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INSTITUTE OF CALIFORNIA

**25 YEARS**

# Academic Progress for English Learners

## The Role of School Language Environment and Course Placement in Grades 6-12

Technical Appendices  
Updated March 2019

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Laura Hill, Julian Betts, Megan Hopkins, Magaly Lavadenz, Karen Bachofer,  
Joseph Hayes, Andrew Lee, Marco A. Murillo, Tara Vahdani, and Andrew C. Zau

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## Appendix A: LTEL and LAEL Definitions

The official definition of LTELs in California is ELs who have been designated as ELs for at least six years. LAUSD defines them as ELs who have been designated as ELs for at least five years. SDUSD treats ELs who have spent five years in the district as students at-risk of becoming LTELs. Given these concerns in the two districts, we defined LTELs as those who have spent 5 or more years in the given district as ELs without having been reclassified. We replicated many of our regression results using the “six-year” definition and results were highly similar.

We define a LAEL as a student whose first enrollment in the given district occurs in grade 6 or higher, the student is determined to be an English Learner, and scores at the lowest (Beginning) level on first taking the CELDT.

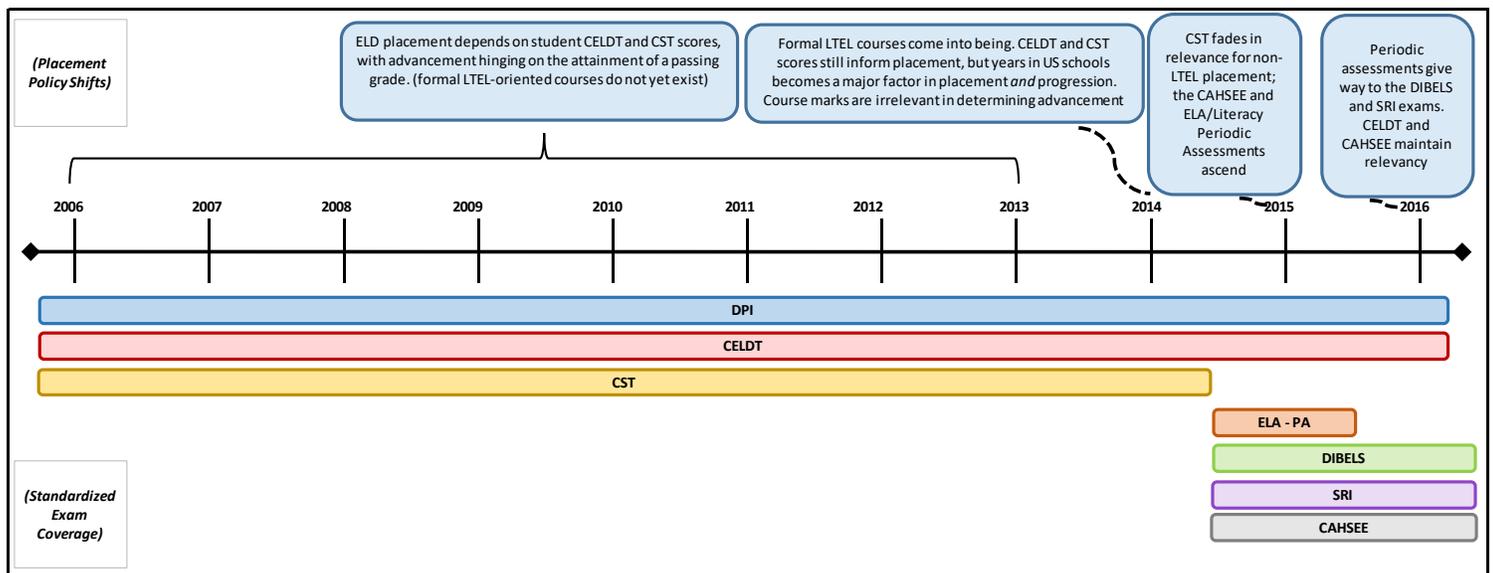
English Learners who fall into neither category are excluded from our analyses.

# Appendix B: Course Assignment

## Overview of district policy in LAUSD

Figure B1 below illustrates how the LAUSD ELD placement policy environment evolved over the years of our study, particularly in terms of shifts in the tests of English-language ability that were meant to guide that placement. Throughout all study years, a student’s DPI and CELDT were district-sanctioned indicators for making initial placement decisions. The ELA-CST was similarly referenced from 2006 through its phase-out in 2013 (with scores from this end year still used in 2014). Although the ELA periodic assessment was used for placement in 2015 only, the DIBELS, SRI, and CAHSEE, whose placement importance also began in that year, continued as reference points in 2016. However, these exam scores were formally irrelevant for subsequent placement decisions, because ELD course advancement was directed by ELD course grades from 2006 through 2013. Starting in 2014, a student’s years in U.S. schools was the most important factor for both initial and subsequent placement.

**FIGURE B1**  
Overview of assessments used to place secondary EL students in ELD coursework, LAUSD



The next sections step through LAUSD’s guidance on initial course placement (at matriculation), subsequent course placement, and how we calculate the whether an EL student is placed in ELD courses that are correct, too high, or too low.

### Initial ELD Placement

As per district guidelines, any secondary school student (i.e. enrolled in 6<sup>th</sup> grade or higher) that carries a “Limited English Proficient” language status should be enrolled in ELD coursework. What makes an initial placement “proper”, “too high”, or “too low” depends on the school year (placement policies for LAUSD changed

over time), the student’s available test scores, and (from 2014 onwards) the student’s total years enrolled in U.S. schools. In cases where a student experiences their first secondary school year as an English Learner (EL) but is not enrolled in ELD coursework, that lapse (and that during any semester that follows) is noted – but the appropriateness of their first recorded instance of secondary school ELD enrollment (if it exists) is still evaluated based on the initial placement criteria below.

It must be noted that ELD course placement is not always straightforward: policy guidelines indicate score ranges that should direct a student into a given level of ELD, but a student’s scores across multiple measures may not align neatly into one ELD level. This uncertainty becomes compounded when a student’s exam scores may not exist; evaluations of the appropriateness of a student’s initial placement are therefore dependent on the available data. In cases of conflicting test data, school administrators must exercise some discretion in these placement decisions, with the Language Appraisal Team “assist[ing] in determining the most appropriate placement.”<sup>1</sup>

#### *General Placement Rules*

Given the inherent vagaries of assessing proper placement due to data limitations and Language Appraisal Team discretion, we established certain guiding rules. If the entirety of a student’s available placement data (e.g. CELDT score) all jointly direct that student to a given course placement, it is understood as being “proper”. If one component of a student’s placement data direct them to a higher level of ELD than that to which they are actually enrolled, that placement is considered as being “too low”. In contrast, for a student’s initial placement to be labeled as “too high”, it is not only necessary that all the available placement data components point to a lower-tiered ELD course; it is additionally necessary that no relevant placement data are missing, the logic being that the missing component could presumably have buoyed that student’s placement above the level to which they are directed by their available criteria. In the absence of any cause to label an initial placement as “too high” or “too low” it is defaulted to “proper” status – unless there is an absence of any ELD coursework to begin with in which case (with rare exceptions) that placement is labeled simply as “No ELD”.

#### *Pre-2014*

Prior to the 2013-14 academic year there were no ELD courses that were formally designated for LTEL students. All EL students, irrespective of years spent in U.S. schools are assigned to ELD courses (titled “ESL” in these years) on the basis of CELDT, CST-ELA, and DPI scores (see Table B1). As per the discussion in the ‘General Placement Rules’ section, the lack of student DPI data means that no student’s initial ELD assignment will be labeled as “too high” in these years. A “too low” label is certainly possible, for example if a student were placed in “Beginning ESL 1B” yet possessed a CELDT score of 2 or higher.

A small minority of EL-designated students in these years may be designated as having “proper” initial placement even in the absence of any ELD coursework, with CELDT or CST-ELA scores high enough to effectively “test out” of ELD while simultaneously falling short of actual reclassification as English-proficient.

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<sup>1</sup> English Learner Placement Guide REF-5151, 2010.

**TABLE B1**

Pre-2014 English-Learner Initial Placement Guidelines

**Matriculating English Learner Placement Chart**

	OVERALL CELDT LEVEL	CST-ELA	DPI CODE	COURSE PLACEMENT
LESS THAN REASONABLE FLUENCY	1	BB/FBB or no score	1	Beginning ESL 1A or Introduction to ESL A/B*
	1	BB/FBB or no score	2	Beginning ESL 1B
	1	BB/FBB or no score	3	Beginning ESL 1B
	2	BB/FBB or no score	A	Intermediate ESL 2A
	3 or 4	BB/FBB or no score	A	Intermediate ESL 2B
	2	BB/FBB or no score	B	Intermediate ESL 2B
REASONABLE FLUENCY	3 or 4	BB/FBB or no score	B	Advanced ESL 3
	5 or below	BB/FBB or no score	C	Advanced ESL 3
	3	Basic	A-E or no code	Grade level SH English <u>with</u> ELS
	4 or 5	Basic	Not Applicable	Grade level SH English
	3 - 5	Prof or Adv	Not Applicable	Grade level SH English

**\*Introduction to ESL A/B are courses intended for recent newcomers with little or no previous schooling.**

SOURCE: LAUSD English Learner Placement Guide REF-5151, 2007-2013

2013-14

A key change in placement guidelines moving into the 2013-14 academic year was the shift towards factoring in a student’s cumulative years in U.S. schools. For all EL students, different-tiered ELD courses began being associated with “years in U.S. schools” thresholds insofar as enrollment in a given ELD course became prohibited if the student had already experienced a given number of years in U.S. schools. For example, a student enrolled in ELD 2A who had spent 4 years in U.S. schools would be considered as having been placed “too low” since – regardless of test scores – their placement stands in violation of the maximum year threshold for that tier of course.

For LTEL students (now guided into courses created exclusively for these types of ELs), years in U.S. schools functions more as a barrier to entry than as a potential route towards a placement being labeled “too low”. Specifically, EL students are only eligible for either of the two LTEL-level courses if they have spent more than 4.5 years in U.S. schools – fewer years, in the context of such a placement, would be considered “too high”.

**TABLE B2A**

2013-14 English-Learner Initial Placement Guidelines (non-LTEs)

<b>2013-14 Initial ELD Placement Chart for Limited English Proficient Students**</b>					
<i>Years in U.S. Schools</i>	<i>DPI Code</i>	<i>ELA CST Scale Score</i>	<i>Overall CELDT Level</i>	<i>Course Placement</i>	<i>Curriculum</i>
No more than 1.5	1 – 3	< 280 or No Score	1 or 2	2 consecutive periods of ELD 1A/B	<i>High Point The Basics</i>
No more than 2.5	A		2 or 3	2 consecutive periods of ELD 2A/B	<i>High Point, Level A</i>
No more than 3.5	B		3	1 period of ELD 3A/B + 1 period of grade level ELA	<i>High Point, Level B Grade Level Text</i>
No more than 4.5	C		3 or 4	1 period of ELD 4A/B + 1 period of grade level ELA	<i>High Point, Level C Grade Level Text</i>

**\*\*Includes ELs matriculating to Middle School and ELs new to LAUSD**

SOURCE: LAUSD English Learner Placement Guide REF-6046.0, 2014

**TABLE B2B**

2013-14 English-Learner Initial Placement Guidelines (LTEs)

<b>2013-14 Placement Chart for Long-Term English Learners***</b>		
<i>Years in US Schools</i>	<i>CST/ELA Scaled Score</i>	<i>Placement</i>
More than 4.5	< 280 or No Score	1 period of Literacy and Language + 1 period of Grade Level SH English
	≥ 280	1 period of Advanced ELD + 1 period of Grade Level SH English

**\*\*\*Defined as ELs enrolled in US schools for more than 5 years without reclassifying**

SOURCE: LAUSD English Learner Placement Guide REF-6046.0, 2014

2014-15

From the 2013-14 academic year onwards, the basic structure of ELD placement delineating between mainstream ELD and LTEL-oriented ELD remained intact. Years in U.S. schools, as well as DPI and CELDT scores persisted as relevant decision-making factors. However, in subsequent years other exams are sometimes swapped in or out as relevant placement considerations.

The ELA CST was discontinued in the 2012-13 academic year – although older scores were used as a placement reference in 2014. The ELA Periodic Assessment #2 and the California High School Exit Examination (CAHSEE) (for which we possess score data) and the Literacy Periodic Assessment (LPA #3) (for which we do not) were phased in. These exam scores are drawn from particular grades and/or school years depending on whether a student is being placed for mainstream or LTEL-oriented ELD (see Tables B3A/B3B).

