.8)	530 (44.7)	43 (15.7)***	500 (55.5)	529 (43.9)	29 (12.4)***	511 (53.2)	535 (47.6)	24 (10.3)***
Female									
Overall	501 (47.2)	539 (33.0)	38 (17.6)***	507 (47.7)	546 (38.5)	39 (19.5)***	517 (47.4)	550 (37.5)	33 (18.2)***
Speaking	512 (52.0)	541 (43.1)	29 (9.4)***	513 (50.2)	558 (42.7)	45 (16.9)***	528 (54.0)	557 (44.9)	29 (11.2)***
Listening	499 (58.8)	534 (44.7)	35 (10.4)***	500 (53.3)	542 (48.9)	42 (13.6)***	511 (55.8)	543 (51.5)	32 (10.2)***
Reading	496 (55.5)	542 (45.5)	46 (16.5)***	505 (55.2)	542 (49.4)	37 (14.6)***	513 (56.9)	551 (47.9)	38 (13.6)***
Writing	497 (57.4)	542 (41.0)	45 (14.4)***	510 (59.7)	544 (49.5)	34 (11.3)***	518 (58.4)	548 (41.9)	30 (11.1)***

Note. SD = Standard Deviation.
Diff. = Difference calculated as mean scale score in Grade 5 minus mean scale score in Grade 4.
*p < .05; **p < .01; ***p < .001.

Table C5.4
Grade 5 Annual Mean Scale Score Increases in LAS Links by Home Language

Home language	N	Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009		
		2006 Mean (SD)	2007 Mean (SD)	Diff. (t)	2007 Mean (SD)	2008 Mean (SD)	Diff. (t)	2007 Mean (SD)	2009 Mean (SD)	Diff. (t)
Amharic	18	498 (31.7)	542 (16.7)	44 (8.1)***	515 (47.8)	542 (34.2)	27 (5.4)***	521 (36.2)	545 (34.3)	24 (4.5)**
Spanish	343	497 (48.3)	533 (34.5)	36 (21.6)***	500 (47.3)	537 (36.0)	37 (21.3)***	512 (44.9)	539 (36.1)	27 (18.7)***
Chinese ^a	20	511 (41.8)	551 (26.7)	40 (5.0)***	521 (28.6)	555 (31.4)	34 (5.0)***	521 (44.8)	557 (39.8)	36 (7.3)***
Vietnamese	16	499 (60.9)	531 (33.2)	32 (4.0)**	517 (29.0)	557 (42.0)	40 (5.3)***	528 (33.3)	551 (29.4)	23 (3.0)*
Korean	23	493 (51.2)	539 (41.6)	46 (6.2)***	491 (66.0)	546 (54.0)	55 (6.3)***	508 (44.6)	546 (58.1)	38 (4.9)***
French ^b	33	511 (38.6)	547 (35.6)	36 (7.9)***	500 (47.0)	544 (41.9)	44 (6.7)***	526 (37.8)	561 (30.8)	35 (7.8)***
Other ^c	108	499 (48.5)	540 (39.4)	41 (11.9)***	513 (42.7)	550 (39.1)	37 (13.9)***	518 (50.8)	555 (45.1)	37 (13.1)***

Note. SD = Standard Deviation.
Diff. = Difference calculated as mean scale score in Grade 5 minus mean scale score in Grade 4.
^aIncludes Cantonese, Mandarin, Taiwanese.
^bIncludes French Creoles and Pidgin.
^cIncludes English.
*p < .05; **p < .01; ***p < .001.

Table C6
Elementary METS Students Annual Mean Scale Score Increases in LAS Links

		Cohort 2006–2007 (N = 37)			Cohort 2007–2008 (N = 48)			Cohort 2008–2009 (N = 41)		
Skill areas		2006	2007	Diff.	2007	2008	Diff.	2008	2009	Diff.
		Mean (SD)	Mean (SD)	(t)	Mean (SD)	Mean (SD)	(t)	Mean (SD)	Mean (SD)	(t)
Elem. Students	Overall	430 (51.1)	483 (47.6)	53 (10.8)***	440 (48.9)	492 (38.9)	52 (12.3)***	441 (45.6)	486 (41.3)	45 (9.7)***
	Speaking	482 (49.2)	513 (37.8)	31 (4.7)***	471 (53.9)	525 (44.5)	54 (8.5)***	477 (49.9)	511 (32.8)	34 (5.5)***
	Listening	452 (39.5)	486 (53.7)	27 (3.5)***	449 (54.0)	486 (48.4)	37 (4.5)***	441 (45.1)	479 (45.5)	38 (5.7)***
	Reading	397 (75.0)	462 (71.1)	35 (4.8)***	415 (69.5)	473 (54.3)	58 (6.7)***	423 (60.9)	477 (58.5)	54 (6.8)***
	Writing	391 (87.4)	474 (65.3)	83 (10.2)***	424 (70.7)	485 (49.4)	61 (7.8)***	424 (70.5)	477 (58.2)	53 (6.1)***

Note. SD = Standard Deviation.

Diff. = Difference calculated as mean scale scores in elementary grades minus mean scale scores in the previous year.

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

Appendix D: Analyses of Data Related to Evaluation Question 1 (Continuation of Appendix C)

Table D1
 Number and Percentage of Students With a 15-Point or More Increase
 From Spring-to-Spring
 in LAS Links Overall Scale Scores by Grade Cohort

	Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009		
	<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%
Grade 1	1,790	1,683	94	1,906	1,861	98	2,268	2,097	93
Grade 2	1,291	1,090	84	1,459	1,379	95	1,760	1,334	76
Grade 3	818	505	62	1,058	885	84	1,276	664	52
Grade 4	683	418	61	727	573	79	949	578	61
Grade 5	561	432	77	586	447	76	570	397	70

Note. AMAO I targets for the three cohorts were 40%, 48%, and 56%, respectively.
 % was the proportion of at least 15-point increase (n/N).

Table D2
Number and Percentage of Students With a 15-Point or More Increase From Spring-to-Spring in
LAS Links Overall Scale Scores by Subgroup and Grade Cohort

	Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009		
	<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%
Grade 1	Race and ethnicity^a								
AfAm	191	181	95	198	197	100	217	196	90
AsAm	373	350	94	392	382	97	483	446	92
Hispanic	1,109	1,038	94	1,198	1,165	97	1,437	1,336	93
White	117	114	97	116	115	99	126	114	91
	Special services								
FARMS	1,052	992	94	1,167	1,138	98	1,395	1,295	93
No FARMS	738	691	94	739	723	98	873	802	92
SpEd	122	105	86	140	130	93	173	157	91
No SpEd	1,668	1,578	95	1,766	1,731	98	2,095	1,940	93
	Home languages								
Amharic	45	45	100	44	43	98	56	49	88
Spanish	1,115	1,044	94	1,220	1,187	97	1,460	1,358	93
Chinese ^b	87	82	94	98	98	100	131	122	93
Vietnamese	100	95	95	88	87	99	113	106	94
Korean	40	39	98	32	31	97	48	45	94
French ^c	72	66	92	71	71	100	77	70	91
Other ^d	331	312	94	352	343	97	383	347	91
	Gender								
Male	921	864	94	1,019	996	98	1,214	1,122	92
Female	869	819	94	887	865	98	1,054	975	93
Grade 2	Race and ethnicity^a								
AfAm	137	118	86	158	156	99	178	142	80
AsAm	248	211	85	286	270	94	351	284	81
Hispanic	810	673	83	934	876	94	1,132	818	72
White	94	86	92	81	77	95	98	89	91
	Special services								
FARMS	802	661	82	926	878	95	1,130	837	74
No FARMS	489	429	88	533	501	94	630	497	79
SpEd	138	111	80	134	126	94	167	136	81
No SpEd	1,153	979	85	1,325	1,253	95	1,593	1,198	75
	Home languages								
Amharic	28	23	82	40	39	98	45	38	84
Spanish	816	679	83	940	881	94	1,146	830	72
Chinese ^b	48	41	85	67	62	93	77	64	83
Vietnamese	65	55	85	81	76	94	75	56	75
Korean	31	28	90	25	24	96	28	27	96
French ^c	51	46	90	63	63	100	54	43	80
Other ^d	252	218	87	243	234	96	335	276	82
	Gender								
Male	707	595	84	765	724	95	951	709	75
Female	584	495	85	694	655	94	809	625	77

Continued

Table D2 (continued)
Number and Percentage of Students With a 15-Point or More Increase From Spring-to-Spring
in LAS Links Overall Scale Scores by Subgroup and Grade Cohort

	Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009		
	<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%
Grade 3									
Race and ethnicity^a									
AfAm	81	51	63	120	106	88	146	74	51
AsAm	128	69	54	177	142	80	224	122	55
Hispanic	556	341	61	692	578	84	836	427	51
White	52	43	83	69	59	86	70	41	59
Special services									
FARMS	497	301	61	702	577	82	851	449	53
No FARMS	321	204	64	356	308	87	425	215	51
SpEd	96	45	47	120	95	79	143	74	52
No SpEd	722	460	64	938	790	84	1,133	590	52
Home languages									
Amharic	12	6	50	26	23	89	35	17	49
Spanish	554	338	61	694	578	83	839	425	51
Chinese ^b	37	15	41	31	23	74	53	28	53
Vietnamese	29	18	62	50	40	80	71	37	52
Korean	16	12	75	20	17	85	23	16	70
French ^c	33	25	76	42	36	86	60	35	58
Other ^d	136	90	66	195	168	86	195	106	54
Gender									
Male	440	277	63	564	470	83	668	352	53
Female	378	228	60	494	415	84	608	312	51
Grade 4									
Race and ethnicity									
AfAm	71	53	75	85	74	87	122	89	73
AsAm	121	77	64	116	93	80	138	83	60
Hispanic	432	239	55	489	374	77	622	356	57
White	59	49	83	37	32	87	67	50	75
Special services									
FARMS	415	239	58	487	383	79	629	373	59
No FARMS	268	179	67	240	190	79	320	205	64
SpEd	92	31	34	98	56	57	134	69	52
No SpEd	591	387	66	629	517	82	815	509	63
Home languages									
Amharic	13	10	77	9	8	89	30	23	77
Spanish	428	235	55	490	375	77	625	354	57
Chinese ^b	26	14	54	32	27	84	27	18	67
Vietnamese	24	13	54	21	17	81	39	21	54
Korean	16	12	75	13	11	85	13	10	77
French ^c	37	29	78	35	30	86	41	35	85
Other ^d	139	105	76	127	105	83	174	117	67
Gender									
Male	362	221	61	385	317	82	512	327	64
Female	321	197	61	342	256	75	437	251	57

