



# California English Language Development Test



**A Comparison Study of  
Kindergarten and Grade 1  
English-Fluent Students  
and English Learners on the  
2010–11 Edition of the CELDT  
October 25, 2011**



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## **Executive Summary**

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This report presents results of a comparison of K–1 English-fluent students (EO) and students identified as English learners (EL) performance on the California English Language Development Test (CELDT). A total of 1,386 EO kindergarten students and 495 grade one students from 100 schools were administered the 2010–11 Edition of the CELDT in the fall of 2010. Their performance on the CELDT was compared to that of EL students in the same schools who took the test at the same time. Trained CELDT examiners, who regularly administer the CELDT, conducted test administration.

Preliminary analyses ensured that the CELDT, which was developed to identify EL students and assess their progress in learning English, was also valid with an EO population. The general conclusion to be drawn from these dimensionality and item invariance tests is that on the whole, the K–1 CELDT assessment operates comparably for the two samples (i.e., that it is of similar dimensionality, difficulty, and discrimination for both).

The data show that the test differentiates EO and EL students in practically significant ways. The listening and speaking domains differentiate the two groups more sharply than the reading and writing domains. The differences are roughly twice as large for kindergarten students as for grade 1 students. The largest differences occur in speaking, where kindergarten EO students score 134 scale score points higher than kindergarten EL students. The smallest differences occur in writing, where grade 1 EO students score 17 points higher than grade one EL students.

The results from the present study provide information that can be used to review carefully the performance level cut scores and the decision rules and to consider alternatives that may make the CELDT even more useful in achieving its purpose.

# **1. Background and Purpose of the Study**

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The California English Language Development Test (CELDT) was developed in response to legislation requiring school districts to assess annually the English language proficiency of all students with a primary language other than English upon initial enrollment. All students in kindergarten through grade twelve (K–12) whose primary language is not English, based on a home language survey (*Education Code* Section 52164.1[a]), must be tested for initial identification. Students who are identified as English learners (ELs) must be tested annually during the Annual Assessment (AA) window (July 1–October 31) until they are reclassified as fluent English proficient (Reclassified Fluent English Proficient—RFEP) based on *Education Code* 313[d]. The CELDT assesses English language proficiency with respect to four domains: listening, speaking, reading, and writing. Students in kindergarten and grade one (K–1) were assessed in the reading and writing domains for the first time with the 2009–10 Edition of the CELDT, beginning in July 2009.

The California Department of Education (CDE) commissioned the CELDT contractor, Educational Data Systems, to conduct a special study of K–1 students to find how differently English-fluent students perform on the CELDT than do students identified as having a language other than English as their primary language. MetriTech, Inc., a subcontractor to Educational Data Systems, designed the study, analyzed the data, and prepared this technical report.

## 2. Sampling and Recruitment

### 2.1 School Sample

The sampling plan for this study included a sample of approximately 2,500 K-1 students identified as EO by the home language survey. The sample was drawn from 100 public schools across the state and from a variety of school sizes as shown in table 2.1. These are schools where the CELDT is already administered.

**Table 2.1: Sampling Plan**

Grade	District Size	Number of Schools		
		North	South	Total
Kindergarten	Large	16	23	39
	Medium/Small	13	28	41
Grade 1	Large	4	6	10
	Medium/Small	3	7	10
<b>Total</b>		36	64	100

Approximately half of the schools came from districts that tested the largest numbers of students (i.e., 100 or more) and the other half from medium and small districts. These schools represented 75 districts. The sampling was intentionally weighted toward kindergarten students because these students tend to answer fewer items than grade one students and, thus, produce somewhat less reliable test scores. The overrepresentation of kindergarten students helped equalize the standard errors for the two grades. Schools with fewer than 25 EL students were eliminated from the sampling plan. The schools chosen for the study represented a random selection of those meeting these geographic and size requirements.

A recruitment letter was sent to the CELDT District Coordinators (CDCs) providing information about the study and inviting their participation. Copies of the letter were sent to the District Superintendents for their information. Shortly after the distribution of the letters, the Sacramento County Office of Education (SCOE), a subcontractor to Educational Data Systems, contacted each CDC by telephone to answer any questions and to encourage the district’s participation. In order to defray the costs of test administration, districts were offered \$10 for each EO student tested. Copies of the recruitment communication materials sent to the districts are included in Appendix A.

Because participation in the study was voluntary and test administration demands on district examiners were already high during this period, many districts and schools declined to participate, or they asked to replace the selected schools with other schools within the district. The final EO sample of students tested consisted of 1,881 students (1,386 kindergarten students and 495 grade one students) from 100 schools representing 54 districts. The composition of the final sample of schools is shown in

table 2.2. The number of schools in table 2.2 is greater than 100 because some of the schools tested students at both grades.

**Table 2.2: Final School Sample**

Grade	District Size	Number of Schools		
		North	South	Total
Kindergarten	Large	11	31	42
	Medium/Small	20	23	43
Grade 1	Large	5	11	16
	Medium/Small	7	9	16
<b>Total</b>		43	74	117

## 2.2 Comparison Group

EL kindergarten and grade one students who were identified to take the CELDT in the sample schools served as the comparison group for the EO sample. EO students were those students not otherwise required to take the CELDT. At approximately the same time as the EO sample students were tested, a total of 10,025 students (4,541 kindergarten students and 5,484 grade one students) from these schools were also administered the 2010–11 Edition of the CELDT.

To ensure that the comparison group consisted of “true” English learners, students who met the CELDT criterion for English language proficiency (i.e., overall scale score of Early Advanced or Advanced, plus a score of Intermediate or above in the domains of listening and speaking) were excluded from the analyses. Within the comparison group of students tested, there were 1,690 students (191 kindergarten students and 1,499 grade 1 students) who, after receiving the results of the CELDT, met the CELDT criterion. Descriptive statistics for the eliminated group are shown in table 2.3. The remaining 8,335 students are subsequently referred to in this report as the EL sample.

**Table 2.3: Descriptive Statistics for EL Students Who Met the CELDT Criterion**

Grade	Sample	Listening	Speaking	Reading	Writing	Compre- hension	Overall
K	N	191	191	191	191	191	191
	Mean	471.52	497.15	343.89	372.93	407.50	471.27
	SD	29.539	39.239	56.161	31.393	33.189	22.824
1	N	1,499	1,499	1,499	1,499	1,499	1,499
	Mean	479.74	503.28	436.58	422.12	457.97	484.84
	SD	33.261	40.964	75.568	31.956	43.685	25.987



## 2.3 Representativeness of Study Schools

The question that naturally arises is how representative the 100 schools participating in the study are of all California schools. Scale score comparisons were made across all grades (K–12) between the EO sample of schools and the remaining schools at which the CELDT was administered. Some showed statistically significant differences. However, the extremely large sample size (> 1.5 million) virtually ensures statistical significance, and these statistically significant differences explained very little of the variance in scores.

The differences in mean scale score results are summarized in table 2.4. For each domain, an analysis of variance (ANOVA) was conducted in which three fixed factors—grade (K, 1, 2, ...12), test purpose (AA—Annual Assessment, IA—Initial Assessment), and group (study sample vs. total CELDT test population<sup>1</sup>)—were examined for their impact on the domain scores. Despite the large sample size, in only two domains, listening and speaking, was the test of group main effect statistically significant. Nevertheless, the estimate of variance explained ( $\eta^2$ ) is less than 0.1%. For reading and writing, the main effect for group does not reach significance. Considering only kindergarten and grade 1, EL students in the sample schools score slightly below the rest of the CELDT population, 0.13 standard deviations below, on average. A complete set of descriptive statistics for the data summarized in table 2.4 is presented in appendix B, table B.2.

An appropriate conclusion to draw from table 2.4 is that the schools participating in the EO study are reasonably representative of the total CELDT population.

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<sup>1</sup> The study group schools were excluded from the total CELDT test population before conducting these comparisons.