TABLE B3A

2014-15 English-Learner Initial Placement Guidelines (non-LTEs)

<b>Table 1: 2014-15 Initial ELD Placement Chart for Limited English Proficient Students*</b>					
<i>Years in U.S. Schools</i>	<i>Overall CELDT Level</i>	<i>2012-13 LPA #3 or ELA PA #2 Score</i>	<i>DPI Code (Optional)</i>	<i>Course Placement</i>	<i>Curriculum</i>
No more than 1.5	1 or 2	FBB	1 – 3	2 consecutive periods of ELD 1A/B	<i>High Point The Basics</i>
No more than 2.5	2 or 3	No Score	A	2 consecutive periods of ELD 2A/B	<i>High Point, Level A</i>
No more than 3.5	3	BB	B	1 period of ELD 3A/B + 1 period of grade level SH ELA	<i>High Point, Level B Grade Level Text</i>
No more than 4.5	3 or 4		C	1 period of ELD 4A/B + 1 period of grade level SH ELA	<i>High Point, Level C Grade Level Text</i>
<i>Students scoring Basic, Proficient, or Advanced on PA #2, as well as students who have passed the CAHSEE ELA, but have not yet reclassified, should be enrolled in Advanced ELD.</i>					

\*Includes ELs matriculating to Middle School and ELs new to LAUSD

SOURCE: LAUSD English Learner Placement Guide REF-6046.1, 2015

TABLE B3B

2014-15 English-Learner Initial Placement Guidelines (LTEs)

<b>Table 3: 2014-15 Placement Chart for Newly Identified Long-Term ELs**</b>				
<i>Years in US Schools</i>	<i>CAHSEE -ELA or Gr. 3-5 LPA #3 or Gr. 6-9 PA #2 for Reclassification (OR 2014 CST-ELA In GR 11 ONLY)</i>	<i>CELDT</i>	<i>Placement</i>	
More than 4.5 at the start of the school year	Pass	Basic or above	→ Any	→ Advanced ELD
		Below Basic	→ 3, 4 or 5	→ Advanced ELD
		Below Basic	→ 1-2	→ Literacy and Language for ELs
	Fail	Far Below Basic	→ Any	→ Literacy and Language for ELs

\*\*Defined as ELs who have completed more than 5 years in US schools without reclassifying

Although all possibilities cannot be covered in a single chart, the prescriptions for placement stated on the chart must be followed when data matches the chart. When conflicting test data occurs, individual cases must be evaluated and the Language Appraisal Team should assist in determining the most appropriate placement in these cases.

SOURCE: LAUSD English Learner Placement Guide REF-6046.1, 2015

2015-16

In the 2015-16 academic year, similar to the one preceding it, certain exams were phased in and out as points of reference for placement, but the use of years in U.S. schools and CELDT score remained unchanged. For mainstream ELD placement the Literacy and ELA Periodic Assessments (LPA/ELA PA) were replaced by the Scholastic Reading Inventory (SRI) and Dynamic Indicators of Basic Early Literacy Skills (DIBELS). For LTEL placement the two periodic assessments were likewise dropped in favor of the SRI and DIBELS (see Table B4A/B4B).

**TABLE B4A**

2015-16 English-Learner Initial Placement Guidelines (non-LTEs)

<b>2015-16 ELD Placement Chart for Limited English Proficient Students (&lt;5 years)</b>						
<i>Students scoring Basic, Proficient or Advanced on SRI and students who have passed the CAHSEE ELA, but who have not yet reclassified, should be enrolled in Advanced ELD.<sup>1</sup></i>						
Years in U.S. Schools	Overall CELDT Level	Optional Data Points			Course Placement	Curriculum
		SRI score	DIBELS	DPI Code		
No more than 1.5	1 or 2	BB or No Score <sup>1</sup>	DIBELS MOY/EOY < Benchmark <sup>1</sup>	1 – 3	2 consecutive periods of ELD 1A/B	High Point The Basics
No more than 2.5	2 or 3			A	2 consecutive periods of ELD 2A/B	High Point, Level A
No more than 3.5	3			B	1 period of ELD 3A/B + 1 period of grade level ELA	High Point, Level B Grade Level Text
No more than 4.5	3 or 4			C	1 period of ELD 4A/B + 1 period of grade level ELA	High Point, Level C Grade Level Text
<i>In most cases, students' placement will be determined by their years in US schools and their overall CELDT. However, SRI, DIBELS, and DPI may be used as additional data points.</i>						

SOURCE: LAUSD English Learner Placement Guide REF-6046.3, 2016

**TABLE B4B**

2015-16 English-Learner Initial Placement Guidelines (LTEs)

<b>2015-16 Placement Chart for Newly Identified Long-Term ELs<sup>2</sup></b>					
Years in US Schools	DIBELS	or SRI	or CAHSEE-ELA	CELDT	Placement
More than 4.5 at the start of the school year	DIBELS MOY/EOY ≥ Benchmark	Basic or better	Pass	Any	Advanced ELD A/B
	DIBELS MOY/EOY < Benchmark or no score	Below Basic or no score	Fail	3, 4 or 5	Advanced ELD A/B
	DIBELS MOY/EOY < Benchmark or no score	Below Basic or no score	Fail	1-2	Literacy and Language for ELs A/B
<sup>2</sup> Defined as ELs enrolled in US schools for more than 5 years without reclassifying					

While placement data will not always align to these charts for every student, schools should use the multiple criteria above to place EL students by adhering to these guidelines to the greatest extent possible.

SOURCE: LAUSD English Learner Placement Guide REF-6046.3, 2016

**Subsequent ELD Placement**

After the semester of initial ELD placement, unless an EL student is reclassified as English-proficient, any subsequent semester of enrollment in LAUSD should feature sequential ELD coursework in line with district policy memorandums. Like the initial placement criteria, subsequent placement criteria evolved over the study years.

As with initial ELD placement, we evaluate subsequent placement as being degrees of “proper”, “too high”, and “too low” according to a student’s course progression – initially modified by their course grades, then by their years in U.S. schools. In cases where there is a lapse in ELD coursework after the initial placement, that ‘no-ELD’ gap is noted – but if any subsequent ELD enrollment occurs, it is evaluated in the context of the preceding ELD enrollment. In all cases of non-reclassified ELs, however, once a student has been initially placed in ELD, their subsequent placement is not formally influenced on the basis of any newer test.

*Placement in ELD Courses for Students with Disabilities*

Whenever a student is enrolled in an ELD course directed towards students with disabilities, it is understood that – although district policy recommends enrollment for certain disabled students according to their test scores

and years in U.S. schools – the student’s IEP team is allowed significant discretion in that placement.<sup>2</sup> In light of this unique role, any initial or subsequent placement into/out of this subset of ELD courses is considered “proper”.

#### *Pre-2014*

Prior to the formal creation of ELD courses for LTELs in the 2013-14 academic year, EL enrollment occurred along a tiered ‘ESL’ course sequence, upon completion of which a non-reclassified student would be expected to exhibit continuous enrollment in grade-level ELA (see Figure B2). Advancement to the next course in the sequence was mandated if the student received a passing mark in their current ELD class; failure would justify repetition.

If a student skips ahead in the sequence or advances without attaining a passing grade in their current course, their subsequent placement is considered “too high”, whereas repetition in the absence of a failing mark or regression along the sequence under any circumstance is assessed as being placed “too low”.

#### *Post-2013*

With the establishment of LTEL-specific courses in 2013-14, ELD course grades became irrelevant to subsequent placement; a student’s progression to the next sequential ELD course is automatic and “proper”, provided the ‘years in U.S. schools’ thresholds are respected (see Tables A2-A4). Repetition of any ELD course, regardless of a student’s marks, was likewise considered acceptable if aligned with these year limits. A student is considered as having placed “too high” if they skip courses in the sequence – or are enrolled in LTEL courses before accruing the proper number of years in U.S. schools. Likewise, a student is still considered as placing “too low” if they regress in the sequence – but also if they exceed the year threshold for a given course.

The new LTEL-oriented ELD courses exist in two tiers, “Literacy and Language” and the more rigorous “Advanced ELD”. Sequences of progression exist within each tier, but once the student completes its most advanced level they must repeat it until reclassification – or shift to the “Advanced ELD” tier in the case of students completing the “Literacy and Language” sequence. “Development ELS” is a supplemental learning course for LTELs that is considered a “proper” placement wherever it appears in the LTEL course sequence.

### **Synthesizing Student-Year Placement**

Both initial and subsequent ELD placements are evaluated in terms of being “proper”, “too high”, “too low”, and exhibiting “no ELD”, but within a given semester a student’s situation may constitute a blend of these categories. For example, a student enrolled in ELD 3A is expected to progress to ELD 3B in the subsequent semester and simultaneously enroll in a grade-level ELA course. Supposing that transition to ELD 3B occurs – but without the requisite grade-level ELA – that subsequent placement would be considered both “proper” (on account of the correct sequential transition to ELD 3B) and “too low” (on account of this lack of requisite ELA) in equal proportion. If that same ELD 3A student were to instead jump to ELD 4B – also without the requisite grade-level ELA – that subsequent placement would be both “too high” and “too low”.

In the same way that a given semester’s placement is established as being some mix of “proper”, “too high”, “too low”, or “no ELD”, a student in a given year is understood as making a ‘contribution’ to these categories on the basis of their fall and spring placement. If an EL were initially placed in ELD 1B in the fall semester (in full accord with district guidelines) and enrolled in no ELD course (but was not reclassified) in the spring, they would contribute 0.5 to “no ELD” and 0.5 to “proper” for that year. In a given year these contributions are summed up

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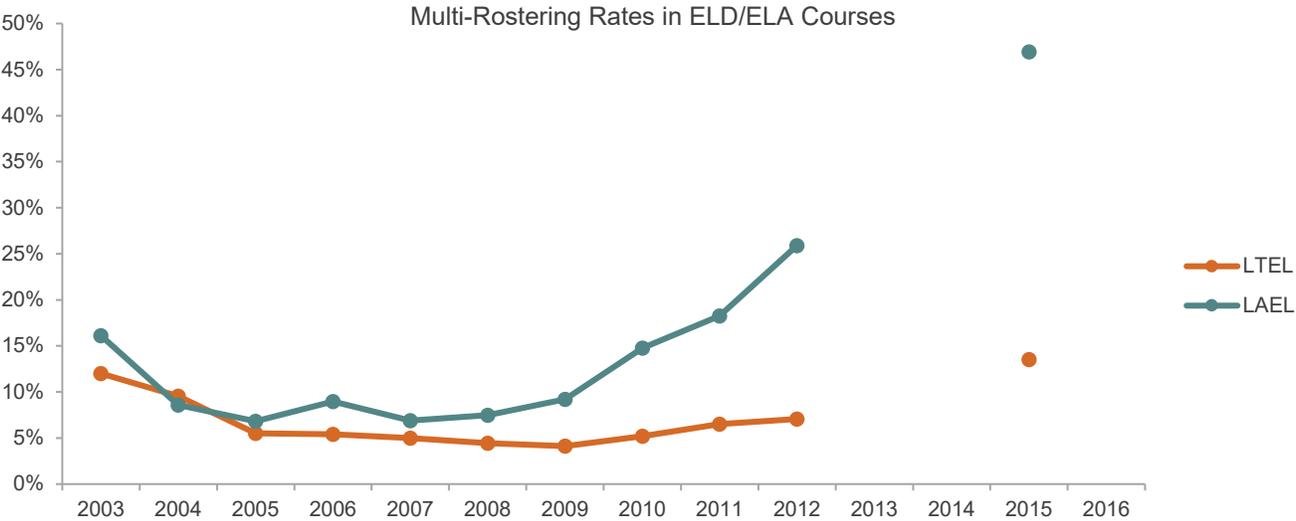
<sup>2</sup> Scheduling ELD Instruction for ELs with Disabilities REF-5994.1, 2015

across all ELs so as to establish annual rates of “proper”, “too low”, “too high”, and “no ELD” placement within grades, schools, and the district as a whole.

**Classrooms With More Than One ELD Level**

Interviews in LAUSD suggested that some school staff struggled to create classroom environments in which a single level of ELD instruction was appropriate for enrolled EL students. For most years we are able to estimate how many ELD courses (and ELA courses) are being taught simultaneously in the same classroom. We found that rates of multi-rostering were almost always under 10 percent for LTELs but started to climb more dramatically for LAELs beginning in the 2009-10 school year.

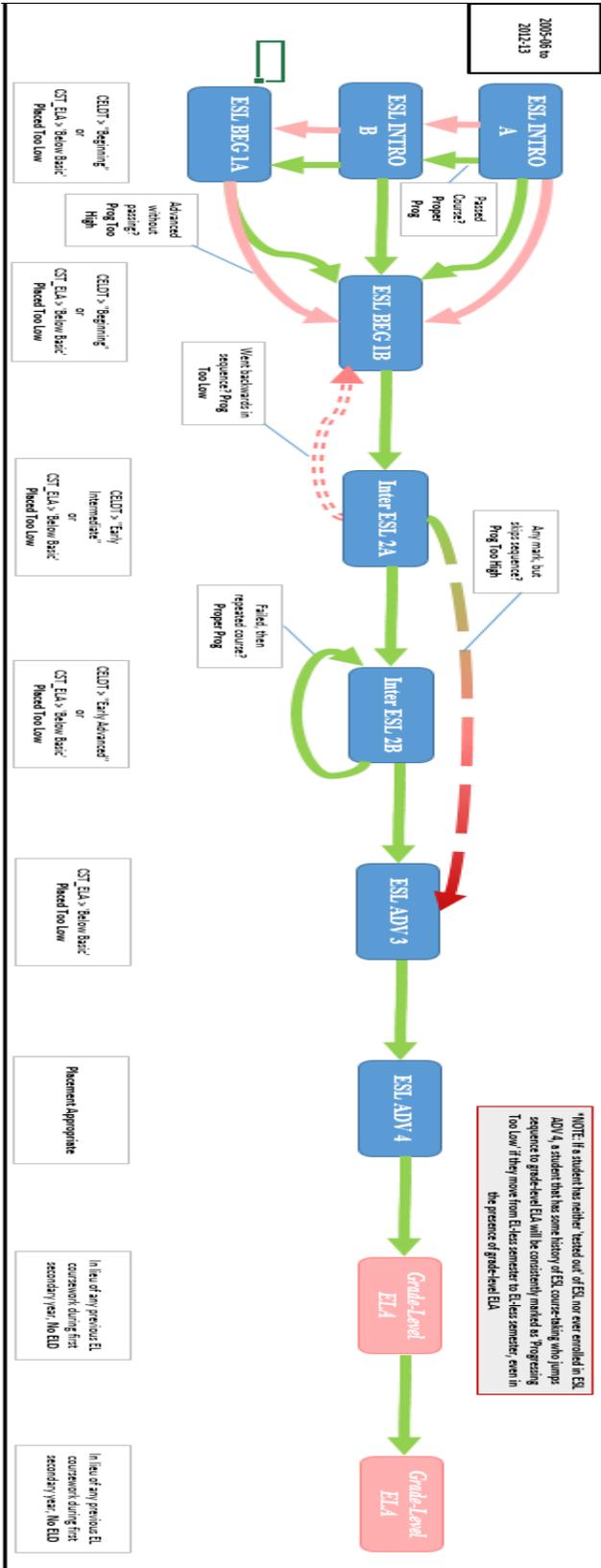
**FIGURE B2**  
Multi-Rostering Rates Increasing for Late Arriving ELs