Continued

Table D2 (continued)
Number and Percentage of Students With a 15-Point or More Increase From Spring-to-Spring
in LAS Links Overall Scale Scores by Subgroup and Grade Cohort

		Cohort 2006–2007			Cohort 2007–2008			Cohort 2008–2009		
		<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%	<i>N</i>	<i>n</i>	%
Grade 5	Race and ethnicity ^a									
	AfAm	79	59	75	83	61	74	79	60	76
	AsAm	93	66	71	100	79	79	105	81	77
	Hispanic	351	274	78	363	273	75	340	223	66
	White	38	33	87	40	34	85	46	33	72
	Special services									
	FARMS	364	282	78	396	296	75	363	239	66
	No FARMS	197	150	76	190	151	80	207	158	76
	SpEd	85	51	60	71	45	63	67	39	58
	No SpEd	476	381	80	515	402	78	503	358	71
	Home languages									
	Amharic	18	16	89	21	11	52	13	10	77
	Spanish	343	266	78	360	271	75	340	221	65
	Chinese ^b	20	16	80	25	18	72	29	25	86
	Vietnamese	16	10	63	14	12	86	12	7	58
	Korean	23	17	74	18	16	89	17	15	88
	French ^c	33	27	82	36	28	78	38	27	71
	Other ^d	108	80	74	112	91	81	121	92	76
	Gender									
	Male	324	257	79	309	228	74	305	212	70
Female	237	175	74	277	219	79	265	185	70	

Note. AMAO I targets for the three cohorts were 40%, 48%, & 56%.

% was the proportion of at least 15-point increase (n/N). AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.

^aAmerican Indian not shown.

^bIncludes Cantonese, Mandarin, Taiwanese.

^cIncludes French Creoles and Pidgin.

^dIncludes English.

Appendix E: Analyses of Data Related to Evaluation Question Two

Notes for the multiple regression output tables are based on Field (2005):

***B*-value:** an unstandardized regression coefficient that tells how large a change in the MSA scores was associated with a one-point change in the LAS Links overall score or one of the sociodemographic variables. The *B*-value tells both the size and direction of the association. For example, a one-point increase in the LAS Links scores was associated with a 0.6-point increase in MSA reading scores for Grade 3 ESOL students in 2006 (Table E2.1).

***β*-value:** a standardized regression coefficient that represents the change in the MSA score associated with a standard unit change in the LAS Links overall score or in one of the sociodemographic variables. The *β*-value, between 0 and 1, takes into account different measuring units of the predictors for the MSA scores. Therefore, the *β*-value can be used as an effect size assessment (Kline, 2005) to examine whether the LAS Links overall scores were a strong predictor for the MSA scores, relative to the sociodemographic variables. For example, the LAS Links overall scores ($\beta = .51$) were a strong and major predictor of the MSA scores for Grade 3 reading in 2006 because the *β*-values for the sociodemographic variables were about .10 or less (Table E2.1).

***R*²-value:** a measure of the amount of variance in MSA scores that is explained by LAS Links scores and ESOL students' sociodemographic variables included in the regression model; for example, $R^2 = .42$ indicates that 42% of the variance in MSA score changes is accounted for by LAS Links scores and sociodemographic variables. The value of R^2 cannot exceed 1.

***F*-ratio:** a measure of goodness of fit of the regression model. The *F*-ratio tells how well MSA scores can be predicted by LAS Links scores and sociodemographic variables. A good model should have an *F*-ratio greater than 1.

Analyses of sociodemographic variables: In the multiple regression models, ESOL student sociodemographic characteristics (control variables) were coded as dummy variables with each having two categories. These dummy variables represented groups of students, such as non-recipients of FARMS services versus recipients of FARMS services. Race and ethnicity was coded into three dummy variables with White students as the reference group to African American students, Asian American students, and Hispanic students. The regression coefficient then indicates how the MSA score changed by the subgroup. There were weak associations found between MSA performances and ESOL students' sociodemographic variables for all the grade levels in all years (Tables E2.1 and E2.2). In general, belonging to one demographic subgroup did not make significant or substantial changes in MSA reading performances. Some significant associations were found between MSA mathematics performance and the sociodemographic characteristics in each grade level with a few exceptions. For example, recipients of special education services received significantly lower scores of 7–13 points than non-recipients did. African American students received significantly lower scores of 10–21 points than White students. Asian American students performed significantly better than White students did by 8–19 points in at least two of four years. Hispanic students received significantly lower scores of 8–20 points than White students in at least two years. Male students scored significantly higher than female students did by 5–10 points in at least two years. However, the associated *β*-values (less than .20) indicate that the significant differences on the MSA mathematics scores between the subgroups were trivial because the sociodemographic variables only explained a small amount of variability for the MSA scores.

Table E1.1
Mean Scale Scores of MSA and LAS Links Tests for ESOL Students Included
in Multiple Regression Analyses by Grade Level and Year

	2006			2007			2008			2009		
	Mean (SD)			Mean (SD)			Mean (SD)			Mean (SD)		
	N	MSA	LAS	N	MSA	LAS	N	MSA	LAS	N	MSA	LAS
MSA reading and LAS Links overall scale scores												
Grade 3	817	393 (31)	515 (29)	895	400 (29)	511 (30)	1133	401 (28)	521 (26)	1382	408 (30)	520 (27)
Grade 4	595	376 (33)	522 (37)	727	389 (31)	526 (37)	802	392 (31)	533 (34)	1015	393 (30)	533 (32)
Grade 5	628	382 (28)	536 (37)	619	385 (26)	536 (36)	673	403 (30)	541 (38)	627	406 (32)	546 (38)
MSA mathematics and LAS Links overall scale scores												
Grade 3	829	389 (40)	515 (29)	904	392 (35)	511 (30)	1142	396 (35)	521 (26)	1398	398 (35)	520 (27)
Grade 4	602	387 (40)	522 (37)	730	394 (36)	526 (37)	814	399 (37)	532 (35)	1029	402 (35)	532 (33)
Grade 5	643	393 (42)	535 (37)	627	401 (34)	535 (37)	679	408 (34)	541 (38)	645	412 (36)	546 (39)

Note: SD = Standard deviation.

Table E1.2
Grades 3, 4, and 5 MSA Cut Scale Scores for Reading and Mathematics

	Reading		Mathematics	
	Scale score for proficient	Scale score for advanced	Scale score for proficient	Scale score for advanced
Grade 3	388	456	379	441
Grade 4	371	437	374	433
Grade 5	384	425	392	453

Data source: Maryland Department of Education.

Table E2.1
Relation of MSA Reading Scale Scores With LAS Links Overall Scale Scores
After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 3 multiple regression model on MSA reading scale scores								
LAS Links scale scores	0.6 (0.0)	.51***	0.5 (0.0)	.50***	0.6 (0.0)	.52***	0.6 (0.0)	.51***
No FARMS vs. FARMS	0.6 (2.0)	.01	-0.2 (1.9)	-.00	1.0 (1.6)	.02	-1.3 (1.7)	-.02
No SPED vs. SPED	0.2 (2.4)	.00	-1.4 (2.4)	-.02	-0.6 (2.1)	-.01	2.9 (2.2)	.03
White vs. AfAm	-4.9 (4.8)	-.05	-6.4 (4.3)	-.07	-7.7 (3.6)	-.09*	-7.1 (3.6)	-.08
White vs. AsAm	-2.6 (4.0)	-.03	-1.5 (3.9)	-.02	-5.3 (3.2)	-.07	-0.3 (3.3)	-.00
White vs. Hispanic	-8.7 (3.8)	-.13*	-5.3 (3.6)	-.09	-7.9 (3.0)	-.13*	-5.1 (3.2)	-.08
Female vs. male	0.9 (1.9)	.01	-1.4 (1.7)	-.02	-0.7 (1.4)	-.01	-2.5 (1.4)	-.04
<i>Model fit</i>	$R^2 = .29$ $F = 46.7^{***}$		$R^2 = .28$ $F = 48.4^{***}$		$R^2 = .29$ $F = 66.3^{***}$		$R^2 = .28$ $F = 76.4^{***}$	
Grade 4 multiple regression model on MSA reading scale scores								
LAS Links scale scores	0.6 (0.0)	.64***	0.5 (0.0)	.65***	0.6 (0.0)	.65***	0.6 (0.0)	.62***
No FARMS vs. FARMS	0.1 (2.4)	.00	-1.6 (2.0)	-.02	-0.7 (2.0)	-.01	-0.6 (1.8)	-.01
No SPED vs. SPED	2.1 (2.5)	.03	0.0 (2.4)	.00	4.2 (2.4)	.05	-3.2 (2.0)	-.04
White vs. AfAm	-9.5 (5.3)	-.10	-9.8 (4.0)	-.10*	-1.4 (4.7)	-.01	1.6 (3.6)	.02
White vs. AsAm	-1.2 (4.9)	-.01	-3.0 (3.6)	-.04	-1.1 (4.3)	-.01	2.2 (3.4)	.03
White vs. Hispanic	-5.3 (4.7)	-.08	-4.4 (3.4)	-.07	-0.5 (4.1)	-.01	-0.0 (3.2)	.00
Female vs. male	-2.8 (2.1)	-.04	-5.1 (1.7)	-.08**	1.5 (1.7)	.02	0.1 (1.5)	.00
<i>Model fit</i>	$R^2 = .43$ $F = 62.5^{***}$		$R^2 = .46$ $F = 88.7^{***}$		$R^2 = .41$ $F = 79.8^{***}$		$R^2 = .40$ $F = 96.8^{***}$	
Grade 5 multiple regression model on MSA reading scale scores								
LAS Links scale scores	0.5 (0.0)	.64***	0.5 (0.0)	.65***	0.6 (0.0)	.69***	0.6 (0.0)	.74***
No FARMS vs. FARMS	-1.3 (1.9)	-.02	-0.3 (1.8)	-.01	-2.7 (1.9)	-.04	0.8 (2.1)	.01
No SPED vs. SPED	-2.7 (2.0)	-.04	-1.3 (2.0)	-.02	-2.1 (2.4)	-.03	0.2 (2.6)	.00
White vs. AfAm	-9.1 (4.0)	-.11*	-5.4 (3.9)	-.07	2.7 (3.8)	.03	2.1 (4.1)	.02
White vs. AsAm	-0.7 (3.8)	-.01	1.1 (3.7)	.02	4.0 (3.7)	.05	3.2 (3.7)	.04
White vs. Hispanic	-6.4 (3.6)	-.11	-3.2 (3.5)	-.06	1.9 (3.4)	.03	1.7 (3.6)	.03
Female vs. male	-1.2 (1.7)	-.02	-2.4 (1.6)	-.05	0.9 (1.7)	.02	2.7 (1.7)	.04
<i>Model fit</i>	$R^2 = .47$ $F = 77.1^{***}$		$R^2 = .45$ $F = 70.1^{***}$		$R^2 = .50$ $F = 94.5^{***}$		$R^2 = .54$ $F = 103.5^{***}$	