**Table 2.4: ANOVA Tests for Significance of Differences in Means**

Source	Sums of Squares	Degrees of Freedom	Mean Squares	F	Probability	$\eta^2$
<b>Listening</b>						
Grade	12240000.00	12	1019777.29	148.61	.00	.00
Purpose	981627.04	2	490813.52	71.53	.00	.00
Group	69391.71	1	69391.71	10.11	.00	.00
Grade * Purpose	8206936.75	24	341955.70	49.83	.00	.00
Grade * Group	160882.50	12	13406.88	1.95	.02	.00
Purpose * Group	73660.41	2	36830.20	5.37	.01	.00
Grade * Purpose * Group	181168.48	12	15097.37	2.20	.01	.00
Error	10480000000.00	1,527,663	6862.06			
Total	38650000000.00	1,527,729				
<b>Speaking</b>						
Grade	11050000.00	12	920587.55	121.77	.00	.00
Purpose	2559248.81	2	1279624.41	169.26	.00	.00
Group	35008.57	1	35008.57	4.63	.03	.00
Grade * Purpose	7622735.58	24	317613.98	42.01	.00	.00
Grade * Group	392657.67	12	32721.47	4.33	.00	.00
Purpose * Group	186657.94	2	93328.97	12.35	.00	.00
Grade * Purpose * Group	284860.13	12	23738.34	3.14	.00	.00
Error	11550000000.00	1,527,663	7559.94			
Total	39070000000.00	1,527,729				
<b>Reading</b>						
Grade	23400000.00	12	1950251.16	361.87	.00	.00
Purpose	190683.39	2	95341.69	17.69	.00	.00
Group	4049.15	1	4049.15	.75	.39	.00
Grade * Purpose	4591741.28	24	191322.55	35.50	.00	.00
Grade * Group	88495.79	12	7374.65	1.37	.17	.00
Purpose * Group	26171.86	2	13085.93	2.43	.09	.00
Grade * Purpose * Group	115556.66	12	9629.72	1.79	.04	.00
Error	8233000000.00	1,527,663	5389.44			

Source	Sums of Squares	Degrees of Freedom	Mean Squares	F	Probability	$\eta^2$
<b>Total</b>	364500000000.00	1,527,729				
<b>Writing</b>						
<b>Grade</b>	13960000.00	12	1163027.51	275.76	.00	.00
<b>Purpose</b>	952947.54	2	476473.77	112.97	.00	.00
<b>Group</b>	1843.92	1	1843.92	.44	.51	.00
<b>Grade * Purpose</b>	4069816.24	24	169575.68	40.21	.00	.00
<b>Grade * Group</b>	68538.87	12	5711.57	1.35	.18	.00
<b>Purpose * Group</b>	86554.16	2	43277.08	10.26	.00	.00
<b>Grade * Purpose * Group</b>	113218.31	12	9434.86	2.24	.01	.00
<b>Error</b>	6443000000.00	1,527,663	4217.62			
<b>Total</b>	367100000000.00	1,527,729				

### 3. Comparability of the Test Items and Test Results

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Before examining possible differences between populations of EL and EO students with respect to test performance, it is necessary to ensure that the tests, which were designed for use with the EL population, measure the same constructs in the EO population. As such, dimensionality studies were conducted and then test differences between EO and EL students using both univariate and multivariate approaches were examined.

#### 3.1 Dimensionality Studies

Item Response Theory (IRT), which is used to scale and equate CELDT scores, assumes that the items within a domain are unidimensional. That is, they measure a single, common factor. Although it is generally agreed that unidimensionality is a matter of degree rather than being absolute, there is no consensus on how to evaluate it. Approaches that evaluate dimensionality can be categorized into answer patterns, reliability, components or factor analysis, latent traits, and fit analyses. Components or factor analysis is one of the most popular methods for evaluation (Hattie, 1985; Abedi, 1997).

Lord (1980) stated that if the ratio of the first to the second eigenvalue is large and the second eigenvalue is close to other eigenvalues, then the test is unidimensional. Divgi (1980) operationalized Lord's idea and created a statistical index: the ratio of the difference of the first and second eigenvalues over the difference of the second and third eigenvalues. The larger the ratio, the greater is the tendency of the data to represent a single dimension. A value of 3.0 is often chosen for the index so that values greater than 3.0 are considered unidimensional. Table 3.1 presents the results of these factor analyses, which are based on individual items, for the EO and EL samples.

**Table 3.1: Divgi Index**

<b>Domain</b>	<b>EO</b>	<b>EL</b>
<b>Listening</b>	9.00	13.04
<b>Speaking</b>	7.36	13.58
<b>Reading</b>	10.54	14.03
<b>Writing</b>	14.16	10.22

As table 3.1 shows, all values for both samples easily exceed a value of 3. With the exception of writing, the value is always larger for the EL sample. Thus, it seems the unidimensionality assumption is reasonably met for both samples.

The relatively greater degree of unidimensionality for the EL sample shown in table 3.1 is additionally reflected in the test reliability coefficients presented in table 3.2.

**Table 3.2: Reliability Coefficients (K-R<sub>20</sub>)**

Domain	Number of Items	Reliability Coefficients	
		EO	EL
Listening	20	.796	.853
Speaking	20	.875	.930
Reading	20	.849	.885
Writing	20	.864	.888

One of the primary assumptions of IRT is that item parameters remain invariant under changes in the sample tested, and the only differences found result from random (i.e., nonsystematic) error impact on the parameter estimates. If systematic differences are found, then something other than random error is operating. Because the scale is arbitrary, calculations based on responses from two different samples may differ in mean level, but the relative difficulties and discrimination of the items should remain constant. Operationally, this requires that when the parameters from the two samples are estimated separately, then plotted together, they should fall along a straight line, with only relatively minor, nonsystematic deviations from the line. Angoff formalized this procedure in the context of classical test theory assumptions as the delta-plot method (Angoff & Ford, 1973).

To establish the differences in average difficulty estimates (*b* parameters) across the EO and EL samples, MultiLog<sup>®</sup> was used to analyze responses from multiple groups. In addition, to obtain the two sets of parameter estimates—one for the EO sample and one for the EL sample—a “test” was created consisting of  $2n$  items, where the EO responses represented one set of  $n$  items, and the EL responses represented the other  $n$  items. Using the 20-item listening test as an example, data from the samples were combined so that items 1–20 represented responses for the EO sample, and items 21–40 represented responses for the EL sample. MultiLog<sup>®</sup> was then used to analyze responses to these 40 items as a single test. This analysis created a set of parameter estimates for the first 20 items based on the EO responses and for the remaining items based on the EL responses, but placed all parameters on a common scale. This design is represented in figure 3.1.

**Figure 3.1: Response Analysis Model for Test of Dimensionality**

Student Response	EO Sample						EL Sample					
	Item 1	Item 2	.	.	.	Item 20	Item 1	Item 2	.	.	.	Item 20
EO Student 1	1	1	1	1	1	0	Data cells empty					
EO Student 2	1	1	0	1	0	0						
.												
EO Student $n_1$	1	1	1	1	0	0						
EL Student 1	Data cells empty						1	1	0	0	0	0
EL Student 2							1	0	1	0	0	0
.												
EL Student $n_2$							1	1	1	0	1	0

The complete set of calibrations is reported in tables in appendix B. The outcomes can be seen more clearly, however, in graphic form in the set of figures that follow, in which  $b$  (difficulty) and  $a$  (discrimination) parameters for the two samples have been plotted. The CELDT uses both dichotomous and polytomous<sup>2</sup> items, which are not easily plotted on the same graph: polytomous items have multiple “step” difficulties that show the locations at which the score changes from zero to one, one to two, etc., whereas dichotomous items have only a single  $b$  parameter. Consequently,  $b$  results for speaking and writing are set out in separate figures for dichotomous and polytomous items.