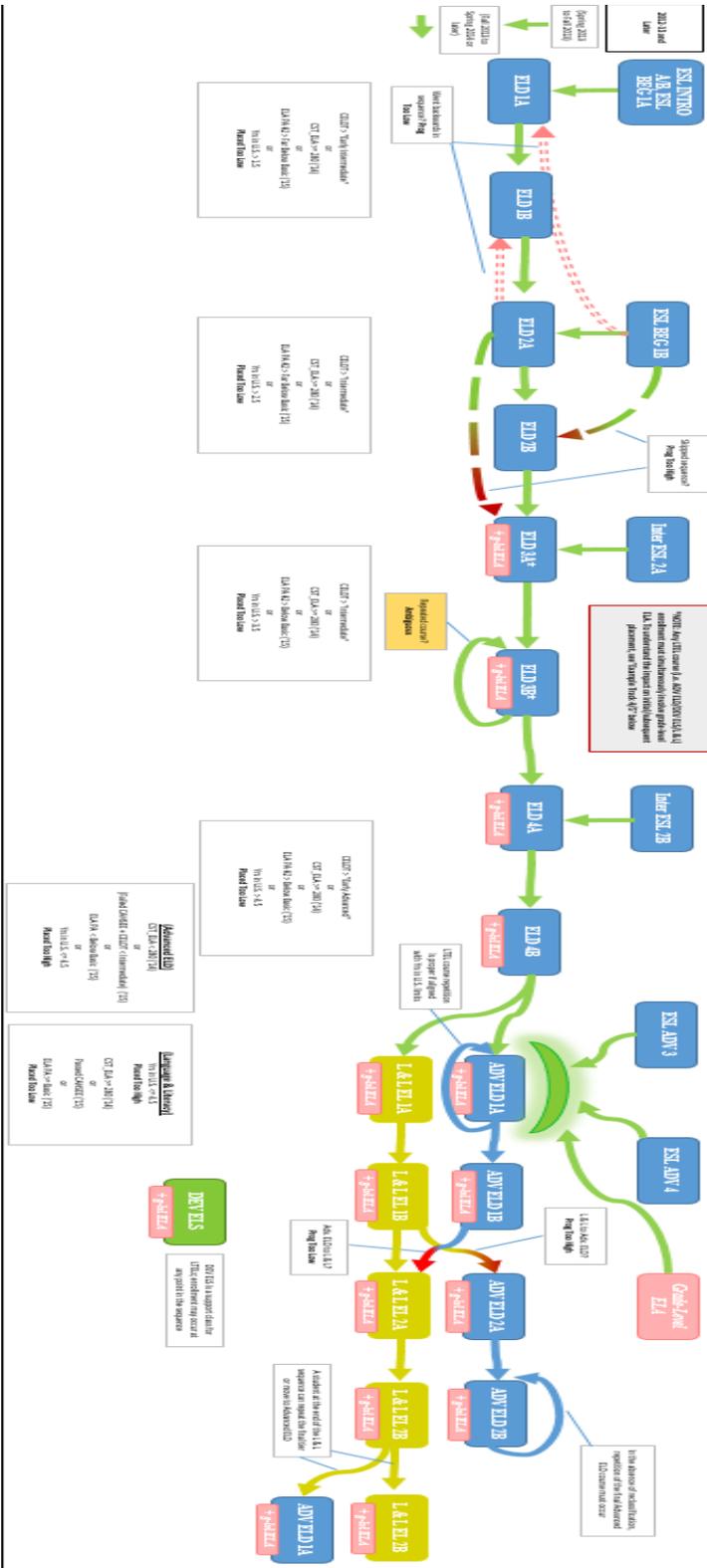
SOURCE: Authors’ calculations from LAUSD data  
NOTE: Course period data not available for the 2013-14 and 2014-15 school years.

**FIGURE B3**

Pre-2014 ELD Course Sequence



**FIGURE B4**  
Post-2013 ELD Course Sequence



# Overview of district policy in SDUSD

## Secondary School Placement Guidelines for English Learners in San Diego Unified School District

San Diego’s English Learners are purposefully placed in English coursework based on their length of enrollment and overall English proficiency (OPL) as determined by the California English Language Development Test (CELDT). The CELDT is administered when students first enroll in the district and every fall thereafter until they are reclassified as fluent English proficient. CELDT reports five OPLs: beginning, early intermediate, intermediate, early advanced, and advanced.

Prior to the 2008-09 academic year, the only criterion used to determine English course placement was the OPL. ELs at the earlier stages of English fluency (i.e., OPLs of beginning, early intermediate, or the bottom one-third of intermediate) were placed into Structured English Immersion (SEI) coursework. SEI coursework clusters students by proficiency level, and emphasizes acquiring English as a second language (ESL). ELs in the later stages of English proficiency (i.e., OPLs of the top two-thirds of intermediate, early advanced, and advanced), but not yet reclassified, were placed in Mainstream English Cluster (MEC) coursework. MEC coursework provides English language development (ELD) supports for ELs enrolled in grade-level English classes alongside their native English-speaking peers.

Beginning with the 2008-09 academic year, San Diego’s EL placement guidelines changed, and length of enrollment was added as a placement criterion. In an effort to prevent students from spending extended time in SEI/ESL coursework and “getting stuck” at earlier stages of English fluency, the district decided to advance students through the course sequence at a faster pace than using OPL alone would allow. As a result, students with OPLs at the beginning, early intermediate, and the bottom one-third of intermediate levels were placed into the higher-level MEC/ELD coursework, regardless of their OPLs – if they had been enrolled in the district for four or more years. Under the prior guidelines, students would not be placed in MEC/ELD coursework until their OPLs were in the top two-thirds of the intermediate range or higher, no matter how long they had been enrolled.

Length of enrollment has also been used to guide placement of students enrolled less than four years since the 2008-09 academic year. These students are enrolled in SEI/ESL coursework if their OPLs are at the beginning, early intermediate, or the bottom one-third of intermediate. However, students with higher OPLs are assigned higher level coursework (as described below), not “held back” based on their length of enrollment.

The following tables provide general course placement guidelines for students at the middle and high school levels. Please note that, in some academic years covered by our study, there were minor variations to the course placement guidelines that follow. These variations were taken into account in our analyses, but are not detailed in this document.

### Middle School Placement Guidelines

Newcomer classes are designed for recently arrived English Learners at the Beginning level of English fluency who have not previously attended school or whose formal education has been interrupted. Three-period Newcomer classes focus on developing English fluency and basic literacy skills. They also introduce the basics of other academic disciplines and orient students to schooling in the United States. For the balance of the day, Newcomer students are enrolled in general education coursework (such as physical education, visual and performing arts) with their English speaking peers. Newcomer students with OPLs of early intermediate and the lower one-third of the intermediate range – or students enrolled in schools that do not have enough students to offer Newcomer courses – are enrolled in the SEI/ESL courses described in the next section, regardless of their

schooling experience. Students typically remain in Newcomer classes for only one year. Newcomer coursework, including criteria for placement, is provided in the following table.

### Newcomer Course Sequence for Middle School

Grade Level	Length of Enrollment	OPL	Course
Grade 6	≤1 Year	B	ESL Literacy 6 <sup>th</sup> Core Newcomer (3 periods)
Grades 7-8	≤1 Year	B	ESL Literacy 7 <sup>th</sup> -8 <sup>th</sup> Core Newcomer (3 periods)

Note: B = Beginning

Middle school English Learners who do not yet have OPLs in the upper two-thirds of the Intermediate range are enrolled in the following SEI/ESL courses, according to their length of enrollment and OPL level. The higher of the two criteria determines placement. For example, the appropriate placement for a student enrolled less than one year with an OPL of Early Intermediate would be ESL Level 2, not ESL Level 1. The SEI/ESL sequence of coursework provides opportunities for students to read and write across a variety of genres, express themselves for different audiences and purposes, and acquire academic language needed to access content in other subject areas. SEI/ESL coursework, including criteria for placement, is provided in the following table. Note that students enrolled for four or more years are enrolled in the MEC/ELD course sequence (see following section), regardless of their OPL.

### SEI/ESL Course Sequence for Middle School

Grade Level	Length of Enrollment	OPL	Course
Grades 6-8	≤1 Year	B	ESL Level 1 5 <sup>th</sup> -8 <sup>th</sup> (2 periods)
	1.0-2.5 Years	EI	ESL Level 2 5 <sup>th</sup> -8 <sup>th</sup> (2 periods)
	2.5 to 3.9 Years	Lower 1/3 of I	ESL Level 3 5 <sup>th</sup> -8 <sup>th</sup> (2 periods)

Note: B = Beginning, EI = Early Intermediate, I = Intermediate

Middle school English Learners who have OPLs in the upper two-thirds of the intermediate range and higher OR who have been enrolled the district for four or more years (regardless of OPL) are enrolled in MEC/ELD courses. Courses in this sequence feature the same content as grade-level English courses taken by English-fluent students, but utilize Specially Designed Academic Instruction in English (SDAIE) strategies to help English Learners learn grade-level material. From 2010-2011 onward, the district's course placement guidelines specified that, whenever possible, MEC/ELD classrooms should have approximately one-third ELs and two-thirds native English-speaking students. MEC/ELD coursework, including criteria for placement, is provided in the following table. One important feature of the district's MEC/ELD courses is that they are two periods in length; grade-level English courses for English proficient students at most grade levels are one period in length.

### MEC/ELD Course Sequence for Middle School

Grade Level	Length of Enrollment	OPL	Course
Grade 6	4+ Years	<b>OR</b> Top 2/3 of I	ELD or Grade-Level English 6 <sup>th</sup> (2 period course)
Grade 7	4+ Years	<b>OR</b> Top 2/3 of I	ELD or Grade-Level English 7 <sup>th</sup> (2 period course)
Grade 8	4+ Years	<b>OR</b> Top 2/3 of I	ELD or Grade-Level English 8 <sup>th</sup> (2 period course)

Note: I = Intermediate

### High School Placement Guidelines

As at the high school level, Newcomer classes are designed for recently arrived English Learners at the Beginning level of English fluency who have not previously attended school or whose formal education has been interrupted. These three-period classes focus on developing English fluency and basic literacy skills. They also introduce the basics of other academic disciplines and orient students to schooling in the United States. For the balance of the day, Newcomer students are enrolled in general education coursework (such as physical education, visual and performing arts) with their English speaking peers. Newcomer students with OPLs in the upper one-third of the beginning range, early intermediate level, or the lower one-third of the intermediate range – or students enrolled in schools that do not have enough students to offer Newcomer courses – are enrolled in the SEI/ESL courses described in the next section, regardless of their schooling experience. At the high school level, students typically remain in Newcomer classes for only one semester. High School Newcomer coursework, including criteria for placement, is provided in the following table.

### Newcomer Course Sequence for High School

Grade Level	Length of Enrollment	OPL	Course
Grade 9	<6 Months	Low to Mid B	ESL Literacy Core 9 <sup>th</sup> Newcomer (3 periods)
Grades 10-12	<6 Months	Low to Mid B	ESL Literacy Block 10 <sup>th</sup> -12 <sup>th</sup> Newcomer (3 periods)
Grades 10-12	<6 Months	Low to Mid B	ESL Literacy Core 10 <sup>th</sup> -12 <sup>th</sup> Newcomer (6 periods)

Note: B = Beginning

High school English Learners who do not yet have OPLs in the upper two-thirds of the intermediate range are enrolled in the following SEI/ESL courses, according to their length of enrollment and OPL level. The higher of the two criteria determines placement. For example, the appropriate placement for a student enrolled less than one year with an OPL of Early Intermediate would be ESL 3-4 Literacy Block, not ESL 1-2 Literacy Block. The

SEI/ESL sequence of coursework provides opportunities for students to read and write across a variety of genres, express themselves for different audiences and purposes, and acquire academic language needed to access content in other subject areas. SEI/ESL coursework, including criteria for placement, is provided in the following table. Note that students enrolled for four or more years are enrolled in the MEC/ELD course sequence (see following section), regardless of their OPL.

### SEI/ESL Sequence for High School

Grade Level	Length of Enrollment	OPL	Course
Grades 9-12	≤1 Year	B	ESL 1-2 Literacy Block (2 periods)
	1.0-2.5 Years	EI	ESL 3-4 Literacy Block (2 periods)
	2.5 to 3.9 Years	Lower 1/3 of I	ESL 5-6 Literacy Block (2 periods)

**Note: B = Beginning, EI = Early Intermediate, I = Intermediate**

High school English Learners who have OPLs in the upper two-thirds of the intermediate range (and higher) OR who have been enrolled the district for four or more years (regardless of OPL) are enrolled in MEC/ELD courses. Courses in this sequence feature the same content as grade-level English courses taken by English-fluent students, but utilize Specially Designed Academic Instruction in English (SDAIE) strategies to help English Learners learn grade-level material. While not required, it is preferred that English Learners be enrolled in the two-period (Block) versions of these English courses. From 2010-2011 onward, the district’s course placement guidelines specified that, whenever possible, MEC/ELD classrooms should have approximately one-third ELs and two-thirds native English-speaking students. MEC/ELD coursework, including criteria for placement, is provided in the following table.