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.

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

Table E2.2
Relation of MSA Mathematics Scale Scores With LAS Links Overall Scale Scores
After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 3 multiple regression model on MSA mathematics scale scores								
LAS Links scale scores	0.7 (0.0)	.52***	0.6 (0.0)	.51***	0.7 (0.0)	.51***	0.6 (0.0)	.49***
No FARMS vs. FARMS	-2.2 (2.3)	-.03	-1.9 (2.1)	-.03	-0.0 (1.9)	.00	-0.7 (1.8)	-.01
No SpEd vs. SpEd	-12.3 (2.8)	-.12***	-9.3 (2.7)	-.10**	-8.0 (2.4)	-.08**	-7.3 (2.3)	-.07**
White vs. AfAm	-21.2 (5.3)	-.16***	-12.2 (4.8)	-.11*	-15.4 (4.1)	-.14***	-6.5 (3.9)	-.06
White vs. AsAm	-3.4 (4.5)	-.04	9.2 (4.4)	.10*	-1.3 (3.8)	-.01	16.2 (3.6)	.18***
White vs. Hispanic	-20.3 (4.2)	-.25***	-9.1 (4.1)	-.12*	-16.6 (3.5)	-.23***	-5.1 (3.4)	-.07
Female vs. male	9.5 (2.2)	.12***	7.2 (1.9)	.10***	6.5 (1.7)	.09***	2.8 (1.5)	.04
<i>Model fit</i>	$R^2 = .42$ $F = 86.0$ ***		$R^2 = .37$ $F = 74.7$ ***		$R^2 = .37$ $F = 95.1$ ***		$R^2 = .35$ $F = 106.4$ ***	
Grade 4 multiple regression model on MSA mathematics scale scores								
LAS Links scale scores	0.7 (0.0)	.62***	0.6 (0.0)	.58***	0.7 (0.0)	.63***	0.6 (0.0)	.51***
No FARMS vs. FARMS	-1.7 (2.8)	-.02	-4.2 (2.3)	-.06	-2.4 (2.2)	-.03	1.0 (2.1)	.01
No SpEd vs. SpEd	-7.1 (3.0)	-.07*	-9.2 (2.7)	-.09**	-3.0 (2.7)	-.03	-12.3 (2.3)	-.13***
White vs. AfAm	-13.4 (6.0)	-.11*	-18.2 (4.7)	-.16***	-4.7 (5.2)	-.04	-11.0 (4.3)	-.11*
White vs. AsAm	7.7 (5.6)	.07	9.4 (4.1)	.10*	8.9 (4.9)	.09	8.2 (4.0)	.08*
White vs. Hispanic	-7.8 (5.3)	-.09	-7.8 (3.9)	-.11*	-5.1 (4.7)	-.07	-8.5 (3.7)	-.12*
Female vs. male	1.7 (2.5)	.02	2.3 (2.0)	.03	5.6 (1.9)	.08**	5.1 (1.8)	.07**
<i>Model fit</i>	$R^2 = .48$ $F = 77.0$ ***		$R^2 = .47$ $F = 92.2$ ***		$R^2 = .46$ $F = 97.9$ ***		$R^2 = .38$ $F = 88.5$ ***	
Grade 5 multiple regression model on MSA mathematics scale scores								
LAS Links scale scores	0.7 (0.0)	.57***	0.5 (0.0)	.54***	0.5 (0.0)	.54***	0.5 (0.0)	.57***
No FARMS vs. FARMS	-2.0 (2.8)	-.02	1.4 (2.5)	.02	-7.4 (2.3)	-.10**	1.2 (2.6)	.02
No SpEd vs. SpEd	-11.9 (3.0)	-.12***	-10.3 (2.7)	-.12***	-12.9 (2.9)	-.14***	-9.4 (3.2)	-.09**
White vs. AfAm	-17.6 (6.0)	-.15**	-15.7 (5.3)	-.16**	-5.3 (4.6)	-.06	-10.3 (5.0)	-.10*
White vs. AsAm	18.3 (5.6)	.17**	10.4 (5.0)	.11*	12.4 (4.4)	.13	18.5 (4.5)	.20***
White vs. Hispanic	-6.2 (5.3)	-.07	-11.6 (4.8)	-.16*	-2.0 (4.1)	-.03	-10.3 (4.4)	-.14*
Female vs. male	4.0 (2.5)	.05	1.1 (2.2)	.02	8.4 (2.0)	.12***	4.6 (2.1)	.06*
<i>Model fit</i>	$R^2 = .47$ $F = 81.7$ ***		$R^2 = .41$ $F = 60.8$ ***		$R^2 = .43$ $F = 73.5$ ***		$R^2 = .46$ $F = 77.8$ ***	

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.