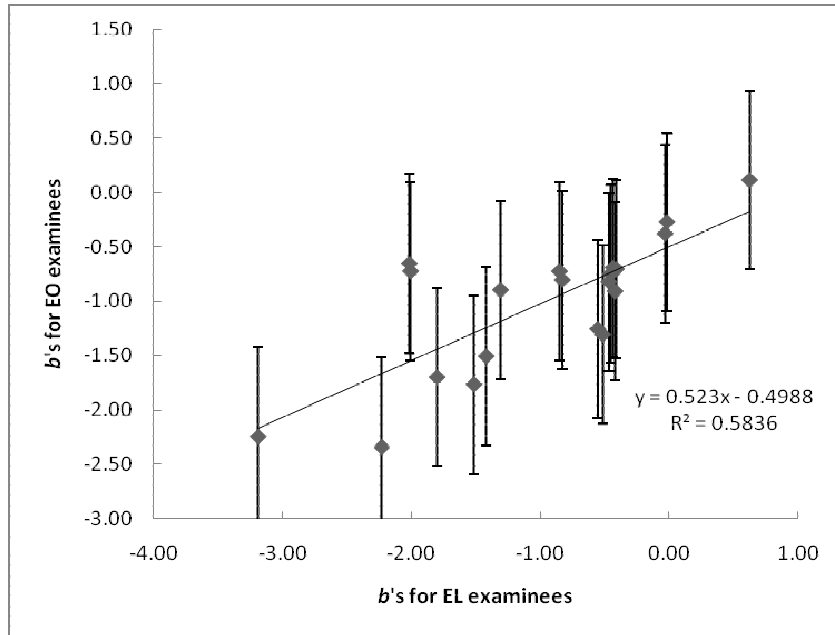
Results for listening, which consists solely of dichotomous items, are presented in figures 3.2 ( $b$  values) and 3.3 ( $a$  values). The bands above and below each point represent  $\pm 1.96$  standard errors (Meyer & Younger, 1976) and serve as a statistical criterion for judging the equivalence of the calibrations. If the band fails to cross the regression line, the item operates differently for the two samples.

Overall, the results are consistent with expectations: the listening items are easier for the EO sample than for the EL sample, and the  $a$  parameters show that the items are more discriminating for EL students than for EO students. Only one item of the 20 in the test falls outside the band with respect to both  $b$  and  $a$  parameters. Interestingly, the results indicate that the item is *relatively* easier for EL students than for EO students when the item is compared to the remaining 19 in the test.

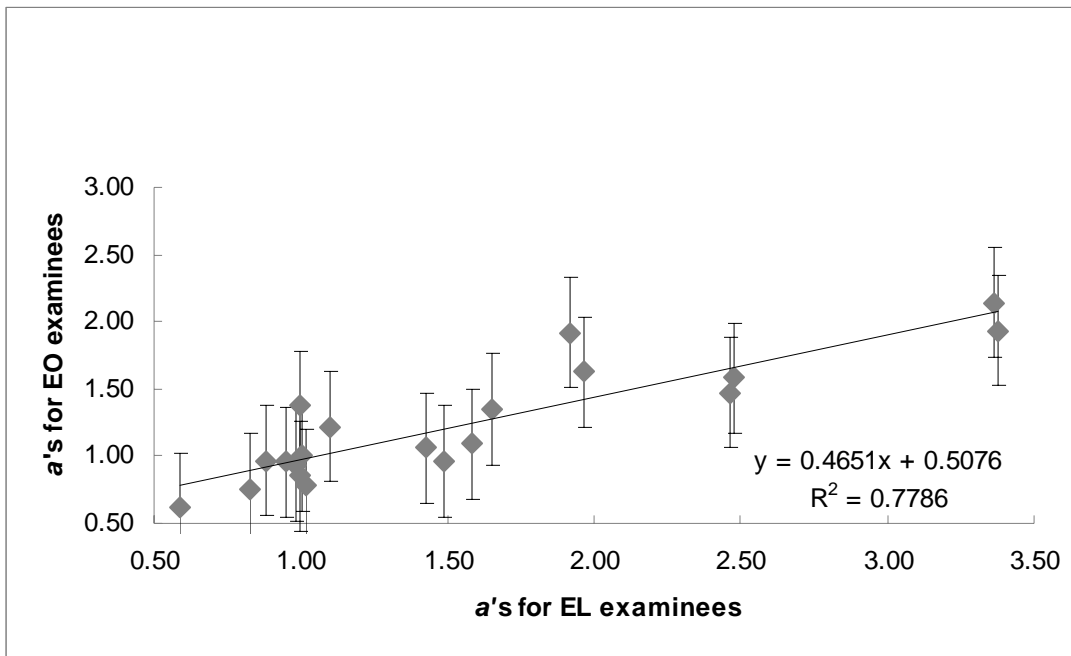
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<sup>2</sup> Polytomous items generally require constructed responses that are scored on a multi-point scale and have more than two possible scores, in contrast with multiple-choice items, which are scored either right (1) or wrong (0) regardless of the number of answer choices that may be provided.

**Figure 3.2: Comparison of *b* (Difficulty) Parameters Between EL and EO Samples, Listening**



**Figure 3.3: Comparison of *a* (Discrimination) Parameters Between EL and EO Samples, Listening**

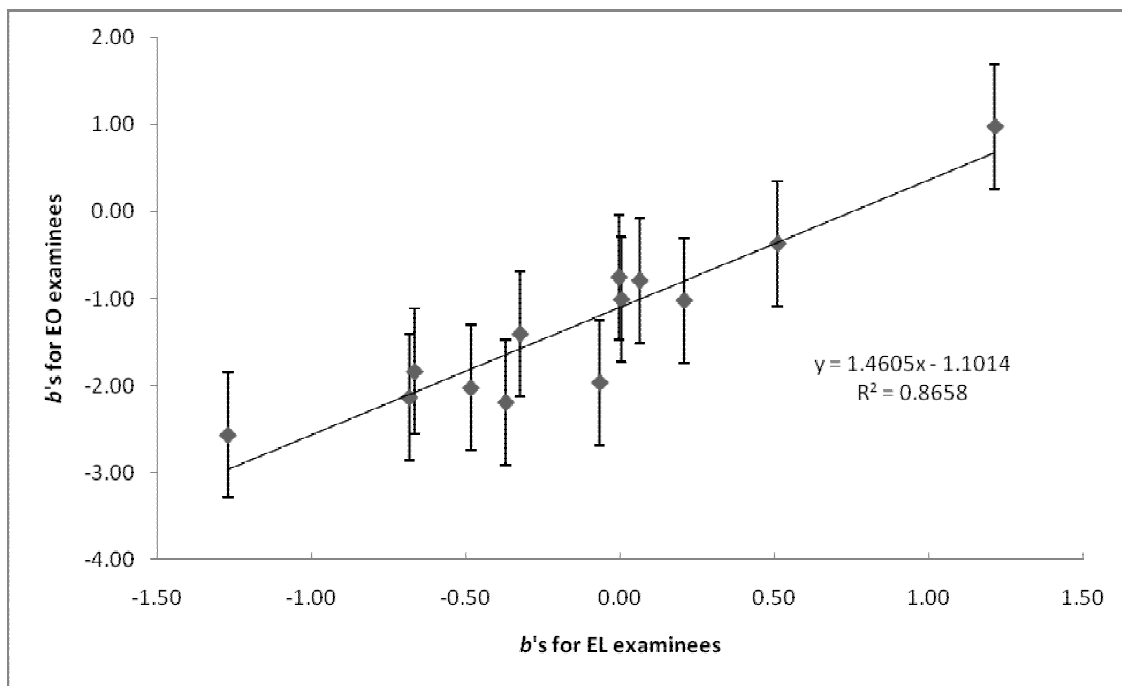


The speaking test consists of both dichotomous-constructed-response (DCR) and polytomous-constructed-response (CR) items. Consequently, it is hard to represent *b* values for both types of items in the same chart: polytomous items have multiple *b*

(step) values<sup>3</sup>, in contrast with dichotomous items, which have only a single location parameter. Results for speaking are shown in three charts. Figure 3.4 presents results for the dichotomous items, figure 3.5 presents results for the polytomous items, and figure 3.6 presents results for the *a* parameters.