### MEC/ELD Sequence for High School

Grade Level	Length of Enrollment	OPL	Course
Grade 9	4+ Years	<b>OR</b> Top 2/3 of I	English 1-2 (1 period) or English 1-2 Block (2 periods)
Grade 10	4+ Years	<b>OR</b> Top 2/3 of I	English 3-4 (1 period) or English 3-4 Block (2 periods)
Grade 11	4+ Years	<b>OR</b> Top 2/3 of I	American Literature (1 period) or American Literature Block (2 periods)
Grade 12	4+ Years	<b>OR</b> Top 2/3 of I	Contemporary Voices in Literature (1 period) or World Literature (1 period)

**Note: I = Intermediate**

## Appendix C: Qualitative Approach

### Data Collection

Qualitative data collection and analyses were conducted in two phases. In the first phase, semi-structured interviews with central office administrators and leaders were conducted to understand each district's policy as it pertains to the course placement and reclassification for Long-term English Learner (LTEL) and Late Arrival English Learner (LAEL) students. Five district-level interviews were conducted at SDUSD, while six district-level interviews were conducted at LAUSD. Interviewees were selected based on their position and the extent to which their work intersects with English Learner (EL) policies and programs. For example, in LAUSD, we interviewed the Executive Director of the Multilingual and Multicultural Education Department and the Coordinator of EL while in SDUSD, the Director of the Office of English Language Acquisition and the Program Manager in the Office of English Language Acquisition were among the interviewees. Interviews were semi-structured to ensure data alignment among multiple participants (Miles & Huberman, 1994; Patton, 1990). The interview protocol was developed to understand the ways in which central office administrators' work intersects with secondary EL policies and programs, and specifically to explore their involvement in developing and implementing EL course assignment and reclassification policies. We also collected district policy documents pertaining to EL identification, course assignment, and reclassification to identify how these policies are meant to be implemented in each district. These documents allowed us to triangulate findings from policy documents, and to understand how and why there may be deviations from district policy.

In phase 2 we conducted school-level interviews to explore how school settings and instructional programs support (or do not support) LTELs and LAELs, as well as the challenges and opportunities school staff encounter as they implement EL policies in the context of these settings and programs. Findings from our quantitative analysis were used to inform our qualitative data collection with respect to site selection and interview protocol development. A matrix was created that placed schools according to % EL, the Herfindahl index that measures the language homogeneity of ELs, and CELDT gains (see Table C-1). Ten schools from each district were identified and invited to participate based on the matrix. Although we sought to include schools across all cells in the matrix, we were not able to collect data from all the schools we invited to participate. School level interviews were conducted at seventeen schools in total-- eight LAUSD schools (46 interviews) and nine SDUSD schools (48 interviews) for a total of 94 interviews during fall 2017 and early winter 2018. We interviewed at least one school from each cell of our 2x2x2 school selection matrix in both districts. Interviews were semi-structured, with the aim of understanding how school leaders, counselors, and teachers support LTELs and/or LAELs in particular school settings and instructional programs. The interview protocol focused on understanding the school's EL population, the staff member's roles and responsibilities with respect to supporting LTELs and LAELs, and the broader scope of supports for LTELs/LAELs, and how programs and policies are implemented for these groups of students.

**TABLE C1**

School Selection Criteria Matrix

District	Low % EL		High % EL	
	Low Herf	High Herf	Low Herf	High Herf
Low CELDT gains	LA: Middle School	LA: 1 Middle School	LA: 2 High Schools	LA: 1 High School
	SD: 1 Middle School (no data collected); 1 High school	SD: 1 Middle School	SD: 1 High School	SD: 1 Middle School
High CELDT gains	LA: 1 Middle School (no data collected); 1 High school	LA: 1 Middle School (no data collected)	LA: 1 Middle School	LA: 1 Middle School
	SD: 1 Middle School	SD: 1 High School	SD: 1 Middle School; 1 High School	SD: 1 Middle School

## Analysis

Preliminary analysis consisted in developing district-level and school-based memos based on our initial observations and impressions from interview data. The Los Angeles and San Diego teams developed memos around core topic areas: interviewee information, school characteristics, student population, programs, course placement, reclassification, and other (e.g., professional development). We then engaged in some initial coding around the study’s research questions to assess the extent to which we needed to dive deeper into the transcripts to generate preliminary findings. The teams each read four site memos from across the two districts to generate a list of initial codes. We concurrently coded one interview from each district with the following codes:

- School Information
- Course Placement Processes
- Course Placement Challenges
- Reclassification Processes
- Reclassification Challenges
- LTEL Supports
- LAEL Supports

The team created a cross-site data matrix that identified the seven agreed upon codes that mapped onto the research questions. The Los Angeles and San Diego teams completed the cross-site matrix the process using the subsets of school sites memos and transcripts from each district. We added three additional categories/codes that were not specifically derived from the original set of research questions and that were identified upon review of sites/interview data:

- General challenges, needs and lack of support
- Supports beyond coursework
- Other observations

The team discussed the cross-site matrix and to determine a process for identifying initial patterns in the data related to our research questions. We created brief school summaries to provide some context for each of the sites. We then developed two data displays: one for each district related to course placement.

## Course Placement Analysis (Spring/Summer)

The qualitative team met in May 2018 to discuss the cross-district course placement analysis. An initial set of codes were developed focused on EL demographics/info, course placement, course descriptions, compliance and monitoring, EL school supports, and teacher supports. The team selected one school from each district (with pseudonyms Central HS and Kennedy HS) to code independently. The team met again to discuss the coding and process and refine the codes. All interview transcripts were loaded into the Dedoose data analysis software program, chosen because it facilitates collaborative qualitative and mixed methods analysis. We used a hybrid approach to coding documents and interviews (Miles & Huberman, 1994), beginning with a list of codes that capture official district policies, policy implementation processes, and any challenges to implementation and/or deviations from policy. In addition to these a priori codes, we derived codes inductively for new ideas and themes, first by assignment general descriptive codes and then by comparing, contrasting, and grouping codes until we had a final list (Strauss & Corbin, 1990). The final code list was comprised of 18 codes that reflected issues related to LTEL/LAEL student characteristics and course placement. They included student behaviors or needs, course description, course placement, assessment, afterschool EL supports, in-school EL supports, compliance and monitoring, and teacher capacity. Each team coded the remainder of the school interviews.

During the coding process, we created a memo outline to capture school-level findings across each school site. Each memo captured the themes discussed in the outline and included participant quotes to support major findings. The memo consisted of the following themes:

- School characteristics
- Course placement
- Other supports offered to ELs that may explain outcomes
- Implementation supports and challenges related to student population
- Implementation supports and challenges to leadership and capacity
  - Teacher Capacity
  - Professional Development
- Other Issues

Each area/theme included sub-categories for LAEL and LTEL students to distinguish differences across course placement and supports for each student group. A memo was written for each school.

To integrate findings across the two districts, members from the qualitative team were assigned an area/theme to review and analyze across all the memos. For example, the LA team reviewed “Other supports offered to ELs that may explain outcomes” and “Implementation supports and challenges to leadership and capacity”. All members reviewed school characteristics. Each team developed high-level themes and findings based on the assigned memo area/theme, and the team met to discuss the findings and determine similarities and differences between schools and districts. To summarize findings, the qualitative team created a matrix to detail the course placement processes, support, and teacher capacity across each district and by LAEL and LTEL student.

## Appendix D: Regressions and Results

We performed regression analyses for the academic outcomes of LTELs and LAELs. Our sample, running from the 2006-07 through the 2015-16 school years, includes all secondary school (grade 6-12) students who fall into one of three language groups: never EL, LAEL (now or in a prior year), and LTEL (now or in a prior year). We exclude a small number of EL students who are not yet LTEL because they have not been ELs in the district for five years, and arrived in elementary school, so that they are not LAELs.

Consider the following model of an outcome for student  $i$  in grade  $g$  in school year  $t$ ,  $S_{igt}$ , where LTEL and LAEL are dummy variables indicating long-term and late-arriving ELs, respectively.

For outcomes available annually, including CST Z-scores, CELDT scaled scores, and grade point average (GPA), a common and quite general way to measure student progress year by year is to model the annual outcome as a function of the lagged outcome from the prior year, plus other explanatory factors:

$$(1) \quad S_{igt} = \alpha + \theta S_{i,g,t-1} + \beta LTEL_{ig} + \gamma LAEL_{ig} + \sum_{j=1}^J \delta_j X_{ijt} + \sum_{k=1}^K \eta_j SCH_{ijt} + \epsilon_{igt}$$

Above,  $X$  and  $SCH$  refer to  $J$ - and  $K$ -dimensional vectors of personal and school characteristics. Note that there is no time subscript  $t$  on the LTEL and LAEL variables because we identify students in these two groups as of certain grades and study them for the remainder of their time in the districts, even if they become reclassified as fluent-English-proficient. The vector  $X$  includes indicators for student gender, parental education (five dummy variables for each level plus a dummy variable indicating the parental education was missing), special education status, and dummies for home language spoken. In all models we include year dummies to allow for district-wide trends. The vector  $SCH$  includes school enrollment level, indicators for a middle school or nontraditional grade range (e.g. K-8), with high schools as the omitted group, as well as school by grade fixed effects to control for any unobserved but unchanging characteristics of a given school and grade level. The final term is an error term. We cluster the standard errors at the level of the school attended. A key hypothesis test is that  $\beta = \gamma$ , which suggests that the two EL types have similar outcomes after controlling for other characteristics, including home language, gender, and special education status.

We test for similar outcomes between either type of EL student and never English Learners, consisting of native English speakers and students whose home language is not English but who performed so well on the CELDT test to be deemed Initially Fluent English Proficient.

We also estimate a restricted version of (1):

$$(2) \quad S_{igt} - S_{i,g,t-1} = \alpha + \beta LTEL_{ig} + \gamma LAEL_{ig} + \sum_{j=1}^J \delta_j X_{ijt} + \sum_{k=1}^K \eta_j SCH_{ijt} + \epsilon_{igt}$$

Equation (2) is a restricted version of (1) because it assumes that in (1)  $\theta = 1$ . Model (2) assumes no depreciation in achievement over time, while model (1) does. We determined that the lagged score model was a better fit, in the sense that we easily rejected the restriction implicit in (2), so we report results from (1) here and in the report. That said, results were not radically different when we used (2).

For graduation on time and whether ELs were ever reclassified, which is only observed once, we model the outcome while conditioning on a vector of baseline measures of academic performance:

$$(3) \quad S_i = \alpha + \beta LTEL_{ig} + \gamma LAEL_{ig} + \sum_{j=1}^J \delta_j X_{ijt} + \sum_{k=1}^K \eta_j SCH_{ijt} + \theta PERF_{i,ib} + \sum_{l=1}^L \theta \tau_l PERF_{GRADE}_{i,ib} + \epsilon_{igt}$$

In this equation  $S_i$  now refers to one of the longer term outcomes named above. In this equation, to control for initial achievement, we include a measure of academic performance, ( $PERF_{1,ib}$ ), measured in a baseline grade

indicated by the subscript b. The measure we chose was the CST ELA score, observed in grade 5 if available, and if not available in grade 5 then in grades 4, 3, 2, 6 or higher, in that order.<sup>3</sup> Because the baseline performance levels were measured in different grades for different students, we also include in (3) dummy variables *PERFGRADE* indicating the grade in which each baseline measure is observed.

A school with a higher EL percentage is likely to devote considerable effort to teaching English as a second language, which could benefit these students. On the other hand, the relative lack of never-EL students in these schools could slow ELs' academic progress because it lowers the frequency with which ELs converse with peers fluent in English. It is also conceivable that a school's EL percentage could influence never-ELs' academic progress by changing classroom heterogeneity, pedagogy, and standards. We test whether there is a relationship between a school's EL percentage, which we refer to as *PCTEL<sub>st</sub>*, and student progress. It is especially interesting to know whether there is a relationship between this variable and the respective progress of never ELs, *LTELS*, and *LAELs*, and whether these associations differ.

We modify model (1) above by adding *PCTEL<sub>st</sub>* which is interacted three times, with indicators for the two EL student types and never ELs:

$$(4) \quad S_{igst} = \alpha + \theta S_{i,g,s,t-1} + \mu PCTEL_{st} * NeverEL_{gs} + \tau PCTEL_{st} * LTEL_{igs} \\ + \omega PCTEL_{st} * LAEL_{igs} + \beta LTEL_{ig} + \gamma LAEL_{ig} \\ + \sum_{j=1}^J \pi_j X_{ijt} + \sum_{k=1}^K \rho_j SCH_{ijt} + \theta PERF_{l,ib} + \sum_{l=1}^L \theta \tau_l PERF_{GRADE}_{l,ib} + \epsilon_{igst}$$

Other regressors are as defined in (1). We have added a subscript s to the outcome *S<sub>igst</sub>* to indicate the student's school. The coefficients on the EL percentage of students could be positive due to greater school focus on promoting language acquisition when a school has many ELs. But decreased chances to speak with native English speaker peers could work in the opposite direction. We test  $\mu = \tau = \omega = 0$ , which indicates whether there is any overall relationship between the EL percentage of students and the academic progress of any of our student subgroups. Typically this hypothesis was rejected. We also test whether each of these coefficients is zero, and whether the relationship between the EL percentage of students and academic progress is the same for the two types of EL students:  $\tau = \omega$ , and whether these coefficients are jointly equal to zero.

A more nuanced version of the above model controls not just for the overall EL percentage of students at the school, but the percentage of the student's own language group. Two countervailing forces are potentially at work. On the one hand, there could be enclave effects in which students with a critical mass of peers who share their home language feel less need to learn English, slowing their academic progress. On the other hand, a school's staff may be able to put together highly effective programs for larger language groups.