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

Table E3.1
Grade 3 Relation of MSA Reading Scale Scores With LAS Links Overall Scale
Scores by Subgroup After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 3 multiple regression models on MSA reading scale scores by subgroup								
African American students								
LAS Links scale scores	0.7 (0.1)	.59***	0.4 (0.1)	.42***	0.6 (0.1)	.50***	0.4 (0.1)	.37***
No FARMS vs. FARMS	4.7 (6.3)	.07	0.6 (5.2)	.01	-3.6 (4.4)	-.07	-2.1 (4.1)	-.04
No SpEd vs. SpEd	11.7 (8.7)	.13	5.4 (6.6)	.08	-3.0 (6.1)	-.04	-6.2 (6.1)	-.08
Female vs. male	8.8 (5.6)	.16	-8.2 (4.5)	-.17	-5.3 (4.0)	-.11	-4.0 (3.7)	-.08
<i>Model fit</i>	$R^2 = .31$ $F = 9.6$ ***		$R^2 = .19$ $F = 5.6$ ***		$R^2 = .29$ $F = 12.8$ ***		$R^2 = .18$ $F = 8.6$ ***	
Asian American students								
LAS Links scale scores	0.7 (0.1)	.59***	0.6 (0.1)	.67***	0.7 (0.1)	.55***	0.6 (0.1)	.54***
No FARMS vs. FARMS	5.3 (4.2)	.08	-3.8 (4.1)	-.06	4.3 (4.1)	.07	-4.2 (3.7)	-.06
No SpEd vs. SpEd	-2.3 (6.9)	-.02	4.0 (7.3)	.04	1.2 (6.5)	.01	-0.2 (6.5)	-.00
Female vs. male	-1.8 (4.3)	-.03	-0.3 (4.0)	-.01	-1.5 (4.0)	-.02	-9.1 (3.7)	-.13*
<i>Model fit</i>	$R^2 = .37$ $F = 23.7$ ***		$R^2 = .43$ $F = 25.8$ ***		$R^2 = .29$ $F = 18.4$ ***		$R^2 = .35$ $F = 33.0$ ***	
Hispanic students								
LAS Links scale scores	0.5 (0.0)	.45***	0.5 (0.0)	.45***	0.5 (0.0)	.48***	0.6 (0.0)	.50***
No FARMS vs. FARMS	-0.9 (2.6)	-.01	0.5 (2.4)	.01	1.2 (2.0)	.02	0.7 (2.2)	.01
No SpEd vs. SpEd	-0.2 (2.7)	-.00	-3.7 (2.8)	-.05	-1.8 (2.4)	-.03	4.1 (2.5)	.05
Female vs. male	0.0 (2.3)	.00	-0.8 (2.1)	-.02	0.3 (1.7)	.01	-0.6 (1.7)	-.01
<i>Model fit</i>	$R^2 = .21$ $F = 33.1$ ***		$R^2 = .22$ $F = 42.1$ ***		$R^2 = .49$ $F = 57.0$ ***		$R^2 = .24$ $F = 71.0$ ***	
White students								
LAS Links scale scores	0.7 (0.2)	.62***	0.7 (0.1)	.55***	0.8 (0.1)	.73***	0.7 (0.1)	.54***
No FARMS vs. FARMS	-6.4 (10.6)	-.07	6.6 (13.1)	.06	-2.4 (7.3)	-.03	-8.7 (7.8)	-.11
No SPED vs. SPED	1.6 (11.7)	.02	-1.5 (15.7)	-.01	13.1 (8.4)	.15	7.5 (12.0)	.06
Female vs. male	7.5 (8.0)	.10	-0.3 (8.2)	-.01	-0.8 (5.6)	-.01	-3.5 (6.4)	-.05
<i>Model fit</i>	$R^2 = .41$ $F = 9.2$ ***		$R^2 = .30$ $F = 5.7$ ***		$R^2 = .49$ $F = 17.1$ ***		$R^2 = .31$ $F = 8.6$ ***	
No FARMS								
LAS Links scale scores	0.6 (0.1)	.53***	0.5 (0.0)	.51***	0.6 (0.1)	.56***	0.5 (0.0)	.48***
No SpEd vs. SpEd	2.2 (4.6)	.02	-9.6 (4.5)	-.10*	5.8 (3.6)	.07	2.0 (4.5)	.02
White vs. AfAm	-9.4 (7.5)	-.07	-7.0 (6.0)	-.06	-5.1 (5.1)	-.05	-10.4 (5.2)	-.10*
White vs. AsAm	-6.1 (4.8)	-.09	1.2 (4.3)	.02	-6.4 (3.7)	-.10	-1.1 (4.0)	-.02
White vs. Hispanic	-9.4 (4.7)	-.15*	-4.6 (4.0)	-.08	-8.6 (3.6)	-.15*	-9.3 (4.0)	-.15*
Female vs. Male	1.6 (3.0)	.03	-3.1 (2.8)	-.05	-2.4 (2.5)	-.04	-5.2 (2.6)	-.08
<i>Model fit</i>	$R^2 = .31$ $F = 22.8$ ***		$R^2 = .33$ $F = 26.1$ ***		$R^2 = .33$ $F = 32.4$ ***		$R^2 = .28$ $F = 28.1$ ***	
FARMS								
LAS Links scale scores	0.5 (0.0)	.49***	0.5 (0.0)	.49***	0.5 (0.0)	.48***	0.6 (0.0)	.52***
No SpEd vs. SpEd	-0.5 (2.8)	-.01	1.4 (2.8)	.02	-3.7 (2.5)	-.05	2.7 (2.5)	.03
White vs. AfAm	6.8 (8.1)	.07	-11.2 (10.6)	-.13	-2.7 (7.0)	-.03	0.0 (6.5)	.00
White vs. AsAm	11.2 (8.0)	.12	-8.8 (10.8)	-.09	1.7 (7.2)	.02	4.8 (6.5)	.05
White vs. Hispanic	1.6 (7.4)	.02	-10.3 (10.3)	-.15	-1.9 (6.7)	-.03	2.2 (6.1)	.03
Female vs. Male	0.2 (2.4)	.00	-0.4 (2.1)	-.01	-0.1 (1.8)	-.00	-1.4 (1.7)	-.02
<i>Model fit</i>	$R^2 = .27$ $F = 30.4$ ***		$R^2 = .24$ $F = 29.9$ ***		$R^2 = .26$ $F = 41.8$ ***		$R^2 = .27$ $F = 56.7$ ***	
No Special Education								
LAS Links scale scores	0.6 (0.0)	.50***	0.4 (0.0)	.47***	0.6 (0.0)	.51***	0.6 (0.0)	.50***
No FARMS vs. FARMS	1.4 (2.2)	.02	-2.3 (2.0)	-.04	2.1 (1.7)	.04	-1.0 (1.7)	-.02
White vs. AfAm	-6.6 (5.0)	-.07	-7.2 (4.3)	-.08	-6.9 (3.7)	-.08	-6.4 (3.6)	-.07
White vs. AsAm	-2.3 (4.2)	-.03	-1.7 (3.9)	-.02	-4.4 (3.4)	-.06	0.3 (3.3)	.00
White vs. Hispanic	-9.3 (4.0)	-.15*	-4.5 (3.7)	-.08	-7.5 (3.2)	-.13*	-5.3 (3.2)	-.09
Female vs. Male	1.9 (2.0)	.03	-1.5 (1.8)	-.03	-1.1 (1.5)	-.02	-2.7 (1.4)	-.05
<i>Model fit</i>	$R^2 = .28$ $F = 41.9$ ***		$R^2 = .25$ $F = 41.3$ ***		$R^2 = .28$ $F = 63.0$ ***		$R^2 = .28$ $F = 78.8$ ***	
Special Education								
LAS Links scale scores	0.5 (0.1)	.48***	0.7 (0.1)	.59***	0.5 (0.1)	.44***	0.5 (0.1)	.48***
No FARMS vs. FARMS	-3.1 (5.5)	-.04	13.5 (6.3)	.17*	-5.5 (5.0)	-.08	-5.1 (6.7)	-.06
White vs. AfAm	10.4 (14.7)	.07	2.1 (16.8)	.02	-12.7 (11.1)	-.12	-13.0 (15.0)	-.11
White vs. AsAm	-6.1 (12.1)	-.06	14.4 (16.8)	.12	-10.4 (10.4)	-.11	-5.5 (14.5)	-.05
White vs. Hispanic	-3.7 (10.8)	-.05	-6.8 (15.1)	-.08	-9.3 (9.1)	-.13	-2.9 (13.8)	-.04
Female vs. Male	-3.7 (4.8)	-.05	-1.2 (4.9)	-.02	1.7 (4.7)	.03	-0.6 (5.4)	-.01
<i>Model fit</i>	$R^2 = .27$ $F = 9.9$ ***		$R^2 = .36$ $F = 12.2$ ***		$R^2 = .24$ $F = 8.6$ ***		$R^2 = .24$ $F = 8.9$ ***	

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table E3.2
Grade 4 Relation of MSA Reading Scale Scores With LAS Links Overall Scale
Scores by Subgroup After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 4 multiple regression models on MSA reading scale scores by subgroup								
African American students								
LAS Links scale scores	0.5 (0.1)	.57***	0.5 (0.1)	.65***	0.6 (0.1)	.72***	0.6 (0.1)	.57***
No FARMS vs. FARMS	-7.0 (5.8)	-.12	6.4 (5.8)	.10	-1.1 (4.8)	-.02	-7.0 (4.4)	-.11
No SpEd vs. SpEd	-8.5 (7.6)	-.11	13.0 (11.2)	.10	5.8 (6.5)	.07	-15.3 (5.9)	-.18
Female vs. male	-0.8 (5.4)	-.01	-2.9 (4.8)	-.05	-9.6 (4.3)	-.16*	-3.8 (3.9)	-.07*
<i>Model fit</i>	$R^2 = .39$ $F = 11.0$ ***		$R^2 = .43$ $F = 14.5$ ***		$R^2 = .54$ $F = 26.7$ ***		$R^2 = .41$ $F = 21.7$ ***	
Asian American students								
LAS Links scale scores	0.7 (0.1)	.83***	0.5 (0.1)	.60***	0.7 (0.1)	.77***	0.7 (0.1)	.73***
No FARMS vs. FARMS	4.4 (4.4)	.06	4.2 (4.0)	.07	-1.9 (4.2)	-.03	1.7 (4.0)	.03
No SpEd vs. SpEd	5.7 (5.5)	.07	-15.8 (6.5)	-.17*	2.8 (6.6)	.03	-5.2 (6.1)	-.05
Female vs. male	0.4 (4.3)	.01	-9.0 (3.9)	-.15*	-0.9 (4.1)	-.01	-1.2 (3.9)	-.02
<i>Model fit</i>	$R^2 = .64$ $F = 43.9$ ***		$R^2 = .48$ $F = 28.4$ ***		$R^2 = .60$ $F = 45.7$ ***		$R^2 = .54$ $F = 44.5$ ***	
Hispanic students								
LAS Links scale scores	0.5 (0.0)	.59***	0.5 (0.0)	.63***	0.5 (0.0)	.59***	0.5 (0.0)	.56
No FARMS vs. FARMS	0.5 (3.2)	.01	-4.0 (2.6)	-.06	0.3 (2.6)	.00	0.1 (2.3)	.00
No SpEd vs. SpEd	2.6 (3.1)	.04	2.0 (2.7)	.03	5.3 (2.9)	.07	-1.4 (2.3)	-.02
Female vs. male	-3.0 (2.8)	-.05	-4.6 (2.2)	-.08*	2.4 (2.1)	.04	0.5 (1.8)	.01
<i>Model fit</i>	$R^2 = .35$ $F = 51.6$ ***		$R^2 = .42$ $F = 80.0$ ***		$R^2 = .33$ $F = 65.0$ ***		$R^2 = .32$ $F = 75.6$ ***	
White students								
LAS Links scale scores	0.4 (0.1)	.47***	0.6 (0.1)	.68***	0.8 (0.1)	.64***	0.7 (0.1)	.72***
No FARMS vs. FARMS	-1.9 (13.7)	-.02	-12.6 (9.3)	-.15	-6.1 (12.2)	-.05	-0.9 (8.4)	-.01
No SpEd vs. SpEd	2.3 (16.3)	.02	7.3 (9.3)	.08	-13.0 (9.9)	-.14	-8.7 (7.4)	-.10
Female vs. male	-6.9 (8.5)	-.13	5.8 (5.9)	-.09	23.0 (7.5)	.32**	4.8 (5.4)	.08
<i>Model fit</i>	$R^2 = .22$ $F = 2.3$ ***		$R^2 = .61$ $F = 21.2$ ***		$R^2 = .61$ $F = 13.8$ ***		$R^2 = .57$ $F = 21.4$ ***	
No FARMS								
LAS Links scale scores	0.6 (0.1)	.67***	0.5 (0.0)	.62***	0.7 (0.0)	.69***	0.7 (0.0)	.70***
No SpEd vs. SpEd	6.1 (4.7)	.07	-0.8 (4.9)	-.01	-3.2 (4.4)	-.03	-4.6 (3.4)	-.06
White vs. AfAm	-4.7 (6.6)	-.05	-20.7 (6.0)	-.19**	-0.8 (6.1)	-.01	7.1 (4.5)	.07
White vs. AsAm	-2.0 (5.2)	-.03	-8.5 (4.2)	-.14*	-0.7 (4.8)	-.01	2.7 (3.5)	.04
White vs. Hispanic	-4.9 (5.2)	-.07	-6.8 (4.1)	-.11	-0.9 (4.7)	-.01	0.6 (3.3)	.01
Female vs. Male	1.0 (3.4)	.02	-5.8 (2.8)	-.10*	3.3 (3.0)	.05	-1.9 (2.4)	-.03
<i>Model fit</i>	$R^2 = .45$ $F = 28.3$ ***		$R^2 = .45$ $F = 34.0$ ***		$R^2 = .49$ $F = 39.7$ ***		$R^2 = .52$ $F = 57.5$ ***	
FARMS								
LAS Links scale scores	0.5 (0.0)	.61***	0.6 (0.0)	.64***	0.6 (0.0)	.63***	0.5 (0.0)	.56***
No SpEd vs. SpEd	0.9 (3.0)	.01	0.6 (2.7)	.01	7.2 (2.9)	.09*	-2.3 (2.4)	-.03
White vs. AfAm	-10.3 (13.3)	-.11	2.8 (7.4)	.03	9.2 (12.2)	.10	3.2 (8.8)	.04
White vs. AsAm	2.2 (13.5)	.02	10.2 (7.5)	.10	9.2 (12.4)	.09	4.8 (9.0)	.05
White vs. Hispanic	-4.0 (12.9)	-.05	5.7 (6.8)	.08	10.5 (12.0)	.15	2.6 (8.5)	.04
Female vs. Male	-4.5 (2.7)	-.07	-4.5 (2.1)	-.08	0.7 (2.1)	.01	0.9 (1.8)	.02
<i>Model fit</i>	$R^2 = .40$ $F = 40.8$ ***		$R^2 = .43$ $F = 59.3$ ***		$R^2 = .37$ $F = 53.3$ ***		$R^2 = .32$ $F = 54.3$ ***	
No Special Education								
LAS Links scale scores	0.6 (0.0)	.64***	0.6 (0.0)	.65***	0.6 (0.0)	.66***	0.6 (0.0)	.62***
No FARMS vs. FARMS	0.9 (2.7)	.01	-0.7 (2.1)	-.01	-2.2 (2.0)	-.04	-1.4 (2.0)	-.02
White vs. AfAm	-8.3 (5.5)	-.09	-11.3 (4.3)	-.12**	-4.4 (4.7)	-.05	3.0 (3.9)	.03
White vs. AsAm	-1.2 (5.1)	-.01	-1.7 (3.8)	-.02	-3.8 (4.4)	-.05	2.4 (3.6)	.03
White vs. Hispanic	-5.8 (4.9)	-.09	-5.5 (3.7)	-.09	-3.9 (4.2)	-.06	-0.8 (3.5)	-.01
Female vs. Male	-1.4 (2.3)	-.02	-5.7 (1.8)	-.09**	2.2 (1.7)	.04	-0.6 (1.6)	-.01
<i>Model fit</i>	$R^2 = .44$ $F = 58.6$ ***		$R^2 = .48$ $F = 90.6$ ***		$R^2 = .44$ $F = 89.1$ ***		$R^2 = .40$ $F = 93.0$ ***	
Special Education								
LAS Links scale scores	0.6 (0.1)	.59***	0.5 (0.1)	.54***	0.7 (0.1)	.57***	0.6 (0.1)	.57***
No FARMS vs. FARMS	-2.6 (5.6)	-.03	-7.4 (5.6)	-.10	8.0 (7.7)	.10	2.5 (4.2)	.04
White vs. AfAm	-19.0 (17.5)	-.16	9.5 (14.4)	.06	13.0 (15.9)	.11	-6.2 (9.3)	-.07
White vs. AsAm	-1.1 (16.7)	-.01	-14.8 (10.4)	-.17	14.9 (14.8)	.13	0.8 (9.1)	.01
White vs. Hispanic	-5.8 (16.1)	-.08	0.1 (8.7)	.00	15.9 (13.8)	.19	3.9 (8.0)	.06
Female vs. Male	-7.9 (4.9)	-.12	-2.9 (4.5)	-.05	-3.3 (5.9)	-.04	3.7 (3.8)	.06
<i>Model fit</i>	$R^2 = .38$ $F = 13.2$ ***		$R^2 = .38$ $F = 11.3$ ***		$R^2 = .31$ $F = 9.0$ ***		$R^2 = .33$ $F = 14.3$ ***	