One dichotomous item and one step value are significantly different for the two samples, both appearing to be relatively harder for EL students than EO students, which is the expected direction. One *a* value operates differently, again showing that the item is more discriminating for the EL sample.

**Figure 3.4: Comparison of Dichotomous *b* (Difficulty) Parameters Between EL and EO Samples, Speaking**

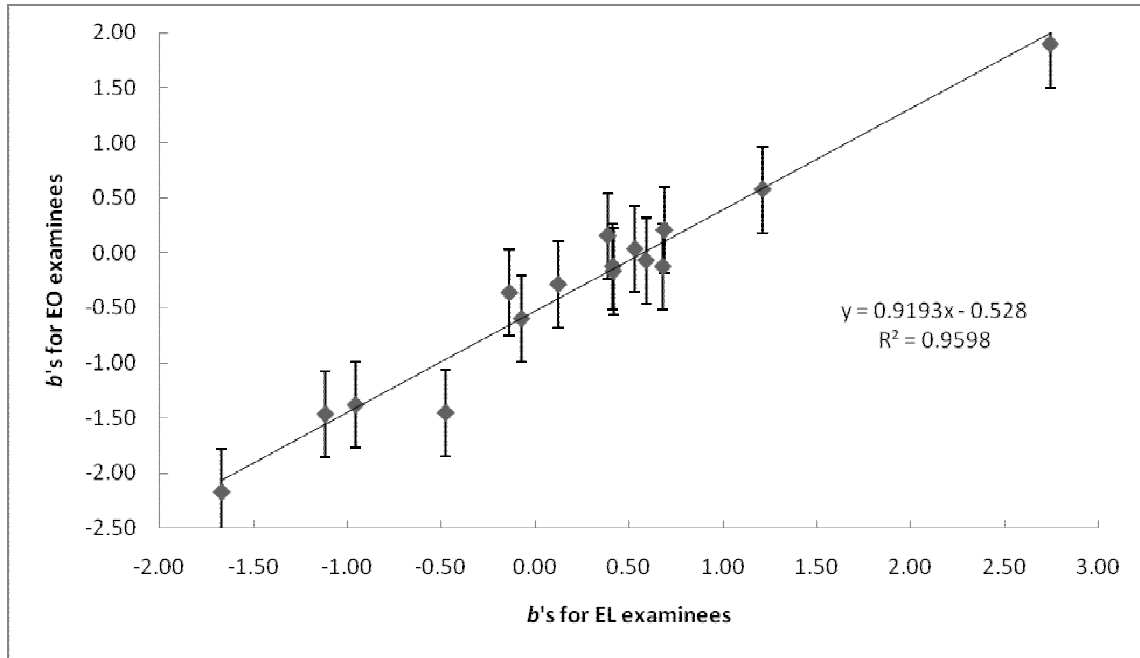


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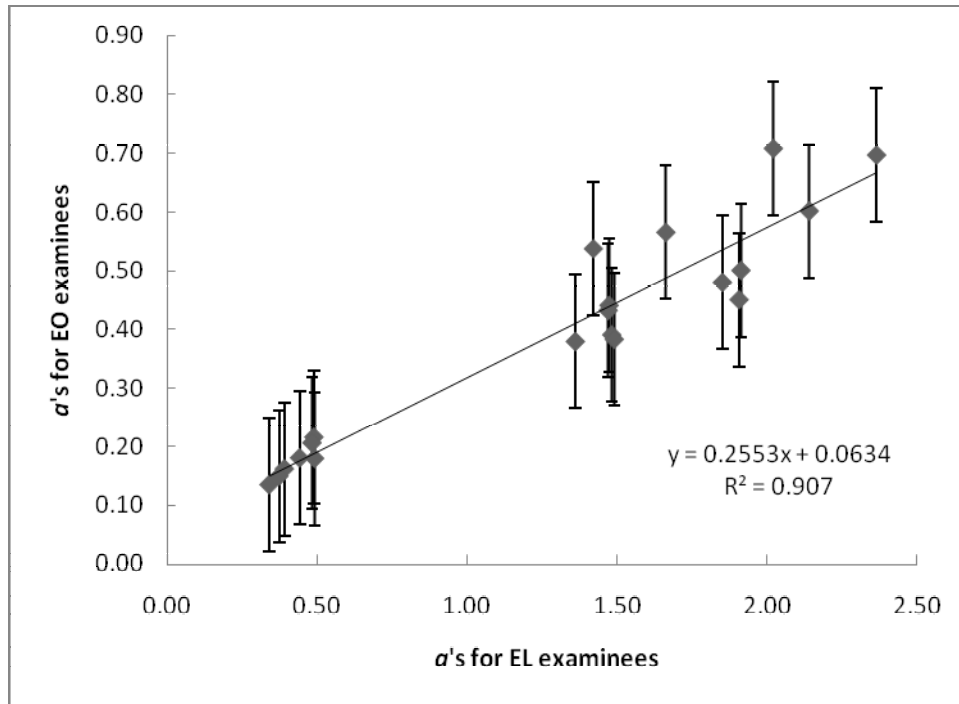
<sup>3</sup>These *b*'s represent locations where the curves intersect for adjacent-valued responses.



**Figure 3.5: Comparison of Polytomous  $b$  (Difficulty) Parameters Between EL and EO Samples, Speaking**



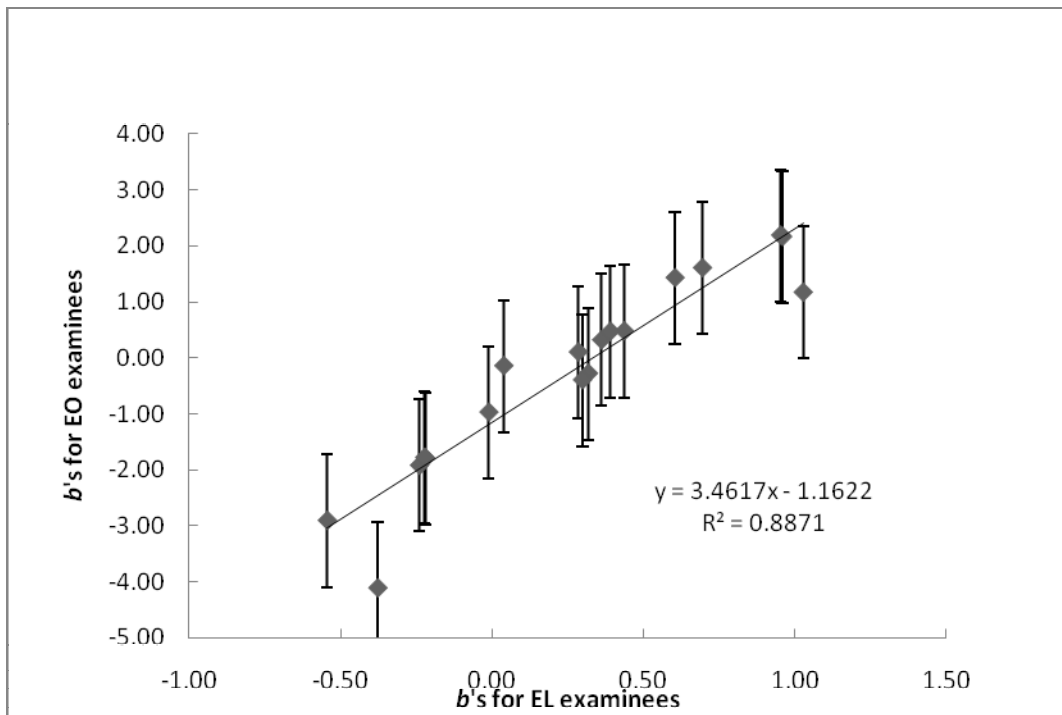
**Figure 3.6: Comparison of  $a$  (Discrimination) Parameters Between EL and EO Samples, Speaking**