We next ask if the home language diversity of the pool of EL students matters. The greater the number of language groups at a school, the less likely ELs will be matched with a teacher with facility in the home language spoken. In addition, a large number of home languages creates challenges for the coherence of a school's English language acquisition programs. We use a Herfindahl index, also known as the Simpson diversity index, defined in terms of the squared shares of each language group j in a school:

$$(5) \quad H = \sum_{j=1}^n Share_j^2$$

This index has the interpretation (approximate in small samples) that it equals the probability that any two students randomly selected at a school will be from the same language group. In the main text we refer to this as EL language homogeneity, as a value of 1 means that all ELs speak the same home language in a given school

<sup>3</sup> Because we needed a baseline achievement measure that included never EL students, we did not use the CELDT. Similarly we did not use baseline math scores as the CST math test students take in the upper secondary grades varies depending on the level of math course taken, making interpretation difficult.

while at the other extreme a value of 0 means that no two ELs at a school speak the same home language. These two regressors are added to (4) in the same way that PCTEL was, that is, each interacted with dummy variables for the three language groups in the sample: never EL, LAEL and LTEL.

The model that we report in Appendix Table D4A further interacts the indicators for the three language groups with the share of ELs at the school who in the given year were placed into no ELD course at all, the share of ELs in an ELD course at a higher level than expected given district guidelines, and the share of ELs in an ELD course at a lower level than expected. The omitted variable here is the share of ELs placed into an EL group correctly. The full model is shown below.

$$(6) \quad S_{igt} = \alpha + \theta S_{i,g,t-1} + \beta LTEL_{ig} + \gamma LAEL_{ig} + \sum_{h=1}^6 LANG_{hst} (\lambda_{1h} NeverEL_{ig} + \lambda_{2h} LAEL_{ig} + \lambda_{3h} LTEL_{ig}) + \sum_{j=1}^J \delta_j X_{ijt} + \sum_{k=1}^K \eta_j SCH_{ijt} + \theta PERF_{l,ib} + \sum_{l=1}^L \theta \tau_l PERF_{GRADE}_{l,ib} + \epsilon_{igt}$$

Here,  $LANG_{hst}$ , for six variables  $h=1$  through 6, refers to one of the six key school language variables in our analysis: PCTEL, Same\_a, which is the percentage of all students at the school speaking the same home language as the given student, herf, which is our index of EL language homogeneity, s\_low, the share of ELs in an ELD class that is below the level recommended by district policy, s\_high, the share of ELs in an ELD class that is above the level recommended by district policy, and s\_no\_ELD, the share of ELs receiving no ELD class. (These last three variables thus vary between 0 and 1.) None of these six variables enters the model on its own, but is instead interacted with indicators for each of the three language groups of individual students: neverEL, LAEL and LTEL. The key parameters of interest in our model are the 18  $\lambda$  coefficients which measure whether the given language characteristic of the school is correlated with outcomes for the given student group. These coefficients plus the coefficients for the LTEL and LAEL dummies are reported for our four annual outcomes in Appendix Table D4A.<sup>4</sup>

The reason that the models control for the share of all ELs placed in too high or low an ELD class and the share with no ELD placement, rather than controlling for each EL student’s ELD placement, is that an EL’s individual ELD placement is likely to be an endogenous function of teachers’ and counselors’ observations of each student’s progress. If this is the case then using an EL student’s ELD placement as a regressor is likely to lead to estimates that are biased. For example, if a school places a specific student in too low of an ELD class this might be due to low progress for this student, and this would bias the coefficient on s\_low downward. Conversely, if a school places a specific EL into no ELD class at all it could be because of high rates of progress during the year, which is not completely visible in our data. This would bias upward estimates of the impact of being in no ELD class. To see if this was an issue, we repeated our models using school shares for the three placement variables for never EL students, but for LAEL and LTEL students we used their actual placement levels. In 13 of 16 cases, the coefficients on low ELD placement did indeed fall, indicating negative bias, while for three of four cases the coefficients on no\_ELD rose in the model of CST ELA when using actual individual placement, likely reflecting positive “selectivity bias” in the placement of EL students into no ELD. For other cases, including high ELD placement, the changes in coefficients were fairly mixed.<sup>5</sup>

<sup>4</sup> A simplification in the notation in (6) is that we do not include a student subscript  $i$  on the language environment variables  $LANG_{hst}$ . This is appropriate for five of the six language variables, which are measured for an entire school in a given year. It is not accurate for Same\_a, which is the percentage of all students at the school who speak the same home language as student  $i$ . This variable will take on different values for two students attending the same school in a given year if the two students speak different home languages. But for the other five LANG variables, such as the percentage of students who are ELs at the school, the values are constants across all students attending a given school in a given year.

<sup>5</sup> If we took these models where we instead control for ELD placement for individual EL students as valid, which we do not, placement into no ELD classes would be predicted to lead to no impact on LAELs in SDUSD except for a positive effect on CELDT scores, negative impacts on LAELs in LAUSD for all four outcomes, positive impacts on LTELs in SDUSD for CST ELA, CELDT and GPA, but negative effects for math CST scores, and in LAUSD negative impacts on LTELs for CST ELA and math scores, but positive (and implausibly large) effects on CELDT scores.

As another robustness check, we replaced the overall percentage of ELs with no ELD, too high or too low an ELD course with measures of these specific to LAELs and LTELs. We do not prefer this approach because for LAELs the number of LAELs in a given school is often very small. This means that when we calculate the share of that group receiving a certain quality of ELD placement, such as too high a placement, the LAEL student plays a large role in calculating that mean, which creates a similar risk of endogeneity to that described earlier. The other issue is that because the number of LAELs in a given school can be small, calculating a mean share of LAELs who receive a given type of ELD will tend to be a quite imprecise measure. For instance, in San Diego when we calculated the number of LAELs for each school/year observation, the median school/year had only 4 LAELs enrolled.

When we replaced the ELD placement shares by shares calculated separately for LAELs and LTELs, in SDUSD the most important change was that the coefficients on the no ELD share for LAELs became insignificant in all the models in Tables D4A and D4B, except for the model of whether the student was ever reclassified, in which the coefficient for the share of LAELs with no ELD remained negative and significant. The change for LAUSD was quite similar. All of the coefficients on the course placement variables for LAELs which had been significant became insignificant, with one exception. In LAUSD, school shares of low course ELD placement for LAELs gained significance for GPA growth, and were positive. There were no changes on LAUSD's coefficients for course placement among LTELs. The drop in the frequency with which the no ELD variable was significant for LAELs could reflect both the greater risk of this measure being endogenous than was the case in our main model, where we calculated mean ELD course placement for all ELs rather than for small subgroups of ELs, as well as the lower precision of the course placement variables when they were estimated on subgroups.

We also examine the impact of differentiated language classes for LTELs and beginning LAELs in the two districts. We assess the relation between enrollment in these classes and student outcomes by estimating versions of models (6) that also include controls for whether the given school in the given year offered any newcomer classes or ALD classes. Again, we do not control for whether individual students participated in these courses as individual students' course placement is likely to be endogenous. The resulting models are identical to (6) but add six new interaction terms between ALD and newcomer class provision on the one hand and the three language groups on the other. Results are summarized in Appendix Table D5. The main text expresses our concern that a lack of precision, especially in LAUSD, renders the results for ALD suspect. We have more confidence in the newcomer results, especially in SDUSD where newcomer courses were provided in some schools for all but the earliest and latest years of our study.

In addition to the results tabulated later in this appendix and discussed in the main text, we performed one robustness check regarding the variable measuring the percent of students who are ELs. There is a clear potential for nonlinear relations between this explanatory variable and outcomes. The careful reader may have noticed that in theory the correlation between academic outcomes and some of the above variables, especially the three variables that measure the language environment, could be either positive or negative. For instance, we hypothesized that in a school with few ELs, an increase in the share of ELs could lead to the creation of classes geared to the needs of the English Learners, which could benefit both ELs and their non-EL schoolmates. But at higher pre-existing levels of the share of ELs, a further increase in the share of ELs in a school could create situations where students could comfortably spend most of their school day speaking a language other than English at school, which could slow their acquisition of English fluency and academic progress, and perhaps have consequences for never ELs as well. One can easily imagine a positive relation between academic outcomes and the percent EL at low levels, turning to negative effect at higher levels.

To test this, we estimated models that replaced variables like percent EL with indicators for each tenth of the possible range (e.g. 0-9.99% EL, 10-19.99% EL and so on). What we looked for in particular was whether an insignificant overall relation resulted from positive correlations in one range and negative correlations in the other. We studied this possibility for the other language environment, including the percentage of all students speaking the same home language, and language homogeneity among ELs, as well as for the measures of incorrect ELD course placement. We found several interesting patterns, but did not discover any “hidden” relations that washed out in our simpler models where we looked for an overall relation.

On the following pages we show the means and standard deviations of the four outcomes we model along with the explanatory variables. Means for each of three language groups are shown along with the means for the combined sample. The data cover 2006-07 through 2015-16. Readers will note that the mean CELDT scores of never EL students are reported. This arises because students who report speaking a home language other than English are given the CELDT to determine if they are fluent in English, and some of these students are determined not to be ELs.

**TABLE D1**

Means and Standard Deviations of Key Explanatory Variables and Dependent Variables for LAUSD

Population	never EL		everLAEL		everLTEL5		All	
	mean	SD	mean	SD	mean	SD	mean	SD
<b>Variable Name</b>								
Percent EL * non-EL	0.17	0.11	n/a	n/a	n/a	n/a	0.09	0.12
Percent EL * LAEL	n/a	n/a	0.28	0.13	n/a	n/a	0.01	0.05
Percent EL * LTEL5	n/a	n/a	n/a	n/a	0.27	0.11	0.12	0.15
Same Home Language among All Students * non-EL	43.82	21.09	n/a	n/a	n/a	n/a	23.76	26.79
Same Home Language among All Students * LAEL	n/a	n/a	62.28	27.32	n/a	n/a	1.81	11.45
Same Home Language among All Students * LTEL5	n/a	n/a	n/a	n/a	68.08	21.29	29.20	36.47
Linguistic Homogeneity * non-EL	0.79	0.20	n/a	n/a	n/a	n/a	0.43	0.42
Linguistic Homogeneity * LAEL	n/a	n/a	0.87	0.14	n/a	n/a	0.03	0.15
Linguistic Homogeneity * LTEL5	n/a	n/a	n/a	n/a	0.89	0.14	0.38	0.45
Any ALD Courses * non-EL	0.27	0.45	n/a	n/a	n/a	n/a	0.15	0.35
Any ALD Courses * LAEL	n/a	n/a	0.24	0.43	n/a	n/a	0.01	0.08
Any ALD Courses * LTEL5	n/a	n/a	n/a	n/a	0.20	0.40	0.09	0.28
Any Newcomer Courses * non-EL	0.41	0.49	n/a	n/a	n/a	n/a	0.22	0.41
Any Newcomer Courses * LAEL	n/a	n/a	0.49	0.50	n/a	n/a	0.01	0.12
Any Newcomer Courses * LTEL5	n/a	n/a	n/a	n/a	0.42	0.49	0.18	0.38
Share ELs Placed into Too Low ELD * non-EL	0.06	0.07	n/a	n/a	n/a	n/a	0.03	0.06
Share ELs Placed into Too Low ELD * LAEL	n/a	n/a	0.05	0.06	n/a	n/a	0.00	0.01
Share ELs Placed into Too Low ELD * LTEL5	n/a	n/a	n/a	n/a	0.06	0.06	0.02	0.05
Share ELs Placed into Too High ELD * non-EL	0.04	0.05	n/a	n/a	n/a	n/a	0.02	0.04
Share ELs Placed into Too High ELD * LAEL	n/a	n/a	0.04	0.04	n/a	n/a	0.00	0.01
Share ELs Placed into Too High ELD * LTEL5	n/a	n/a	n/a	n/a	0.03	0.04	0.01	0.03
Share ELs Placed into No ELD * non-EL	0.38	0.19	n/a	n/a	n/a	n/a	0.21	0.24
Share ELs Placed into No ELD * LAEL	n/a	n/a	0.35	0.18	n/a	n/a	0.01	0.07
Share ELs Placed into No ELD * LTEL5	n/a	n/a	n/a	n/a	0.38	0.18	0.16	0.22

Share ELs Placed into Correct ELD * non-EL	0.52	0.17	n/a	n/a	n/a	n/a	0.28	0.29
Share ELs Placed into Correct ELD * LAEL	n/a	n/a	0.57	0.16	n/a	n/a	0.02	0.10
Share ELs Placed into Correct ELD * LTEL5	n/a	n/a	n/a	n/a	0.54	0.16	0.23	0.29
LTEL5 status	n/a	n/a	n/a	n/a	1.00	0.00	0.43	0.49
Ever-LAEL status	n/a	n/a	1.00	0.00	n/a	n/a	0.03	0.17
Female	0.49	0.50	0.45	0.50	0.44	0.50	0.47	0.50
Special Education status	0.12	0.32	0.10	0.29	0.22	0.42	0.16	0.37
Spanish spoken at home	0.12	0.32	0.86	0.34	0.94	0.23	0.49	0.50
<b>Parent Education Level</b>								
Less Than High School Diploma	0.08	0.27	0.14	0.35	0.31	0.46	0.18	0.38
High School Diploma	0.13	0.34	0.07	0.25	0.15	0.36	0.14	0.35
Some College	0.14	0.35	0.02	0.13	0.05	0.21	0.10	0.30
College Graduate	0.11	0.31	0.02	0.13	0.03	0.16	0.07	0.25
Graduate School	0.05	0.22	0.00	0.06	0.01	0.11	0.03	0.18
Parental Education Missin	0.49	0.50	0.75	0.43	0.45	0.50	0.48	0.50
Grade (mean only)	8.82	1.92	9.67	1.61	8.99	1.83	8.92	1.88
Total Enrollment (School Level)	1941.65	916.48	2211.44	1146.79	2027.19	1089.10	1986.18	1002.74
Grade Configuration: 6-8	0.41	0.49	0.19	0.39	0.36	0.48	0.39	0.49
Grade Configuration: Other Than 6-8 or 9-12	0.10	0.30	0.08	0.27	0.09	0.29	0.10	0.29
<b>Dependent Variables</b>								
CST-ELA z-score	-0.06	1.01	-1.13	0.65	-0.93	0.70	-0.48	0.98
CST-Math z-score	-0.08	1.05	-0.95	0.73	-0.89	0.64	-0.43	0.99
Grade Point Average (Annual)	2.35	0.97	2.31	0.96	1.93	0.92	2.16	0.97
CELDT Overall Score	624.47	76.46	444.17	112.18	547.94	76.05	539.24	85.37