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table E3.3
Grade 5 Relation of MSA Reading Scale Scores With LAS Links Overall Scale
Scores by Subgroup After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 5 multiple regression models on MSA reading scale scores by subgroup								
African American students								
LAS Links scale scores	0.5 (0.1)	.65***	0.5 (0.1)	.64***	0.5 (0.1)	.66***	0.6 (0.1)	.69***
No FARMS vs. FARMS	-4.9 (5.1)	-.08	3.4 (4.5)	.07	-2.9 (3.8)	-.06	11.6 (5.6)	.18*
No SpEd vs. SpEd	0.1 (6.1)	.00	4.3 (5.8)	.07	-0.1 (9.4)	-.00	-7.6 (7.2)	-.09
Female vs. male	-5.4 (4.5)	-.10	0.6 (3.9)	.01	-3.6 (3.7)	-.07	8.3 (4.6)	.15
<i>Model fit</i>	$R^2 = .46$ $F = 17.5$ ***		$R^2 = .38$ $F = 12.7$ ***		$R^2 = .47$ $F = 20.9$ ***		$R^2 = .46$ $F = 17.2$ ***	
Asian American students								
LAS Links scale scores	0.4 (0.1)	.52***	0.6 (0.1)	.73***	0.5 (0.1)	.65***	0.6 (0.1)	.74***
No FARMS vs. FARMS	-3.2 (4.4)	-.06	-1.4 (4.2)	-.02	-4.3 (4.6)	-.07	-2.4 (4.9)	-.03
No SpEd vs. SpEd	-10.4 (6.1)	-.14	-7.3 (6.0)	-.09	-4.3 (7.9)	-.04	-4.5 (7.1)	-.04
Female vs. male	-7.5 (4.3)	-.14	-6.2 (4.1)	-.10	-0.3 (4.5)	-.00	-6.2 (4.5)	-.08
<i>Model fit</i>	$R^2 = .37$ $F = 16.2$ ***		$R^2 = .60$ $F = 34.9$ ***		$R^2 = .45$ $F = 20.7$ ***		$R^2 = .59$ $F = 40.2$ ***	
Hispanic students								
LAS Links scale scores	0.5 (0.0)	.67***	0.4 (0.0)	.62***	0.6 (0.0)	.68***	0.6 (0.0)	.73***
No FARMS vs. FARMS	1.0 (2.3)	.02	0.4 (2.4)	.01	-0.9 (2.6)	-.01	0.0 (2.7)	.00
No SpEd vs. SpEd	-2.1 (2.2)	-.04	-0.4 (2.4)	-.01	-0.9 (2.7)	-.01	4.1 (3.2)	.05
Female vs. male	2.8 (2.0)	.05	-1.8 (2.0)	-.04	1.9 (2.2)	.03	2.7 (2.2)	.05
<i>Model fit</i>	$R^2 = .46$ $F = 81.1$ ***		$R^2 = .39$ $F = 62.8$ ***		$R^2 = .46$ $F = 88.3$ ***		$R^2 = .53$ $F = 102.3$ ***	
White students								
LAS Links scale scores	0.6 (0.1)	.75***	0.5 (0.1)	.72***	0.6 (0.1)	.75***	0.7 (0.1)	.69***
No FARMS vs. FARMS	-2.6 (9.7)	-.03	-11.9 (9.1)	-.15	-7.9 (7.5)	-.09	-2.5 (11.8)	-.02
No SpEd vs. SpEd	5.2 (11.0)	.06	-5.8 (15.6)	-.05	-15.2 (9.6)	-.14	-8.0 (10.0)	-.09
Female vs. male	-6.8 (7.9)	-.10	-8.0 (6.9)	-.14	3.4 (5.8)	.05	12.0 (6.9)	.18
<i>Model fit</i>	$R^2 = .59$ $F = 12.5$ ***		$R^2 = .56$ $F = 10.5$ ***		$R^2 = .72$ $F = 29.5$ ***		$R^2 = .54$ $F = 13.7$ ***	
No FARMS								
LAS Links scale scores	0.5 (0.0)	.61***	0.5 (0.0)	.69***	0.6 (0.0)	.73***	0.6 (0.0)	.74***
No SpEd vs. SpEd	-0.7 (3.7)	-.01	-2.7 (3.7)	-.04	-2.1 (4.8)	-.02	-4.8 (4.6)	-.05
White vs. AfAm	-8.3 (6.0)	-.09	-9.0 (5.4)	-.10	2.4 (5.0)	.03	-6.2 (6.4)	-.05
White vs. AsAm	-2.2 (4.7)	-.04	1.0 (4.2)	.02	3.4 (4.4)	.05	4.5 (4.4)	.06
White vs. Hispanic	-9.7 (4.6)	-.17*	-4.2 (4.1)	-.08	-0.4 (4.2)	-.01	2.8 (4.6)	.04
Female vs. Male	-2.7 (2.9)	-.05	-3.7 (2.8)	-.06	3.1 (2.9)	.05	0.7 (3.2)	.01
<i>Model fit</i>	$R^2 = .43$ $F = 28.5$ ***		$R^2 = .52$ $F = 37.0$ ***		$R^2 = .53$ $F = 43.0$ ***		$R^2 = .56$ $F = 45.1$ ***	
FARMS								
LAS Links scale scores	0.5 (0.0)	.66***	0.4 (0.0)	.63***	0.5 (0.0)	.66***	0.6 (0.0)	.73***
No SpEd vs. SpEd	-4.1 (2.4)	-.07	-0.6 (2.4)	-.01	-2.3 (2.7)	-.03	2.8 (3.2)	.03
White vs. AfAm	-5.4 (7.1)	-.08	4.5 (8.3)	.07	11.7 (7.3)	.14	8.7 (9.6)	.11
White vs. AsAm	3.7 (7.3)	.04	8.2 (8.7)	.09	12.7 (7.5)	.13	5.9 (9.9)	.06
White vs. Hispanic	-0.7 (6.7)	-.01	5.7 (8.1)	.10	11.4 (6.9)	.18	5.9 (9.4)	.09
Female vs. Male	0.0 (2.0)	.00	-2.1 (2.0)	-.04	-0.4 (2.1)	-.01	3.4 (2.1)	.06
<i>Model fit</i>	$R^2 = .46$ $F = 54.5$ ***		$R^2 = .40$ $F = 43.9$ ***		$R^2 = .46$ $F = 59.9$ ***		$R^2 = .52$ $F = 71.8$ ***	
No Special Education								
LAS Links scale scores	0.5 (0.0)	.62***	0.5 (0.0)	.67***	0.6 (0.0)	.70***	0.6 (0.0)	.72***
No FARMS vs. FARMS	-0.0 (2.2)	-.00	-0.5 (2.0)	-.01	-2.2 (2.0)	-.04	-0.0 (2.2)	.00
White vs. AfAm	-10.5 (4.6)	-.14*	-6.1 (4.1)	-.08	0.3 (4.0)	.00	0.8 (4.3)	.01
White vs. AsAm	-0.4 (4.3)	-.01	2.5 (3.8)	.04	1.9 (3.9)	.02	1.8 (4.0)	.02
White vs. Hispanic	-7.5 (4.1)	-.13	-3.3 (3.6)	-.06	-0.6 (3.6)	-.01	-0.7 (3.9)	-.01
Female vs. Male	-1.5 (2.0)	-.03	-2.7 (1.7)	-.05	0.3 (1.8)	.01	2.4 (1.9)	.04
<i>Model fit</i>	$R^2 = .43$ $F = 59.0$ ***		$R^2 = .47$ $F = 73.3$ ***		$R^2 = .50$ $F = 96.8$ ***		$R^2 = .53$ $F = 100.6$ ***	
Special Education								
LAS Links scale scores	0.5 (0.0)	.66***	0.4 (0.1)	.54***	0.4 (0.1)	.57***	0.7 (0.1)	.80***
No FARMS vs. FARMS	-5.5 (3.4)	-.10	1.1 (4.5)	.02	-6.4 (6.2)	-.09	6.0 (7.4)	.08
White vs. AfAm	-5.0 (8.5)	-.06	2.3 (16.2)	.03	24.2 (15.3)	.16	4.7 (13.1)	.05
White vs. AsAm	-4.2 (8.3)	-.05	-5.4 (16.3)	-.07	19.3 (12.0)	.21	10.1 (10.2)	.11
White vs. Hispanic	-3.0 (7.4)	-.05	1.4 (15.6)	.02	22.6 (10.2)	.31*	13.9 (10.5)	.20
Female vs. Male	0.7 (3.2)	.01	-0.0 (4.2)	-.00	3.8 (4.9)	.06	4.5 (5.3)	.06
<i>Model fit</i>	$R^2 = .46$ $F = 21.5$ ***		$R^2 = .30$ $F = 8.3$ ***		$R^2 = .37$ $F = 9.8$ ***		$R^2 = .59$ $F = 18.0$ ***	