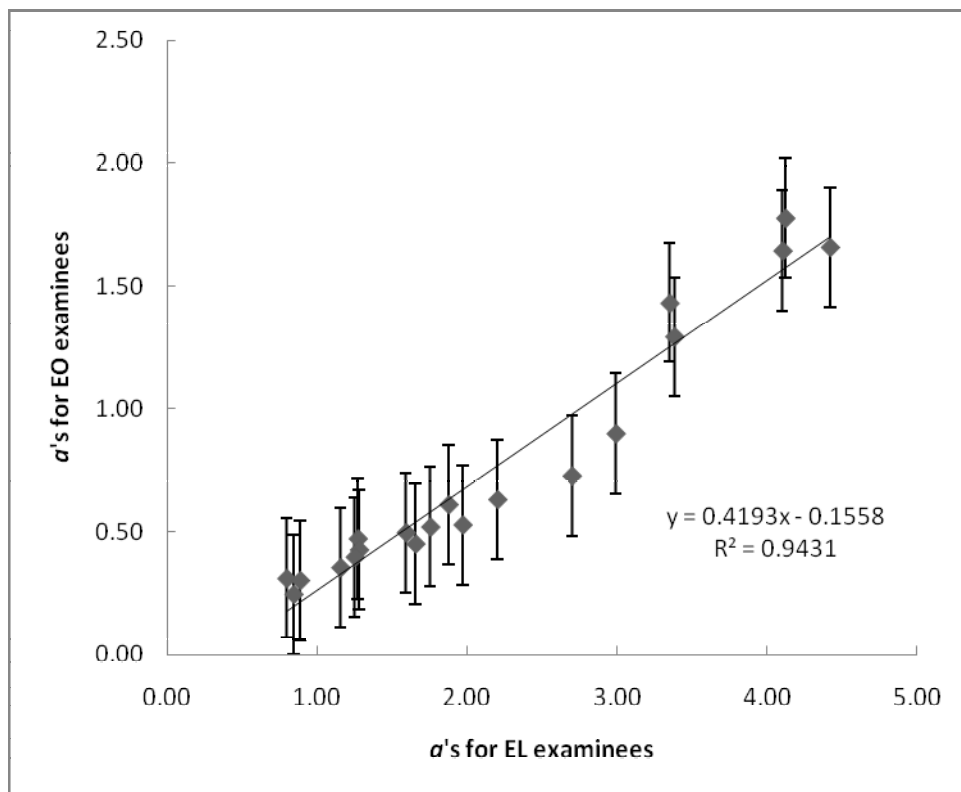
All but one item in the reading test is dichotomous. Difficulty ( $b$ ) values for these items are presented in figure 3.7, and figure 3.8 presents  $a$  values for all the items in the test.

Two items show significantly different  $b$  values; the remaining values fall within the error bands. Both differences are in the expected direction. A third item shows significant differences in the  $a$  calibration, again showing the item to be more discriminating for the EL population.

**Figure 3.7: Comparison of Dichotomous Item  $b$  (Difficulty) Parameters Between EL and EO Samples, Reading**

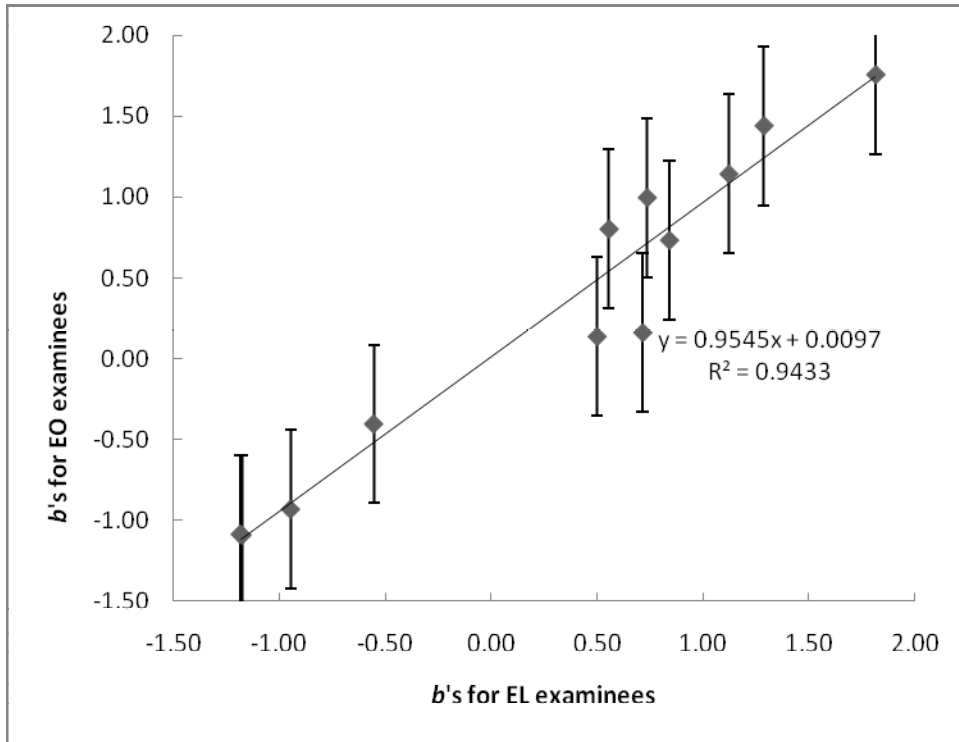


**Figure 3.8: Comparison of  $a$  (Discrimination) Parameters Between EL and EO Samples, Reading**

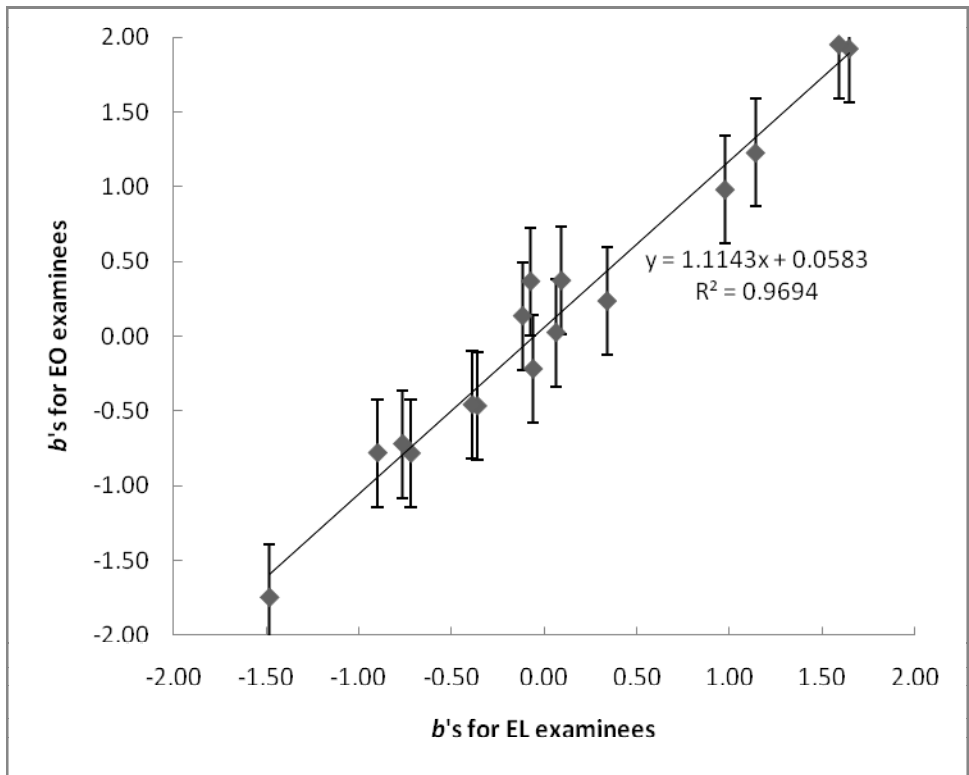


Three figures plot  $b$  values for dichotomous writing items (figure 3.9), polytomous items (figure 3.10), and the  $a$  values for all items (figure 3.11). One dichotomous item and one CR step value show statistically significant differences. None of the  $a$  values do.