**TABLE D2**

Means and Standard Deviations of Key Explanatory Variables and Dependent Variables for SDUSD

Population:	never EL		everLAEL		everLTEL5		All	
	mean	SD	mean	SD	mean	SD	mean	SD
<b>Variable name</b>								
Percent EL * non-EL	12.70	10.70	0.11	1.70	n/a	n/a	9.81	10.80
Percent EL * LAEL	n/a	n/a	29.01	15.82	n/a	n/a	0.52	4.41
Percent EL * LTEL5	n/a	n/a	n/a	n/a	23.56	15.05	4.95	11.82
Same Home Language among All Students * non-EL	49.74	21.27	0.13	2.70	n/a	n/a	38.40	28.01
Same Home Language among All Students * LAEL	n/a	n/a	36.40	27.54	n/a	n/a	0.66	6.10
Same Home Language among All Students * LTEL5	n/a	n/a	n/a	n/a	40.64	23.78	8.53	19.82
Linguistic Homogeneity * non-EL	0.59	0.22	n/a	0.05	n/a	n/a	0.46	0.32
Linguistic Homogeneity * LAEL	n/a	n/a	0.61	0.24	n/a	n/a	0.01	0.09
Linguistic Homogeneity * LTEL5	n/a	n/a	n/a	n/a	0.67	0.22	0.14	0.29
Any ALD Courses * non-EL	0.05	0.21	n/a	n/a	n/a	n/a	0.04	0.19
Any ALD Courses* LAEL	n/a	n/a	0.04	0.20	n/a	n/a	n/a	0.03
Any ALD Courses* LTEL5	n/a	n/a	n/a	n/a	0.05	0.22	0.01	0.10
Any Newcomer Courses * non-EL	0.36	0.19	n/a	0.02	n/a	n/a	0.03	0.17
Any Newcomer Courses * LAEL	n/a	n/a	0.06	0.24	n/a	n/a	n/a	0.03
Any Newcomer Courses * LTEL5	n/a	n/a	n/a	n/a	0.05	0.23	0.01	0.11
Share ELs Placed into Too Low ELD * non-EL	0.05	0.09	n/a	0.01	n/a	n/a	0.04	0.08
Share ELs Placed into Too Low ELD * LAEL	n/a	n/a	0.07	0.07	n/a	n/a	n/a	0.01
Share ELs Placed into Too Low ELD * LTEL5	n/a	n/a	n/a	n/a	0.06	0.10	0.01	0.05
Share ELs Placed into Too High ELD * non-EL	0.15	0.14	n/a	0.01	n/a	n/a	0.12	0.14
Share ELs Placed into Too High ELD * LAEL	n/a	n/a	0.20	0.13	n/a	n/a	n/a	0.03
Share ELs Placed into Too High ELD * LTEL5	n/a	n/a	n/a	n/a	0.14	0.13	0.03	0.08
Share ELs Placed into No ELD * non-EL	0.31	0.27	n/a	0.03	n/a	n/a	0.24	0.27
Share ELs Placed into No ELD * LAEL	n/a	n/a	0.22	0.22	n/a	n/a	n/a	0.04
Share ELs Placed into No ELD * LTEL5	n/a	n/a	n/a	n/a	0.30	0.27	0.06	0.17

Population:	never EL		everLAEL		everLTEL5		All	
	mean	SD	mean	SD	mean	SD	mean	SD
Share ELs Placed into Correct ELD * non-EL	0.49	0.26	n/a	0.04	n/a	n/a	0.38	0.31
Share ELs Placed into Correct ELD * LAEL	n/a	n/a	0.51	0.23	n/a	n/a	0.01	0.08
Share ELs Placed into Correct ELD * LTEL5	n/a	n/a	n/a	n/a	0.50	0.25	0.11	0.23
LTEL5 status	n/a	n/a	n/a	n/a	1.00	n/a	0.21	0.41
Ever-LAEL status	n/a	n/a	1.00	n/a	n/a	n/a	0.02	0.13
Female	0.49	0.50	0.48	0.50	0.43	0.50	0.48	0.50
Special Education status	0.13	0.34	0.03	0.16	0.27	0.44	0.16	0.37
Spanish spoken at home	0.10	0.30	0.64	0.48	0.84	0.37	0.26	0.44
<b>Parental education level:</b>								
Less Than High School Diploma	0.03	0.17	0.21	0.41	0.24	0.43	0.08	0.27
High School Diploma	0.11	0.31	0.12	0.32	0.18	0.39	0.13	0.33
Some College	0.19	0.39	0.04	0.19	0.07	0.25	0.16	0.37
College Graduate	0.19	0.39	0.05	0.22	0.04	0.20	0.15	0.36
Graduate School	0.13	0.34	0.03	0.17	0.02	0.14	0.11	0.31
Parental Education Missing	0.35	0.48	0.55	0.50	0.45	0.50	0.38	0.49
Grade (mean only)	9.09		9.76		8.93		9.07	
Total Enrollment (School Level)	1386	737	1266	798	1150	710	1334	739
Grade Configuration: 6-8	0.31	0.46	0.19	0.39	0.33	0.47	0.31	0.46
Grade Configuration: Other Than 6-8 or 9-12	0.14	0.34	0.03	0.16	0.10	0.30	0.13	0.33
<b>Dependent Variables</b>								
CST-ELA z-score	0.33	0.99	-1.07	0.72	-0.83	0.74	0.06	1.06
CST-Math z-score	0.19	0.97	-0.63	0.95	-0.65	0.71	-0.02	0.98

Population:	never EL		everLAEL		everLTEL5		All	
	mean	SD	mean	SD	mean	SD	mean	SD
Grade Point Average (Annual)	2.84	0.92	2.46	1.01	2.09	0.97	2.68	0.99
CELDT Overall Score	643	54	455	104	555	57	548	72

We constructed measures of correct course placement for both school districts over time. Those measures are used in regression analyses (Tables D4A and D4B). Here, we report the regression coefficients of our estimates of what predicts school level correct course placement. Our regressions are estimated at the student level, which implicitly weighs each school by the number of students involved in constructing each of the measures.

**TABLE D3**  
Correct School Placement Regression Results, LAUSD and SDUSD

Variables	LAUSD	SDUSD	LAUSD	SDUSD
<b>Percent EL</b>	-0.0939	-0.00332		
	(0.0661)	-0.00169		
<b>Number EL per grade</b>			<b>0.000115*</b>	-8.53E-05
			(5.11e-05)	-0.00032
<b>Same Home Language among All Students</b>	-0.000191	<b>-0.000971*</b>	<b>-0.000335*</b>	-0.00069
	(0.000147)	-0.00041	(0.000141)	-0.00043
<b>Linguistic Homogeneity among ELs</b>	<b>0.130*</b>	-0.0224	0.0736	-0.0795
	(0.0562)	-0.113	(0.0520)	-0.107
<b>Constant</b>	<b>0.449**</b>	<b>0.602**</b>	<b>0.468**</b>	<b>0.579**</b>
	(0.0458)	-0.0651	(0.0444)	-0.0706
<b>Observations</b>	1,738,053	474,201	1,738,053	474,201
<b>R-squared</b>	0.014	0.032	0.016	0.01
<b>r2_a</b>	0.0143	0.0321	0.0158	0.0101
<b>rss</b>	47736	30436	47660	31126
<b>df_m</b>	3	3	3	3
<b>Log L</b>	657809	-21782	659206	-27095

Robust standard errors in parentheses

\*\* p<0.01, \* p<0.05

Table D4A shows the main regression results for four annual outcomes. Statistically significant results are in bold. Cells in light gray were not estimated because the relevant language group (never ELs) was not included in the CELDT models. Cells in darker gray represent coefficients that were statistically significant in the models shown below that include all the estimators shown, but in simpler models that included only the given set of explanatory variables, such as the three language homogeneity variables, the coefficient was not significant. This could indicate that the significant results in the gray cells below are not robust and that significance could reflect collinearity with the other regressors.

**TABLE D4A**

Annual Outcome Regression Results

Regressor Variable	CST ELA Z-Score		CELDT Score		CST Math Z-Score		Annual GPA	
	LAUSD	SDUSD	LAUSD	SDUSD	LAUSD	SDUSD	LAUSD	SDUSD
% EL * Never EL	0.0857	-0.000426			0.241	-0.00201	-0.0583	-0.0024
	(0.0814)	-0.00161			(0.188)	-0.00574	(0.0430)	-0.00205
% EL * LAEL	0.119	-0.0016	<b>-22.09*</b>	<b>-0.548**</b>	0.378	-0.00374	0.00872	-0.000102
	(0.0931)	-0.00174	(10.97)	-0.153	(0.268)	-0.00622	(0.0505)	-0.00245
% EL * LTEL	<b>0.260**</b>	0.00113	-7.591	<b>-0.467**</b>	<b>0.497**</b>	0.000661	0.0110	-0.00157
	(0.0761)	-0.00165	(8.531)	-0.115	(0.172)	-0.00547	(0.0405)	-0.00218
% EL * Same Home Language * Never EL	0.000209	<b>0.00103**</b>			<b>0.000549**</b>	<b>0.000643*</b>	<b>0.000204**</b>	<b>0.00130**</b>
	(0.000129)	-0.000218			(0.000197)	-0.000308	(7.08e-05)	-0.00024
% EL * Same Home Language * LAEL	0.000451	<b>0.00325**</b>	0.0367	<b>0.153**</b>	-0.00158	<b>0.00676*</b>	0.000209	<b>-0.00120*</b>
	(0.000305)	-0.00044	(0.0385)	-0.0514	(0.000932)	-0.00268	(0.000140)	-0.000507
% EL * Same Home Language * LTEL	<b>-0.000361*</b>	<b>0.000720**</b>	<b>0.0576*</b>	-0.0154	-0.000285	0.000555	-3.44e-05	-0.000143
	(0.000180)	-0.000255	(0.0259)	-0.0337	(0.000385)	-0.000484	(8.03e-05)	-0.000348
Language Homogeneity * Never EL	<b>-0.0648**</b>	<b>-0.0937*</b>			<b>-0.185**</b>	0.0127	-0.0157	0.0183
	(0.0246)	-0.0463			(0.0665)	-0.12	(0.0193)	-0.0587
Language Homogeneity * LAEL	0.0397	-0.123	-4.699	<b>-22.34*</b>	-0.197	-0.386	<b>0.0756*</b>	-0.0105
	(0.0545)	-0.0787	(8.399)	-10.25	(0.178)	-0.282	(0.0338)	-0.0845
Language Homogeneity * LTEL	<b>0.119**</b>	<b>-0.132*</b>	2.541	-4.769	0.0222	-0.0398	<b>0.0490*</b>	0.00146
	(0.0298)	-0.0537	(3.591)	-7.074	(0.0693)	-0.121	(0.0245)	-0.0575
LTEL 5 Currently or in Past	<b>-0.294**</b>	<b>-0.163**</b>	<b>-17.80**</b>	<b>-20.78**</b>	<b>-0.304**</b>	<b>-0.252**</b>	<b>-0.125**</b>	<b>-0.0528*</b>
	(0.0305)	-0.0212	(5.408)	-5.017	(0.0570)	-0.0837	(0.0162)	-0.0254
Ever LAEL	<b>-0.301**</b>	<b>-0.141*</b>			0.192	-0.57	<b>-0.138**</b>	-0.0365
	(0.0495)	-0.0641			(0.190)	-0.297	(0.0253)	-0.039