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table E4.1
Grade 3 Relation of MSA Mathematics Scale Scores With LAS Links Overall Scale Scores by Subgroup After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 3 multiple regression models on MSA mathematics scale scores by subgroup								
African American students								
LAS Links scale scores	1.1 (0.2)	.66	0.6 (0.1)	.51***	0.7 (0.1)	.46***	0.4 (0.1)	.33***
No FARMS vs. FARMS	-1.1 (8.4)	-.01	1.4 (6.4)	.02	-1.5 (5.7)	-.02	5.7 (4.8)	.09
No SpEd vs. SpEd	-5.9 (12.0)	-.04	16.8 (8.4)	.19*	-13.3 (7.8)	-.13	-12.3 (6.9)	-.13
Female vs. male	22.2 (7.6)	.27	6.9 (5.6)	.11	-1.1 (5.1)	-.02	7.1 (4.4)	.12
<i>Model fit</i>	$R^2 = .42$	$F = 13.1$ ***	$R^2 = .25$	$F = 7.9$ ***	$R^2 = .26$	$F = 11.1$ ***	$R^2 = .14$	$F = 6.8$ ***
Asian American students								
LAS Links scale scores	1.0 (0.1)	.59***	0.5 (0.1)	.45***	0.9 (0.1)	.54***	0.7 (0.1)	.53***
No FARMS vs. FARMS	-5.5 (5.3)	-.06	-6.8 (6.0)	-.08	-2.4 (5.1)	-.03	-6.5 (4.8)	-.07
No SpEd vs. SpEd	-16.0 (8.7)	-.12	-15.7 (10.8)	-.12	-12.8 (8.1)	-.10	-5.9 (8.5)	-.04
Female vs. male	10.5 (5.3)	.12	4.5 (5.8)	.06	4.8 (5.0)	.06	0.5 (4.9)	.01
<i>Model fit</i>	$R^2 = .40$	$F = 27.5$ ***	$R^2 = .25$	$F = 11.7$ ***	$R^2 = .33$	$F = 23.0$ ***	$R^2 = .31$	$F = 27.6$ ***
Hispanic students								
LAS Links scale scores	0.6 (0.0)	.50***	0.6 (0.0)	.53***	0.6 (0.0)	.52***	0.6 (0.0)	.53***
No FARMS vs. FARMS	0.6 (2.8)	.01	-0.2 (2.5)	-.00	2.1 (2.3)	.03	1.1 (2.1)	.02
No SpEd vs. SpEd	-13.5 (3.0)	-.17***	-11.7 (2.9)	-.14***	-6.5 (2.7)	-.08*	-6.6 (2.5)	-.08**
Female vs. male	7.4 (2.5)	.11**	8.4 (2.2)	.13***	8.6 (1.9)	.14***	2.9 (1.7)	.05
<i>Model fit</i>	$R^2 = .32$	$F = 58.9$ ***	$R^2 = .34$	$F = 74.7$ ***	$R^2 = .29$	$F = 76.9$ ***	$R^2 = .30$	$F = 94.9$ ***
White students								
LAS Links scale scores	0.8 (0.1)	.60	0.8 (0.1)	.67***	0.7 (0.1)	.57***	0.7 (0.1)	.52***
No FARMS vs. FARMS	-24.8 (10.2)	-.24	-16.7 (12.1)	-.13	-12.1 (9.0)	-.13	-10.1 (7.6)	-.13
No SpEd vs. SpEd	-3.8 (11.7)	-.03	-24.1 (14.5)	-.16	-9.7 (10.3)	-.09	-9.7 (11.7)	-.08
Female vs. male	14.2 (7.8)	.17	3.8 (7.6)	.05	6.8 (6.8)	.10	-1.3 (6.2)	-.02
<i>Model fit</i>	$R^2 = .53$	$F = 16.6$ ***	$R^2 = .51$	$F = 14.5$ ***	$R^2 = .40$	$F = 12.2$ ***	$R^2 = .33$	$F = 9.6$ ***
No FARMS								
LAS Links scale scores	0.9 (0.1)	.55***	0.6 (0.1)	.48***	0.8 (0.1)	.57***	0.6 (0.1)	.43***
No SpEd vs. SpEd	-6.8 (5.4)	-.05	-15.1 (5.6)	-.13**	-0.9 (4.0)	-.01	-12.2 (5.1)	-.10*
White vs. AfAm	-23.4 (8.4)	-.13	-17.5 (7.5)	-.12*	-15.4 (5.7)	-.12**	-14.2 (5.9)	-.12**
White vs. AsAm	-5.3 (5.4)	-.06	9.1 (5.2)	.11	-0.2 (4.2)	-.00	16.9 (4.6)	.21***
White vs. Hispanic	-25.2 (5.3)	-.30	-11.8 (4.9)	-.16*	-18.6 (4.0)	-.26***	-9.5 (4.5)	-.12*
Female vs. Male	12.2 (3.5)	.15	7.8 (3.4)	.10*	1.7 (2.8)	.02	-0.5 (3.0)	-.01
<i>Model fit</i>	$R^2 = .45$	$F = 43.2$ ***	$R^2 = .37$	$F = 31.1$ ***	$R^2 = .46$	$F = 56.4$ ***	$R^2 = .36$	$F = 41.0$ ***
FARMS								
LAS Links scale scores	0.6 (0.0)	.51***	0.6 (0.0)	.53***	0.6 (0.0)	.46***	0.6 (0.0)	.52***
No SpEd vs. SpEd	-14.9 (3.1)	-.18***	-7.4 (3.0)	-.09*	-11.5 (3.0)	-.13***	-6.1 (2.6)	-.06*
White vs. AfAm	-2.3 (9.0)	-.02	5.4 (11.4)	.06	-4.6 (8.3)	-.05	2.8 (6.8)	.03
White vs. AsAm	14.3 (9.0)	.13	23.1 (11.6)	.20*	5.9 (8.5)	.05	19.3 (6.9)	.18**
White vs. Hispanic	-0.3 (8.3)	-.00	7.7 (11.1)	.10	-5.6 (7.9)	-.07	2.4 (6.4)	.03
Female vs. Male	7.9 (2.7)	.11**	7.1 (2.3)	.11**	8.9 (2.1)	.14***	4.1 (1.8)	.06*
<i>Model fit</i>	$R^2 = .38$	$F = 49.2$ ***	$R^2 = .34$	$F = 48.7$ ***	$R^2 = .28$	$F = 48.6$ ***	$R^2 = .32$	$F = 74.0$ ***
No Special Education								
LAS Links scale scores	0.8 (0.0)	.55***	0.6 (0.0)	.48***	0.7 (0.0)	.48***	0.6 (0.0)	.47***
No FARMS vs. FARMS	-0.8 (2.4)	-.01	-2.9 (2.3)	-.04	1.1 (2.1)	.02	-1.3 (1.9)	-.02
White vs. AfAm	-21.5 (5.3)	-.18***	-17.0 (5.1)	-.16***	-16.3 (4.5)	-.16***	-6.2 (4.1)	-.06
White vs. AsAm	-1.9 (4.5)	-.02	7.8 (4.5)	.09	-0.9 (4.1)	-.01	16.4 (3.8)	.19***
White vs. Hispanic	-19.8 (4.3)	-.26***	-10.2 (4.3)	-.14*	-18.7 (3.8)	-.27***	-5.1 (3.6)	-.07
Female vs. Male	9.7 (2.2)	.13***	6.2 (2.0)	.09**	5.0 (1.8)	.07**	2.7 (1.6)	.04
<i>Model fit</i>	$R^2 = .42$	$F = 80.1$ ***	$R^2 = .32$	$F = 60.6$ ***	$R^2 = .33$	$F = 78.8$ ***	$R^2 = .32$	$F = 96.5$ ***
Special Education								
LAS Links scale scores	0.6 (0.1)	.46***	0.8 (0.1)	.65***	0.7 (0.1)	.57***	0.6 (0.1)	.59***
No FARMS vs. FARMS	-8.6 (7.0)	-.09	4.0 (6.0)	.05	-5.6 (4.8)	-.08	3.5 (5.7)	.04
White vs. AfAm	-13.1 (18.7)	-.07	33.0 (16.1)	.27*	-14.9 (10.7)	-.12	-7.7 (12.6)	-.07
White vs. AsAm	-15.6 (15.5)	-.12	36.6 (16.0)	.31*	-6.1 (10.0)	-.06	14.8 (12.3)	.15
White vs. Hispanic	-20.4 (13.8)	-.20	11.4 (14.4)	.13	-5.4 (8.8)	-.07	-4.9 (11.7)	-.07
Female vs. Male	7.7 (6.1)	.09	12.5 (4.7)	.18**	15.9 (4.5)	.21***	3.5 (4.5)	.05
<i>Model fit</i>	$R^2 = .24$	$F = 8.5$ ***	$R^2 = .44$	$F = 17.4$ ***	$R^2 = .43$	$F = 20.5$ ***	$R^2 = .35$	$F = 14.9$ ***