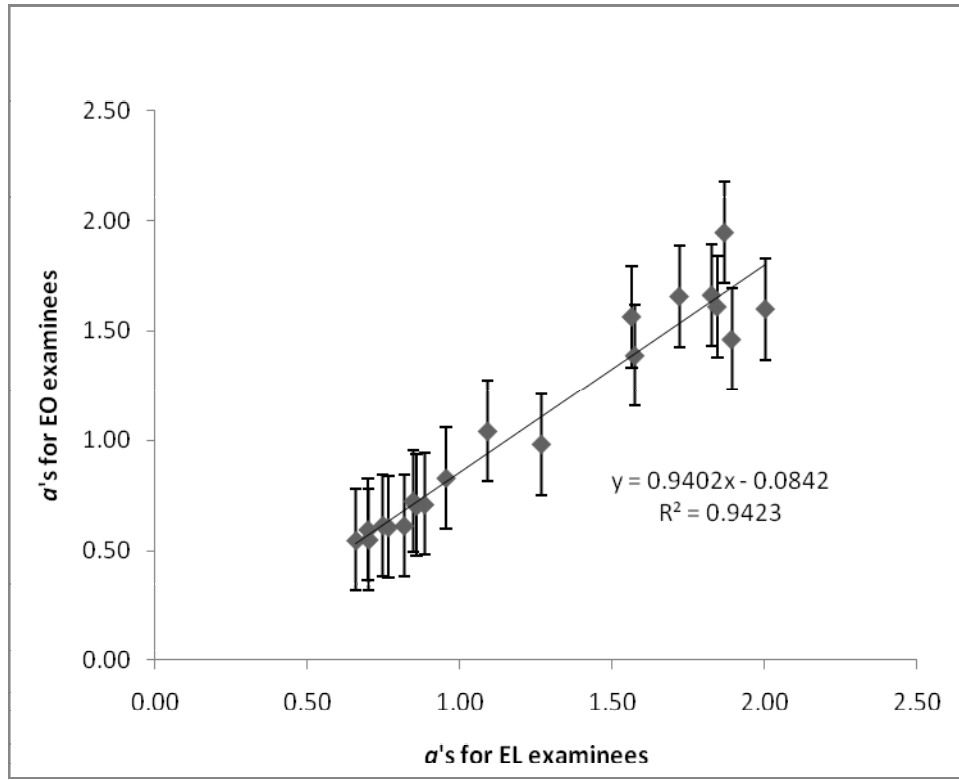
**Figure 3.9: Comparison of Dichotomous *b* (Difficulty) Parameters Between EL and EO Samples, Writing**



**Figure 3.10: Comparison of *b* (Difficulty) Parameters Between EL and EO Samples, Writing**



**Figure 3.11: Comparison of  $a$  (Discrimination) Parameters Between EL and EO Samples, Writing**



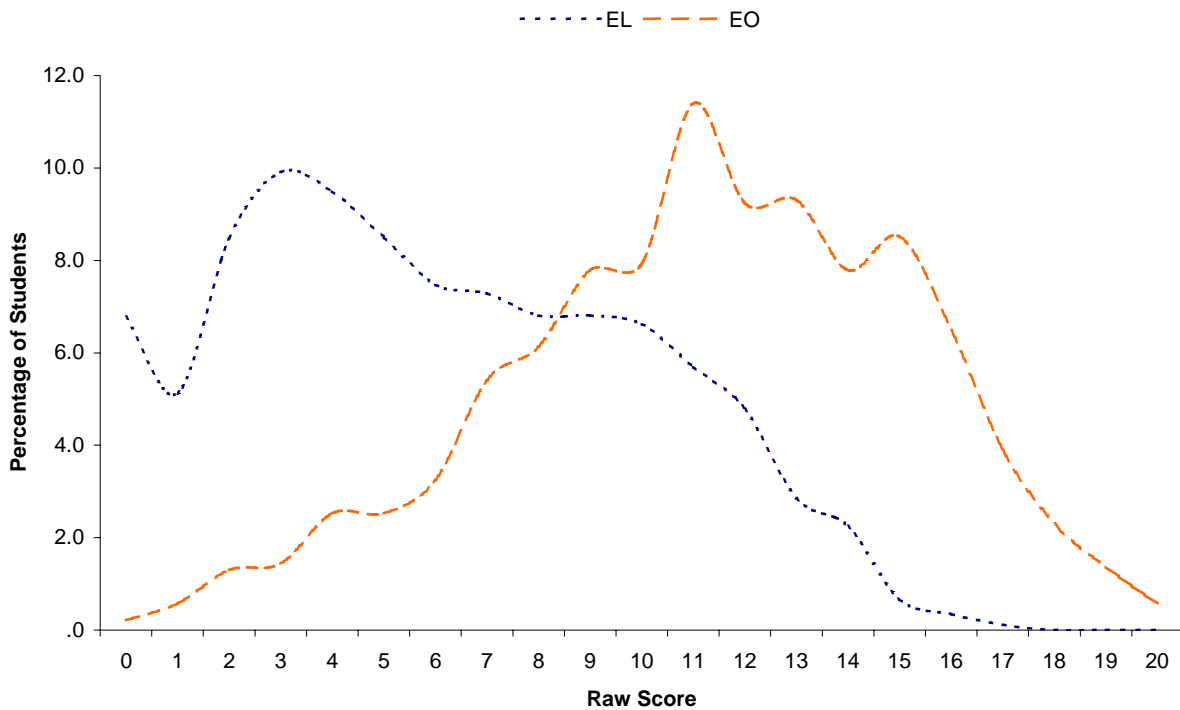
Despite an occasional significant result, the general conclusion to be drawn is that on the whole, the K–1 CELDT assessment operates comparably for the two samples (i.e., that it is of similar difficulty and discrimination for both samples). That is not to say that the two samples perform similarly on the tests, however, and that is the topic of section 3.2.

### 3.2 Sample Differences in Test Scores

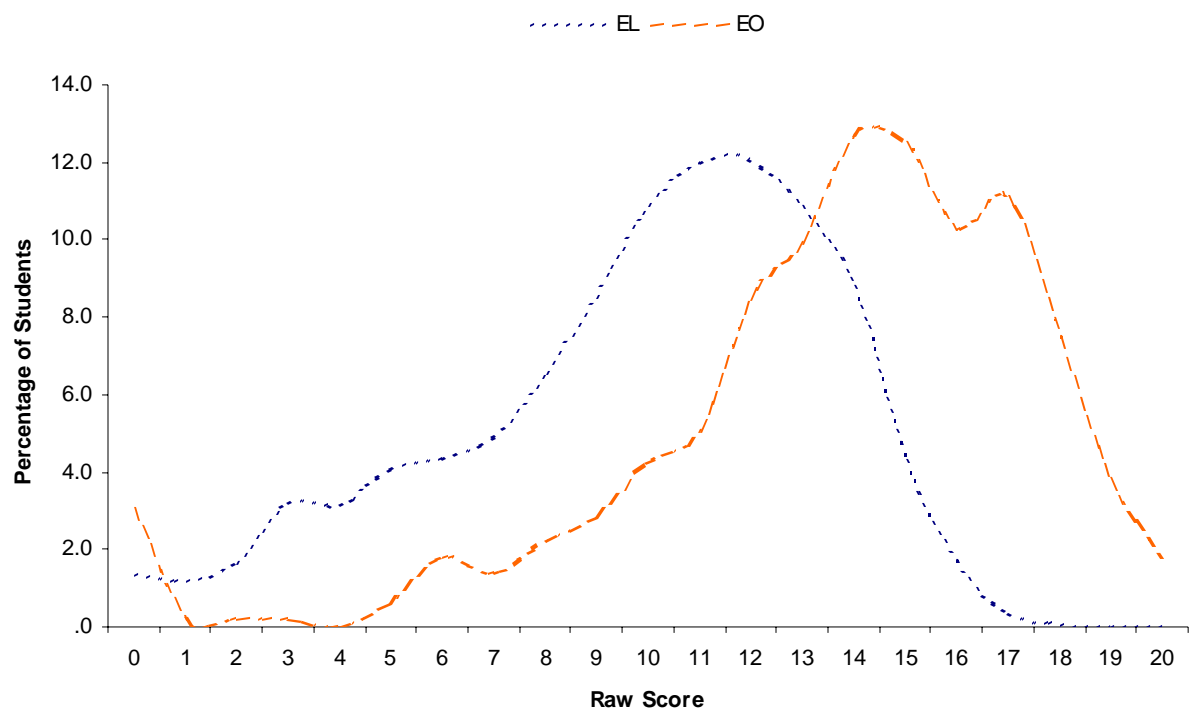
With reasonable assurance that the CELDT operated similarly for the two populations, differences in test performance between the two samples were examined. Because of large differences attributable to grade within each population, these analyses were conducted and reported separately by grade. A complete set of scale score distributions is presented in appendix B, table B.8.