Regressor Variable	CST ELA Z-Score		CELDT Score		CST Math Z-Score		Annual GPA	
	LAUSD	SDUSD	LAUSD	SDUSD	LAUSD	SDUSD	LAUSD	SDUSD
Share ELD Too Low * Never EL	0.0119 (0.0656)	<b>-0.200*</b> -0.0762			0.0846 (0.139)	-0.00245 -0.17	-0.0152 (0.0339)	-0.0224 -0.111
Share ELD Too Low * LAEL	0.129 (0.106)	-0.384 -0.248	21.06 (22.59)	-16.01 -24.31	-0.680 (0.403)	<b>4.187**</b> -1.102	<b>-0.206*</b> (0.0946)	-0.11 -0.248
Share ELD Too Low * LTEL	-0.136 (0.0753)	<b>-0.317**</b> -0.0948	4.639 (9.775)	-6.532 -7.91	-0.0802 (0.0937)	0.199 -0.234	0.0540 (0.0407)	-0.113 -0.164
Share ELD Too High * Never EL	-0.304 (0.197)	0.0208 -0.0403			-0.145 (0.248)	<b>-0.245**</b> -0.0906	0.0445 (0.0491)	<b>0.136*</b> -0.0536
Share ELD Too High * LAEL	0.0924 (0.277)	0.0214 -0.104	<b>58.92**</b> (22.66)	<b>-38.81**</b> -13.53	0.938 (1.492)	0.696 -0.527	0.187 (0.124)	-0.18 -0.108
Share ELD Too High * LTEL	-0.0429 (0.191)	-0.0375 -0.049	12.81 (7.511)	4.28 -6.288	0.428 (0.315)	0.0153 -0.11	0.0786 (0.0630)	-0.054 -0.0796
Share No ELD * Never EL	-0.0163 (0.0284)	<b>-0.0493*</b> -0.0191			0.0349 (0.0550)	0.0156 -0.0936	0.000553 (0.0130)	0.0272 -0.0318
Share No ELD * LAEL	0.0741 (0.0572)	<b>-0.132*</b> -0.0556	-5.386 (4.767)	<b>21.16**</b> -6.966	-0.119 (0.204)	0.678 -0.357	0.0353 (0.0220)	<b>0.176**</b> -0.0595
Share No ELD * LTEL	<b>-0.0928**</b> (0.0306)	<b>-0.0617*</b> -0.0245	-0.404 (2.658)	4.175 -2.703	-0.0630 (0.0523)	0.0312 -0.107	<b>0.0346*</b> (0.0147)	0.0381 -0.0458
Constant	-0.00527 (0.111)	<b>1.468**</b> -0.0873	<b>165.2**</b> (22.05)	<b>197.3**</b> -15.5	-0.119 (0.178)	<b>1.863**</b> -0.267	<b>0.826**</b> (0.0586)	<b>0.444**</b> -0.106
Observations	951,017	233612	450,397	57368	310,602	67891	689,566	303388
R-squared	0.720	0.727	0.707	0.632	0.704	0.673	0.882	0.67
Adjusted R-squared	0.720	0.726	0.706	0.63	0.703	0.672	0.882	0.669
Sum of Squared residuals	255954	71248	8.060e+08	72400000	90025	21604	64990	96424
df_m	134	91	124	73	116	54	136	87
LogL	-725314	-192775	-2.326e+06	-286204	-248397	-57465	-164134	-256608

Robust standard errors in parentheses

\*\* p<0.01, \* p<0.05

NOTES: Cells in gray indicate coefficients that are significant only in the model with all the language variables, but was not significant in models that included only that specific language variable. Coefficients in bold are significant at less than the 0.05 level.

**TABLE D4B**

Long Term Outcome Regression Results

Regressor Variable	Graduate on Time		Ever Reclassified	
	LAUSD	SDUSD	LAUSD	SDUSD
% EL * Never EL	<b>-0.299**</b>	-0.00134		
	(0.107)	-0.000874		
% EL * LAEL	0.00465	<b>-0.00283*</b>	0.222	<b>-0.00453**</b>
	(0.131)	-0.00122	(0.116)	-0.0017
% EL * LTEL	<b>-0.325**</b>	-0.00131	0.0397	<b>-0.00581**</b>
	(0.103)	-0.000819	(0.116)	-0.00167
% EL * Same Home Language * Never EL	<b>0.000436**</b>	<b>0.000642**</b>		
	(8.30e-05)	-0.000203		
% EL * Same Home Language * LAEL	<b>-0.00111**</b>	-0.000104	-0.000324	0.000817
	(0.000350)	-0.000618	(0.000355)	-0.000471
% EL * Same Home Language * LTEL	8.98e-05	-0.000256	0.000290	0.000417
	(0.000121)	-0.00031	(0.000282)	-0.00042
Language Homogeneity * Never EL	-0.0572	0.00621		
	(0.0291)	-0.0274		
Language Homogeneity * LAEL	-0.103	-0.0313	-0.0477	-0.142
	(0.0709)	-0.0691	(0.0666)	-0.0947
Language Homogeneity * LTEL	-0.0525	-0.0728	-0.0260	-0.167
	(0.0385)	-0.0384	(0.0524)	-0.0849
LTEL 5 Currently or in Past	-0.0274	<b>0.0954**</b>	0.0409	0.0839
	(0.0212)	-0.0235	(0.0345)	-0.0426
Ever LAEL	<b>-0.134*</b>	0.0696		
	(0.0594)	-0.0511		
Share ELD Too Low * Never EL	<b>-0.135**</b>	<b>0.102**</b>		
	(0.0421)	-0.0322		
Share ELD Too Low * LAEL	0.114	-0.135	<b>0.475**</b>	<b>-0.397*</b>
	(0.111)	-0.245	(0.0960)	-0.194
Share ELD Too Low * LTEL	-0.0804	-0.0632	<b>0.870**</b>	<b>-0.350**</b>
	(0.0503)	-0.0784	(0.0826)	-0.104
Share ELD Too High * Never EL	<b>0.160*</b>	<b>0.0819**</b>		
	(0.0657)	-0.0235		
Share ELD Too High * LAEL	0.106	-0.101	-0.220	<b>0.180*</b>
	(0.327)	-0.0927	(0.182)	-0.0881
Share ELD Too High * LTEL	0.104	<b>-0.231**</b>	<b>-0.558**</b>	-0.0105
	(0.0988)	-0.0421	(0.0963)	-0.051
Share No ELD * Never EL	0.00973	<b>0.0436**</b>		
	(0.0174)	-0.0128		
Share No ELD * LAEL	<b>0.175**</b>	<b>0.174*</b>	<b>0.0905*</b>	<b>-0.248**</b>
	(0.0643)	-0.07	(0.0457)	-0.06

Regressor Variable	Graduate on Time		Ever Reclassified	
	LAUSD	SDUSD	LAUSD	SDUSD
Share No ELD * LTEL	0.0169	<b>0.0423*</b>	0.0421	<b>-0.275**</b>
	(0.0229)	-0.0193	(0.0311)	-0.0337
Constant	<b>0.745**</b>	<b>0.613**</b>	0.195	<b>0.727**</b>
Observations	(0.0415)	-0.0517	(0.150)	-0.169
R-squared	724,389	220,577	747,454	89,040
Adjusted R-squared	0.144	0.25	0.235	0.329
Sum of Squared residuals	0.143	0.248	0.234	0.326
df_m	87701	24163	142121	14932
LogL	143	89	136	85
	-263127	-69092	-440207	-46849

NOTES: \*\* p<0.01, \* p<0.05 Coefficients in bold are significant at less than the 0.05 level. Robust standard errors in parentheses.

Table D5 shows regression results that control for newcomer supports and LTEL course availability.

**TABLE D5**

Supplementary Results that Add LTEL and Newcomer Course Availability to the Earlier Models

Regressor Variable	CST ELA Z-Score		CELDT Score		CST Math Z-Score		Annual GPA	
	LAUSD	SDUSD	LAUSD	SDUSD	SDUSD	LAUSD	SDUSD	
Any Newcomer Program*Never EL	-0.00945 (0.00550)	-0.00351 (0.0164)			-0.00573 (0.0111)	<b>0.149**</b> <b>(0.0266)</b>	0.000492 (0.00279)	-0.0224 (0.0225)
Any Newcomer Program*LAEL	<b>-0.0250*</b> <b>(0.0123)</b>	-0.0171 (0.0345)	-0.774 (1.627)	-8.425 (6.260)	-0.0428 (0.0382)	0.166 (0.174)	0.000216 (0.00771)	-0.0140 (0.0515)
Any Newcomer Program*LTEL	<b>-0.0157*</b> <b>(0.00695)</b>	-0.00309 (0.0217)	-0.979 (0.776)	<b>3.797*</b> <b>(1.486)</b>	<b>-0.0333**</b> <b>(0.0103)</b>	<b>0.126**</b> <b>(0.0240)</b>	0.00480 (0.00403)	-0.0220 (0.0440)
Any ALD Course*Never EL								0.000557 (0.0250)
Any ALD Course*LAEL				7.571 (4.804)				-0.0721 (0.0685)
Any ALD Course*LTEL				1.599 (2.248)				0.00618 (0.0358)
Observations	951,017	233,612	450,397	57,368	310,602	67,891	689,566	303,388
R-squared	0.720	0.727	0.707	0.633	0.704	0.673	0.882	0.670
r2_a	0.720	0.726	0.706	0.630	0.703	0.672	0.882	0.669
rss	255937	71248	8.060e+08	7.230e+07	90007	21590	64989	96418
df_m	137	91	125	77	118	54	139	87
Log L	-725282	-192775	-2.326e+06	-286182	-248365	-57443	-164128	-256599

Robust standard errors in parentheses.

\*\* p<0.01, \* p<0.05

Coefficients in bold are significant at less than the 0.05 level

NOTE: Cells in gray indicate coefficients that could not be estimated, or coefficients that in the case of LAUSD were estimable but only on small atypical samples, and are thus suppressed.

**TABLE D6**

Supplementary Results for SDUSD that Add the Ratio of ELs to EL Support Teachers to the Earlier Models in Table D4A

Regressor Variable	CST ELA Z-Score	CELDT Score	CST Math Z-Score	Annual GPA
EL to ELST Ratio*Never EL	-0.413		<b>2.159*</b>	0.223
	(0.375)		<b>(0.938)</b>	(0.791)
EL to ELST Ratio *LAEL	-6.062	706.3	20.68	<b>14.78*</b>
	(5.150)	(457.9)	(19.54)	<b>(6.464)</b>
EL to ELST Ratio *LTEL	1.008	107.7	2.468	<b>5.375*</b>
	(0.985)	(108.2)	(1.476)	<b>(2.076)</b>
Observations	232,897	47,276	67,710	238,055
R-squared	0.727	0.628	0.672	0.674
r2_a	0.726	0.625	0.671	0.674
rss	70893	5.740e+07	21501	73953
df_m	82	69	49	75
LogL	-191959	-234948	-57241	-198634

Robust standard errors in parentheses. \*\* p<0.01, \* p<0.05  
Coefficients in bold are significant at less than the 0.05 level

NOTE: Cells in gray indicate coefficients that could not be estimated, because never EL students were not given the CELDT test.

## Statistical Precision

In evaluating the coefficients on the variables related to the language environment, the precision of the estimates matters. We can obtain the 95% confidence interval for any coefficient by multiplying the standard error (s.e.) by 1.96, so that the 95% confidence interval will be [estimate-1.96\*s.e., estimate + 1.96\*s.e.]. This analysis seems most important for our findings of “no effect.” The most striking “no effect” results are that for never EL students, the percentage of students who are EL is not negatively related to any of the annual academic outcomes we model. The standard errors for this variable, shown in the first row of Table D4A, are small for SDUSD, less so for LAUSD. The minimum effect of raising the percent EL by 1 standard deviation on the CST ELA growth for LAUSD is  $0.0857 - 1.96 * 0.0814 = -0.073$  and the maximum is 0.24. The minimum possible effects within the 95% confidence interval for San Diego is -0.004. Similar conclusions result when looking at the other outcomes for percentage EL for the other two linguistic groups. For the variable measuring the percentage of all students speaking the same home language, minimal effect sizes are small for both districts.

As noted in the main text, the precision of our estimates for the EL language homogeneity variable is lower. This could reflect the relatively smaller variation in this measure, especially in LAUSD. This index can theoretically range from 0 to 1, and Table D1 shows that the mean in LAUSD, depending on the linguistic group, ranges from 0.79 for never ELs to 0.89 for LTELs. That said, even with this lack of precision, when we claim that language homogeneity has a significant negative or positive relation to an outcome, we are 95% certain that the sign is correct. But we are unsure of the true size of the relation. Perhaps of greater concern is the many cases where language homogeneity is not significant, for example for CST math and CELDT for LTELs and Late Arriving ELs. To give one example, in the model of CST ELA for LAELs in LAUSD, the coefficient and standard error for language homogeneity for LAELs are 0.0397 and 0.0545, meaning that the upper bound of the confidence interval is 0.147 and the lower bound is a smaller negative predicted effect (-0.67).

Another factor to consider is whether any of our outcomes displays bunching of observations near a ceiling or floor. For example, in theory our result that LAELs’ CELDT scores rise more quickly than those of LTELs could arise if LTELs are already scoring near the maximum possible CELDT score. Conversely, if we find no significant effect of a given variable on the CST scores of LAELs, could it be because almost all LAELs have CST scores near the minimum possible. To test whether there is massive clumping of outcome values near a ceiling or floor, we can look at the distribution of proficiency levels on the CST for all groups and for ELs, for the CELDT as well.

Because it is hard to show floor or ceiling effects for the CST using Z scores, we instead show the distribution of test scores across language groups using proficiency levels. Similarly for the CELDT we start by showing the distribution of students by performance levels. For annual GPA we divide students into four groups, based on whether GPA is less than 1, at least equal to 1 and less than 2, at least equal to 2 and less than 3, and at least equal to 3 and less than or equal to 4.