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.
 * $p < .05$; ** $p < .01$; *** $p < .001$.

Table E4.2
Grade 4 Relation of MSA Mathematics Scale Scores With LAS Links Overall Scale
Scores by Subgroup After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 4 multiple regression models on MSA mathematics scale scores by subgroup								
African American students								
LAS Links scale scores	0.7 (0.1)	.64***	0.6 (0.1)	.68***	0.7 (0.1)	.69***	0.8 (0.1)	.59***
No FARMS vs. FARMS	-2.0 (6.4)	-.03	7.0 (6.7)	.09	3.0 (6.4)	.04	-6.8 (5.3)	-.09
No SpEd vs. SpEd	-16.0 (8.5)	-.17	13.5 (12.9)	.09	0.8 (8.8)	.01	-17.7 (7.0)	-.18*
Female vs. male	0.8 (6.0)	.01	-2.7 (5.5)	-.04	-1.3 (5.8)	-.02	1.2 (4.6)	.02
<i>Model fit</i>	$R^2 = .46$ $F = 16.4$ ***		$R^2 = .46$ $F = 16.6$ ***		$R^2 = .48$ $F = 21.7$ ***		$R^2 = .43$ $F = 23.4$ ***	
Asian American students								
LAS Links scale scores	0.6 (0.1)	.55***	0.6 (0.1)	.52***	0.7 (0.1)	.71***	0.6 (0.1)	.55***
No FARMS vs. FARMS	-10.6 (6.4)	-.12	-3.8 (5.1)	-.05	-2.6 (5.3)	-.03	-2.1 (5.3)	-.03
No SpEd vs. SpEd	-23.2 (8.1)	-.22**	-30.0 (8.2)	-.26***	-2.1 (8.3)	-.02	-21.0 (8.2)	-.17*
Female vs. male	-5.8 (6.3)	-.07	-1.4 (5.0)	-.02	7.9 (5.1)	.10	1.5 (5.2)	.02
<i>Model fit</i>	$R^2 = .50$ $F = 25.5$ ***		$R^2 = .44$ $F = 24.4$ ***		$R^2 = .51$ $F = 32.6$ ***		$R^2 = .37$ $F = 22.0$ ***	
Hispanic students								
LAS Links scale scores	0.7 (0.0)	.63***	0.5 (0.0)	.58***	0.6 (0.0)	.61***	0.5 (0.0)	.50***
No FARMS vs. FARMS	1.4 (3.7)	.02	-5.4 (2.9)	-.07	-3.1 (2.8)	-.04	4.5 (2.6)	.06
No SpEd vs. SpEd	-2.5 (3.6)	-.03	-6.9 (3.0)	-.09*	-3.1 (3.2)	-.04	-9.2 (2.7)	-.12**
Female vs. male	4.4 (3.2)	.06	3.5 (2.4)	.05	5.5 (2.3)	.08*	5.9 (2.2)	.09**
<i>Model fit</i>	$R^2 = .39$ $F = 61.6$ ***		$R^2 = .37$ $F = 66.6$ ***		$R^2 = .38$ $F = 82.1$ ***		$R^2 = .27$ $F = 62.7$ ***	
White students								
LAS Links scale scores	0.6 (0.1)	.76***	0.7 (0.1)	.63***	0.6 (0.1)	.57***	0.5 (0.1)	.54***
No FARMS vs. FARMS	3.6 (10.3)	.04	-10.5 (11.9)	-.11	-8.1 (13.7)	-.07	-14.9 (8.6)	-.15
No SpEd vs. SpEd	-8.7 (13.2)	-.08	-6.1 (12.2)	-.05	-16.1 (11.0)	-.18	-32.4 (8.0)	-.35***
Female vs. male	-2.4 (6.9)	-.04	6.6 (7.7)	.08	16.6 (8.4)	.24	11.9 (5.8)	.18*
<i>Model fit</i>	$R^2 = .60$ $F = 12.5$ ***		$R^2 = .51$ $F = 14.3$ ***		$R^2 = .47$ $F = 8.2$ ***		$R^2 = .51$ $F = 19.7$ ***	
No FARMS								
LAS Links scale scores	0.7 (0.1)	.65***	0.5 (0.1)	.54***	0.7 (0.1)	.62***	0.6 (0.1)	.54***
No SpEd vs. SpEd	-5.1 (5.1)	-.05	-8.2 (6.1)	-.07	-6.3 (5.3)	-.06	-14.3 (4.4)	-.14**
White vs. AfAm	-12.5 (7.2)	-.10	-29.3 (7.5)	-.22***	-7.8 (7.4)	-.06	-5.9 (5.9)	-.05
White vs. AsAm	12.3 (5.6)	.15*	7.1 (5.2)	.09	9.2 (5.7)	.11	8.1 (4.6)	.10
White vs. Hispanic	-9.1 (5.6)	-.12	-10.7 (5.1)	-.15*	-4.2 (5.6)	-.05	-11.8 (4.3)	-.15**
Female vs. Male	1.8 (3.7)	.02	2.9 (3.5)	.04	10.4 (3.6)	.13**	5.9 (3.2)	.08
<i>Model fit</i>	$R^2 = .55$ $F = 43.3$ ***		$R^2 = .43$ $F = 30.8$ ***		$R^2 = .46$ $F = 37.2$ ***		$R^2 = .47$ $F = 47.4$ ***	
FARMS								
LAS Links scale scores	0.7 (0.0)	.61***	0.6 (0.0)	.60***	0.6 (0.0)	.64***	0.5 (0.0)	.48***
No SpEd vs. SpEd	-7.3 (3.7)	-.08*	-9.2 (3.0)	-.11**	-1.8 (3.1)	-.02	-11.4 (2.8)	-.14***
White vs. AfAm	-18.7 (14.5)	-.16	-8.4 (8.2)	-.09	4.0 (13.4)	.04	-0.9 (9.6)	-.01
White vs. AsAm	-4.7 (14.8)	-.04	16.0 (8.4)	.15	16.1 (13.6)	.13	17.6 (9.8)	.15
White vs. Hispanic	-12.4 (14.0)	-.13	-0.5 (7.6)	-.01	2.2 (13.1)	.03	3.8 (9.3)	.05
Female vs. Male	1.8 (3.2)	.02	2.2 (2.4)	.03	3.4 (2.2)	.05	4.6 (2.1)	.07*
<i>Model fit</i>	$R^2 = .40$ $F = 41.2$ ***		$R^2 = .42$ $F = 56.8$ ***		$R^2 = .44$ $F = 69.9$ ***		$R^2 = .30$ $F = 48.6$ ***	
No Special Education								
LAS Links scale scores	0.7 (0.0)	.62***	0.6 (0.0)	.57***	0.6 (0.0)	.61***	0.5 (0.0)	.51***
No FARMS vs. FARMS	-0.1 (3.2)	-.00	-3.0 (2.5)	-.04	-2.9 (2.4)	-.04	0.8 (2.3)	.01
White vs. AfAm	-13.5 (6.4)	-.11*	-21.0 (5.0)	-.20***	-7.2 (5.7)	-.07	-12.5 (4.6)	-.12**
White vs. AsAm	10.6 (5.9)	.10	10.9 (4.5)	.12*	6.9 (5.3)	.07	7.0 (4.3)	.08
White vs. Hispanic	-10.7 (5.6)	-.13	-10.1 (4.3)	-.14*	-7.4 (5.1)	-.10	-11.9 (4.1)	-.17**
Female vs. Male	0.9 (2.8)	.01	1.3 (2.2)	.02	6.6 (2.1)	.09**	3.9 (1.9)	.06*
<i>Model fit</i>	$R^2 = .48$ $F = 71.7$ ***		$R^2 = .47$ $F = 88.7$ ***		$R^2 = .44$ $F = 87.4$ ***		$R^2 = .35$ $F = 76.5$ ***	
Special Education								
LAS Links scale scores	0.7 (0.1)	.59***	0.6 (0.1)	.60***	0.8 (0.1)	.69***	0.6 (0.1)	.54***
No FARMS vs. FARMS	-7.7 (6.1)	-.09	-12.9 (5.9)	-.17*	0.7 (6.5)	.01	1.8 (4.8)	.03
White vs. AfAm	-17.2 (19.1)	-.13	12.7 (15.3)	.08	9.2 (13.3)	.08	-1.3 (10.7)	-.01
White vs. AsAm	-4.9 (18.3)	-.05	-4.7 (11.0)	-.05	23.0 (12.4)	.20	14.5 (10.6)	.13
White vs. Hispanic	0.2 (17.6)	.00	0.6 (9.2)	.01	8.0 (11.5)	.10	10.8 (9.2)	.15
Female vs. Male	6.2 (5.4)	.08	8.0 (4.8)	.13	-1.2 (4.9)	-.02	11.2 (4.4)	.16*
<i>Model fit</i>	$R^2 = .38$ $F = 13.0$ **		$R^2 = .41$ $F = 12.8$ **		$R^2 = .50$ $F = 19.5$ ***		$R^2 = .34$ $F = 14.7$ **	

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.