These results are graphed in figures 3.12 through 3.19, which show the percentage of students (EO and EL) obtaining each raw score. For clarity of presentation, separate graphs are shown for kindergarten and grade 1.

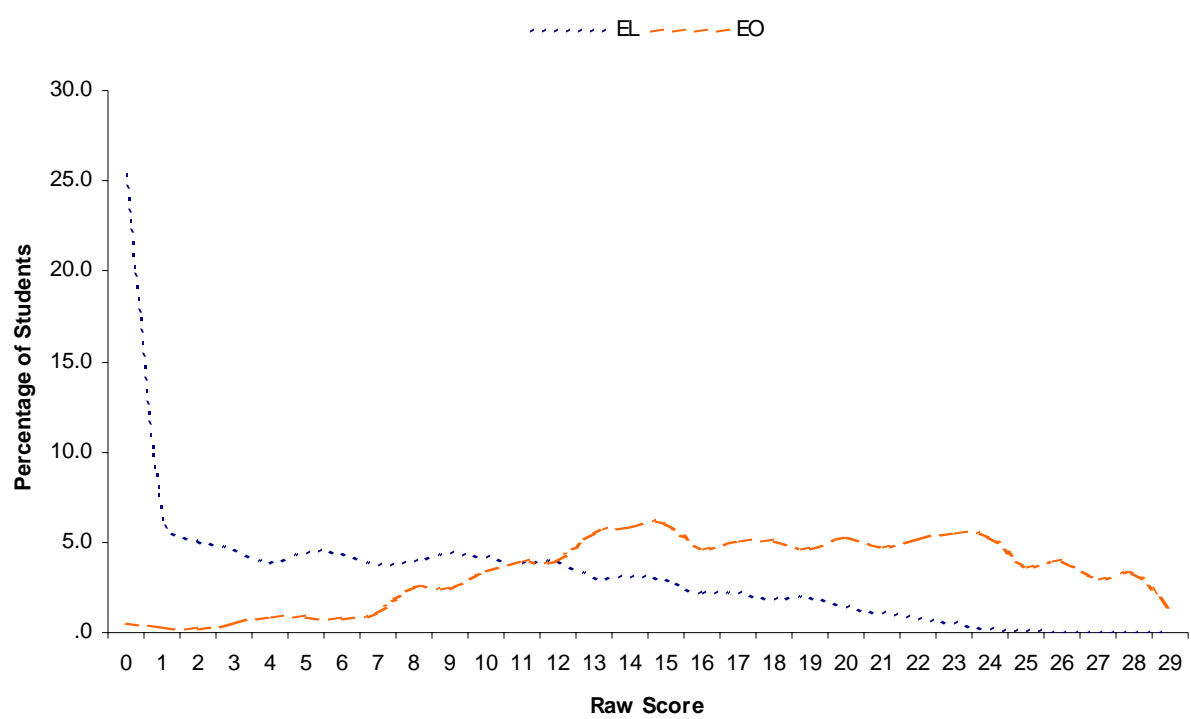
**Figure 3.12: Comparison of EO and EL Listening Raw Score Distributions—Kindergarten**