**TABLE D7**

The Percentage of Students by CST ELA Proficiency Level

District	Language Group	Far Below Basic	Below Basic	Basic	Proficient	Advanced
LAUSD	Never EL	9.8	14.5	27.6	26.7	21.4
	LAEL	40.7	35.1	19.3	4.2	0.7
	LTEL	25.2	33.3	32.6	7.7	1.2
SDUSD	Never EL	4.7	8.4	22.1	31.0	33.7
	LAEL	38.6	32.7	21.3	6.1	1.4
	LTEL	18.5	30.1	37.7	11.6	2.2

**TABLE D8**

The Percentage of Students by CST Math Proficiency Level, Grades 6 and 7 Only

District	Language Group	Far Below Basic	Below Basic	Basic	Proficient	Advanced
LAUSD	Never EL	8.5	21.1	26.0	26.5	17.8
	LAEL	31.3	41.3	17.6	7.5	2.3
	LTEL	22.1	44.0	25.4	7.5	0.9
SDUSD	Never EL	3.6	12.2	23.1	34.8	26.3
	LAEL	21.8	34.2	23.6	12.2	8.3
	LTEL	12.2	34.1	34.3	16.5	3.0

**TABLE D9**

The Percentage of Students by CELDT Performance Level

District	Language Group	Beginning	Early Intermediate	Intermediate	Early Advanced	Advanced
LAUSD	LAEL	52.2	18.9	19.3	8.6	1.1
	LTEL	7.1	12.6	40.1	33.4	6.8
SDUSD	LAEL	49.8	21.1	19.4	8.6	1.1
	LTEL	4.5	12.5	42.1	34.9	6.1

**TABLE D10**

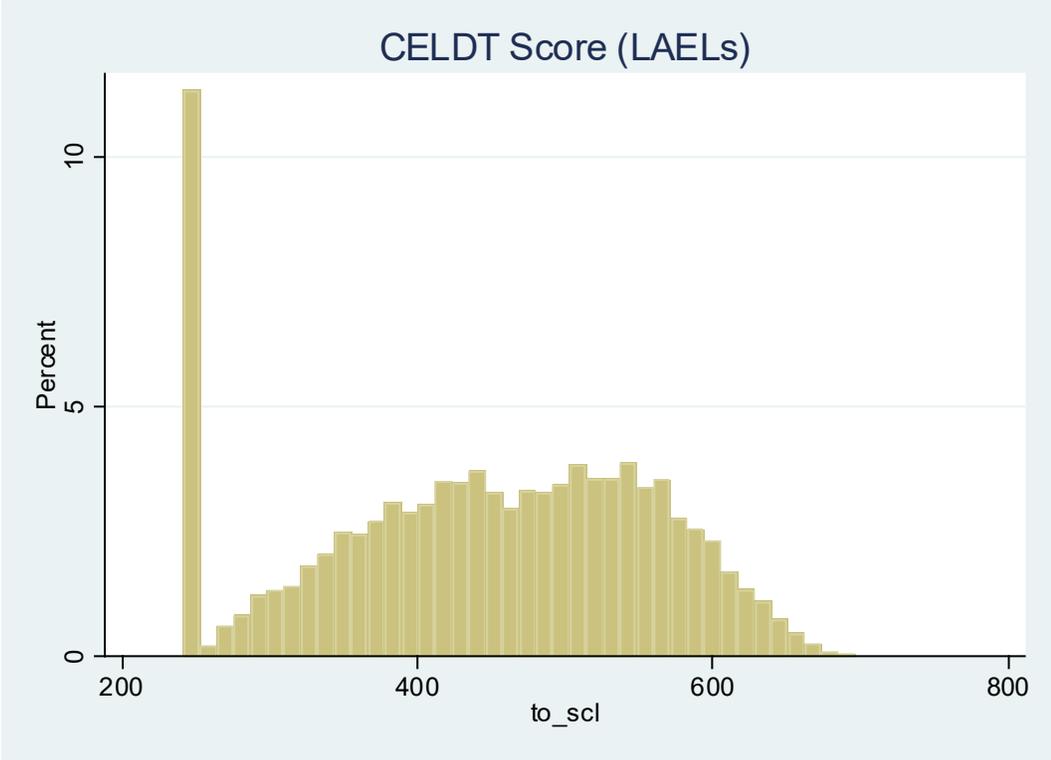
The Percentage of Students by Annual GPA Level

District	Language Group	0-0.999	1-1.999	2-2.999	3-4
LAUSD	Never EL	9.2	24.2	36.2	30.3
	LAEL	9.3	25.7	36.1	28.9
	LTEL	15.8	35.7	33.8	14.7
SDUSD	Never EL	4.5	12.7	30.2	52.6
	LAEL	9.2	20.7	33.6	36.4
	LTEL	6.6	16.2	31.6	45.6

Our concern is that if a large percentage of students is in the top or bottom group, some of them could be achieving so high or so low that a change in their underlying performance would not lead to a change in their recorded achievement measure. For all but one case (CELDT) for LAELs, a majority of students in each language group are in the middle ranges of these measures. Thus for CST scores and GPA we find little evidence of a major problem of bunching.

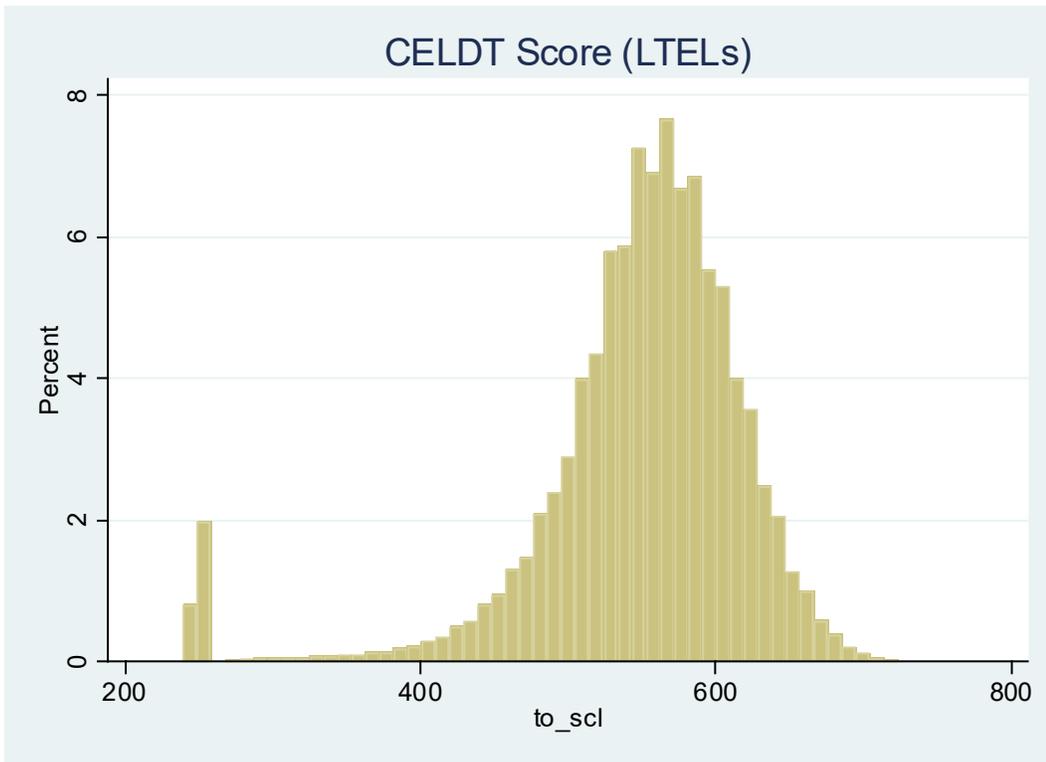
The exception is the CELDT performance levels for LAELs. For instance in San Diego, 49.8% of LAELs are in the bottom (Beginning) group. We took a closer look at the underlying scale scores for the CELDT to look for bunching of students at the bottom possible score. The minimum scaled score is 248 in grades 6-8 and 251 in grades 9-12, and the respective maximum allowed scores are 741 and 761. Very few LTELs have scores near the minimum or maximum. Figures D1, D2 show the histograms for LAEL and LTEL students in LAUSD, while Figures D3 and D4 show the corresponding information for SDUSD. For LAELs about 6 percent in SDUSD and 11 percent in LAUSD have CELDT scores within 10 points of the minimum of 248, as shown by the bottom bar in the histogram, so it is possible for a very small number of these students that the CELDT test would not detect actual gains in English proficiency if the student’s initial proficiency was below the bottom limit. Theoretically this could be a concern because for these students small increases in English proficiency might not be detectable on the test. But the proportion of students for whom this could be an issue is very small.

**FIGURE D1**  
Histogram of CELDT Total Scaled Scores for LAEL Students in LAUSD



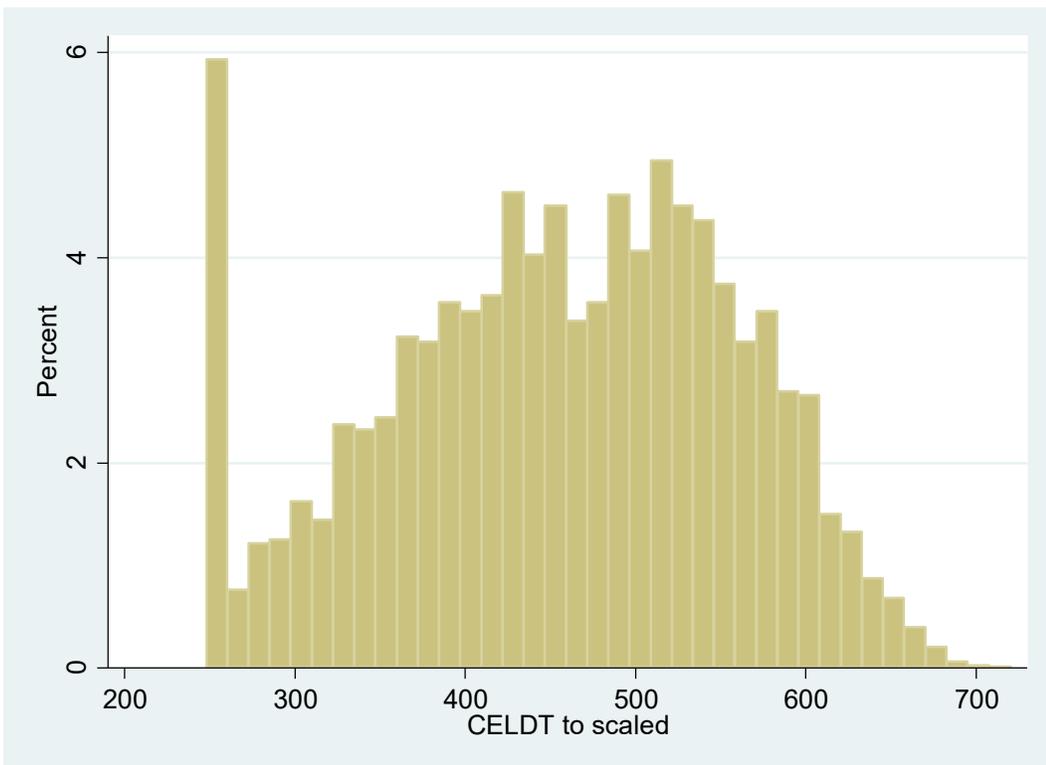
**FIGURE D2**

Histogram of CELDT Total Scaled Scores for LTEL Students in LAUSD



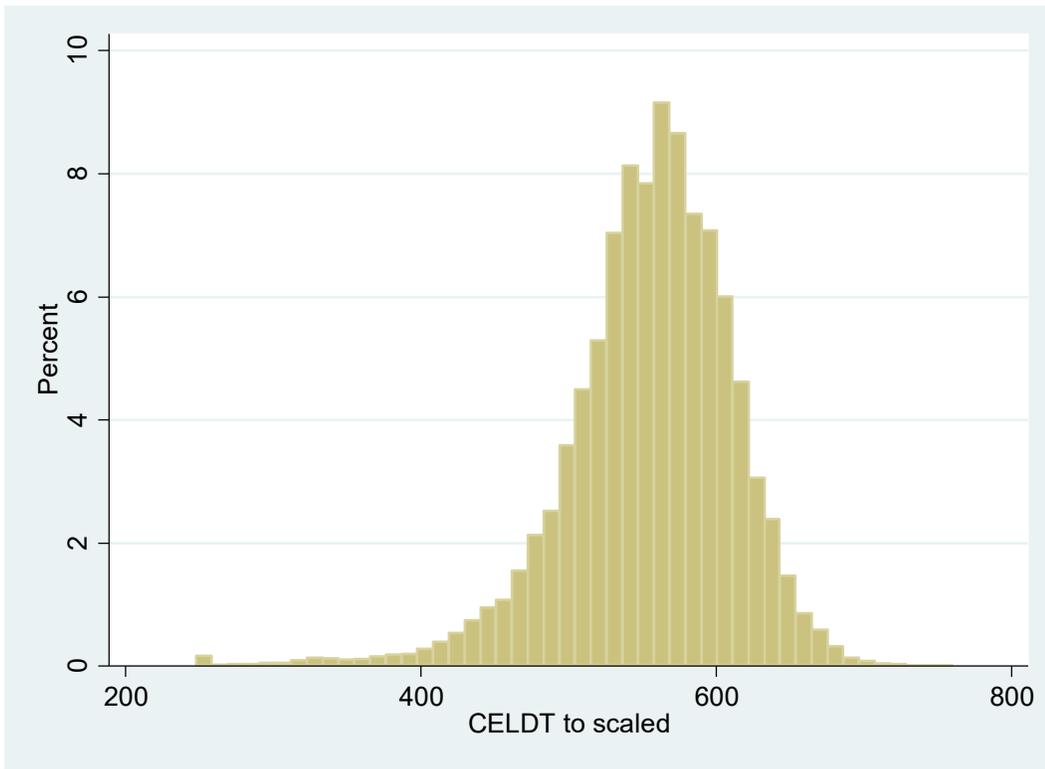
**FIGURE D3**

Histogram of CELDT Total Scaled Scores for LAEL Students in SDUSD



**FIGURE D4**

Histogram of CELDT Total Scaled Scores for LTEL Students in SDUSD



For the other outcomes, we find even less evidence of ceiling or floor effects.



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Public Policy Institute of California  
500 Washington Street, Suite 600  
San Francisco, CA 94111  
T: 415.291.4400  
F: 415.291.4401  
[PPIC.ORG](http://PPIC.ORG)

PPIC Sacramento Center  
Senator Office Building  
1121 L Street, Suite 801  
Sacramento, CA 95814  
T: 916.440.1120  
F: 916.440.1121