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

Table E4.3
Grade 5 Relation of MSA Mathematics Scale Scores With LAS Links Overall Scale
Scores by Subgroup After Adjusting for ESOL Student Sociodemographic Characteristics

	2006		2007		2008		2009	
	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β	<i>B (SE)</i>	β
Grade 5 multiple regression models on MSA mathematics scores by subgroup								
African American students								
LAS Links scale scores	0.7 (0.1)	.57***	0.5 (0.1)	.52***	0.6 (0.1)	.70***	0.6 (0.1)	.59***
No FARMS vs. FARMS	1.4 (7.7)	.02	14.1 (5.9)	.21*	-1.6 (4.5)	-.03	6.7 (7.3)	.08
No SpEd vs. SpEd	-19.1 (9.3)	-.18*	-14.9 (7.4)	-.18*	-19.5 (11.1)	-.13	-2.7 (9.6)	-.03
Female vs. male	6.2 (6.7)	.08	1.0 (5.0)	.02	5.0 (4.4)	.08	6.6 (6.0)	.10
<i>Model fit</i>	$R^2 = .40$ $F = 14.4$ ***		$R^2 = .40$ $F = 14.1$ ***		$R^2 = .51$ $F = 24.5$ ***		$R^2 = .33$ $F = 10.2$ ***	
Asian American students								
LAS Links scale scores	0.5 (0.1)	.51***	0.5 (0.1)	.50***	0.5 (0.1)	.46***	0.6 (0.1)	.62***
No FARMS vs. FARMS	-10.1 (6.5)	-.12	-4.6 (6.6)	-.06	-16.5 (5.4)	-.22**	4.4 (6.5)	.05
No SpEd vs. SpEd	-16.7 (9.0)	-.15	-28.2 (9.3)	-.26**	-34.0 (9.5)	-.27***	-9.2 (9.5)	-.07
Female vs. male	-3.7 (6.3)	.05	-9.5 (6.4)	-.12	20.8 (5.4)	.27***	2.2 (6.0)	.03
<i>Model fit</i>	$R^2 = .35$ $F = 15.5$ ***		$R^2 = .43$ $F = 17.2$ ***		$R^2 = .48$ $F = 24.1$ ***		$R^2 = .40$ $F = 19.4$ ***	
Hispanic students								
LAS Links scale scores	0.7 (0.0)	.64***	0.5 (0.0)	.56***	0.4 (0.0)	.53***	0.5 (0.0)	.58***
No FARMS vs. FARMS	0.3 (3.5)	.00	0.5 (3.2)	.00	-5.8 (3.1)	-.08	-1.4 (3.1)	-.02
No SpEd vs. SpEd	-9.2 (3.4)	-.11**	-5.4 (3.1)	-.07	-10.8 (3.2)	-.14**	-8.4 (3.8)	-.09*
Female vs. male	5.6 (3.1)	.07	2.7 (2.7)	.04	4.5 (2.5)	.07	4.9 (2.5)	.08
<i>Model fit</i>	$R^2 = .46$ $F = 77.2$ ***		$R^2 = .32$ $F = 46.0$ ***		$R^2 = .34$ $F = 52.0$ ***		$R^2 = .36$ $F = 51.7$ ***	
White students								
LAS Links scale scores	0.5 (0.1)	.55***	0.6 (0.1)	.65***	0.5 (0.1)	.63***	0.7 (0.1)	.64***
No FARMS vs. FARMS	-5.2 (11.2)	-.06	-8.9 (11.3)	-.09	-11.8 (10.4)	-.13	2.0 (11.6)	.02
No SpEd vs. SpEd	-18.5 (12.8)	-.20	-27.2 (19.5)	-.17	5.0 (13.3)	.04	-22.3 (9.7)	-.24*
Female vs. male	11.0 (9.2)	.16	3.3 (8.4)	.05	17.2 (7.8)	.24*	5.6 (6.7)	.08
<i>Model fit</i>	$R^2 = .44$ $F = 7.1$ ***		$R^2 = .53$ $F = 10.0$ ***		$R^2 = .47$ $F = 10.7$ ***		$R^2 = .55$ $F = 14.4$ ***	
No FARMS								
LAS Links scale scores	0.5 (0.1)	.45***	0.5 (0.0)	.53***	0.5 (0.0)	.56***	0.6 (0.1)	.59***
No SpEd vs. SpEd	-14.4 (5.0)	-.15	-5.3 (4.8)	-.06	-17.6 (6.0)	-.14**	-16.0 (5.7)	-.14**
White vs. AfAm	-23.3 (8.1)	-.18	-28.8 (6.9)	-.26***	-6.2 (6.2)	-.06	-14.1 (7.8)	-.10
White vs. AsAm	18.8 (6.3)	.23*	10.8 (5.3)	.15*	16.9 (5.4)	.21**	19.0 (5.4)	.23**
White vs. Hispanic	-9.6 (6.1)	-.12	-13.2 (5.2)	-.19*	-2.2 (5.1)	-.03	-6.7 (5.7)	-.08
Female vs. Male	3.0 (3.9)	.04	-1.1 (3.6)	-.02	15.5 (3.6)	.22***	5.3 (3.9)	.07
<i>Model fit</i>	$R^2 = .44$ $F = 29.6$ ***		$R^2 = .48$ $F = 31.1$ ***		$R^2 = .45$ $F = 31.8$ ***		$R^2 = .49$ $F = 35.9$ ***	
FARMS								
LAS Links scale scores	0.8 (0.0)	.64***	0.5 (0.0)	.55***	0.5 (0.0)	.54***	0.5 (0.0)	.56***
No SpEd vs. SpEd	-11.2 (3.6)	-.12*	-11.8 (3.4)	-.14**	-11.5 (3.2)	-.15***	-4.8 (3.9)	-.05
White vs. AfAm	-20.1 (11.0)	-.18	-4.2 (11.7)	-.05	-1.4 (8.5)	-.02	-10.5 (11.6)	-.12
White vs. AsAm	11.0 (11.4)	.08	14.5 (12.3)	.11	9.0 (8.8)	.09	19.3 (12.0)	.18
White vs. Hispanic	-8.0 (10.5)	-.09	-3.4 (11.4)	-.04	0.3 (8.0)	.00	-12.3 (11.3)	-.17
Female vs. Male	4.5 (3.1)	.05	1.7 (2.7)	.02	4.4 (2.4)	.07	3.7 (2.5)	.06
<i>Model fit</i>	$R^2 = .48$ $F = 60.1$ ***		$R^2 = .36$ $F = 38.0$ ***		$R^2 = .37$ $F = 41.3$ ***		$R^2 = .39$ $F = 44.1$ ***	
No Special Education								
LAS Links scale scores	0.6 (0.0)	.57***	0.5 (0.0)	.54***	0.5 (0.0)	.55***	0.5 (0.0)	.54***
No FARMS vs. FARMS	-1.5 (3.2)	-.02	4.1 (2.8)	.06	-7.8 (2.4)	-.11**	-0.3 (2.8)	-.01
White vs. AfAm	-16.4 (6.7)	-.14*	-17.6 (5.5)	-.18**	-2.4 (4.8)	-.03	-13.2 (5.4)	-.13*
White vs. AsAm	18.9 (6.3)	.19**	12.0 (5.2)	.13*	16.5 (4.6)	.19***	15.7 (4.9)	.18**
White vs. Hispanic	-6.8 (6.0)	-.08	-15.7 (4.9)	-.22**	0.1 (4.3)	.00	-13.0 (4.8)	-.18**
Female vs. Male	2.8 (2.9)	.03	-0.2 (2.4)	-.00	9.2 (2.2)	.14***	4.2 (2.3)	.06
<i>Model fit</i>	$R^2 = .43$ $F = 60.3$ ***		$R^2 = .42$ $F = 58.8$ ***		$R^2 = .43$ $F = 70.4$ ***		$R^2 = .43$ $F = 70.1$ ***	
Special Education								
LAS Links scale scores	0.7 (0.1)	.59***	0.5 (0.1)	.48***	0.3 (0.1)	.43***	0.6 (0.1)	.75***
No FARMS vs. FARMS	-5.6 (5.5)	-.07	-9.7 (5.5)	-.15	-8.8 (6.9)	-.12	10.8 (7.3)	.16
White vs. AfAm	-24.5 (13.6)	-.19	4.9 (19.7)	.05	-29.5 (17.1)	-.19	2.0 (12.9)	.02
White vs. AsAm	14.3 (13.3)	.12	10.7 (19.8)	.11	-22.3 (13.4)	-.23	33.5 (10.1)	.37**
White vs. Hispanic	-5.0 (11.9)	-.06	19.0 (19.0)	.27	-14.1 (11.5)	-.19	1.7 (10.4)	.02
Female vs. Male	8.3 (5.1)	.10	8.8 (5.1)	.14	0.8 (5.5)	.01	6.1 (5.3)	.09
<i>Model fit</i>	$R^2 = .43$ $F = 18.9$ ***		$R^2 = .32$ $F = 9.2$ ***		$R^2 = .25$ $F = 5.5$ ***		$R^2 = .61$ $F = 19.1$ ***	

Note. AfAm = African American; AsAm = Asian American; FARMS = Free and Reduced-price Meals System; SpEd = Special Education.
 * $p < .05$; ** $p < .01$; *** $p < .001$.