**Figure 3.13: Comparison of EO and EL Listening Raw Score Distributions—Grade 1**

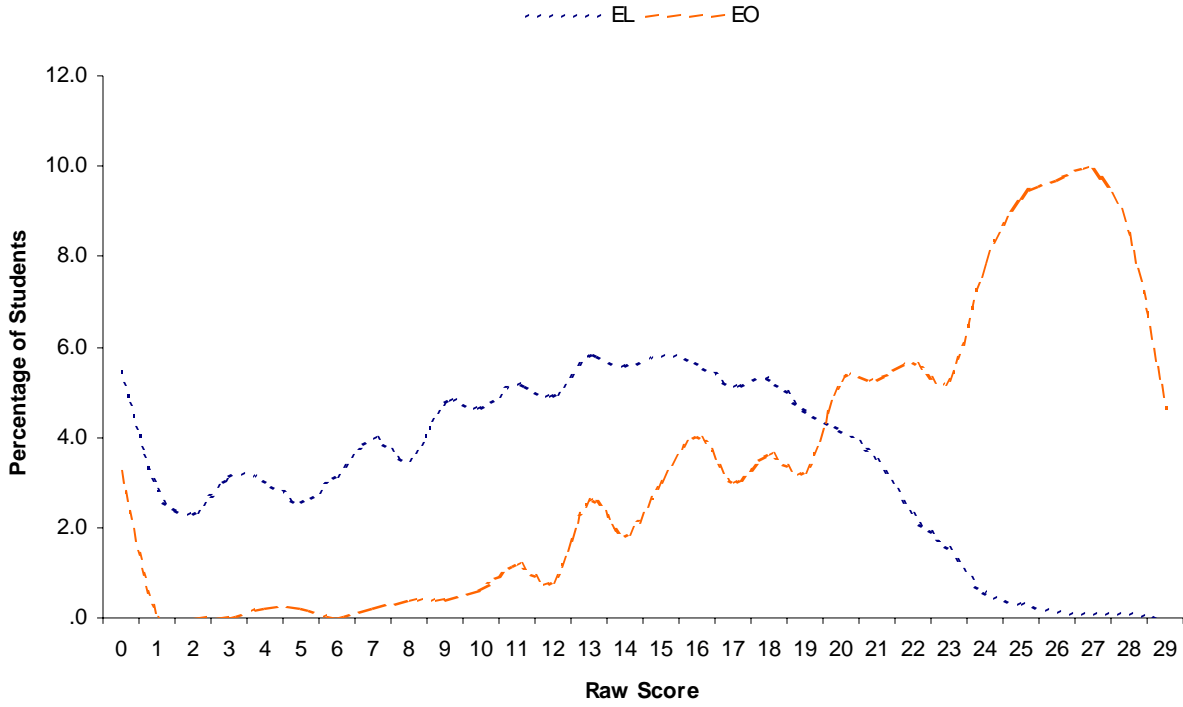


**Figure 3.14: Comparison of EO and EL Speaking Raw Score Distributions—Kindergarten**

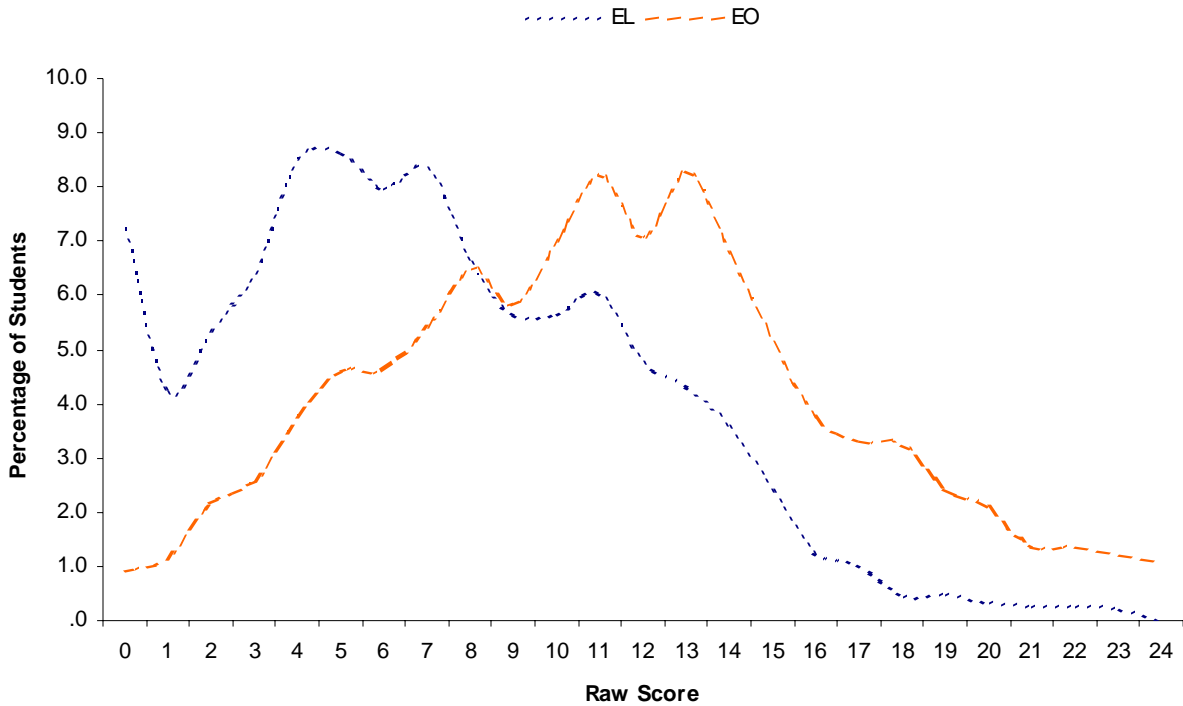




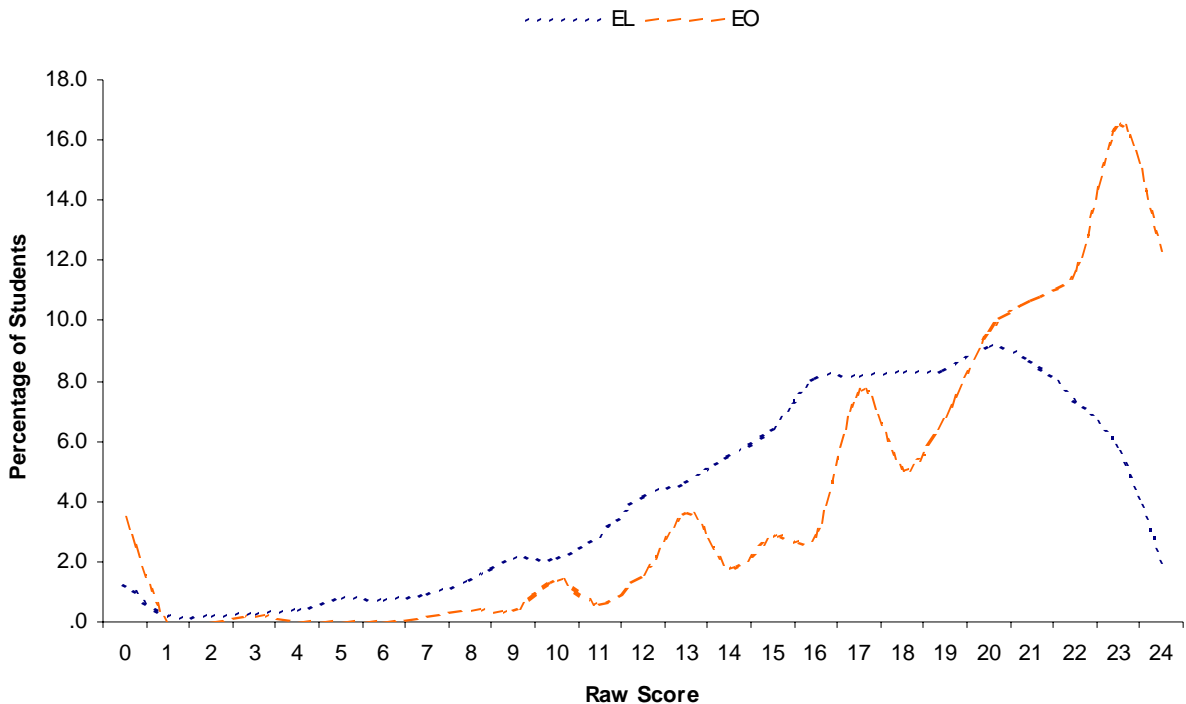
**Figure 3.15: Comparison of EO and EL Speaking Raw Score Distributions—Grade 1**



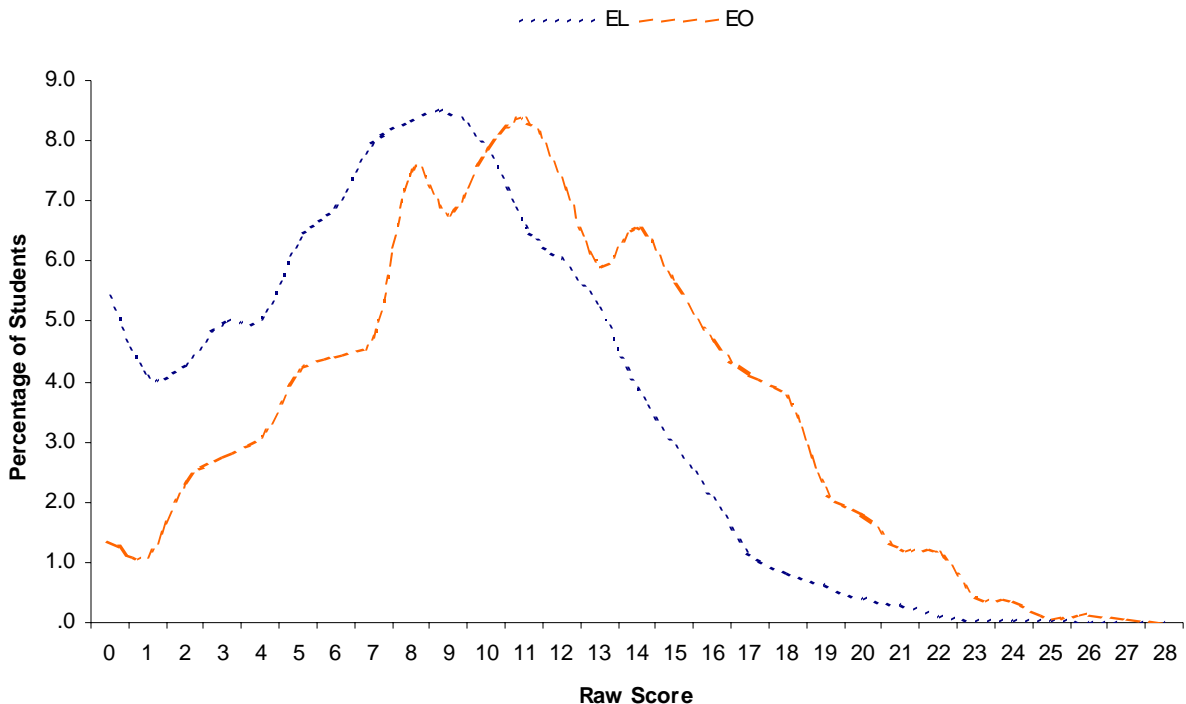
**Figure 3.16: Comparison of EO and EL Reading Raw Score Distributions—Kindergarten**



**Figure 3.17: Comparison of EO and EL Reading Raw Score Distributions—Grade 1**



**Figure 3.18: Comparison of EO and EL Writing Raw Score Distributions—Kindergarten**



**Figure 3.19: Comparison of EO and EL Writing Raw Score Distributions—Grade 1**

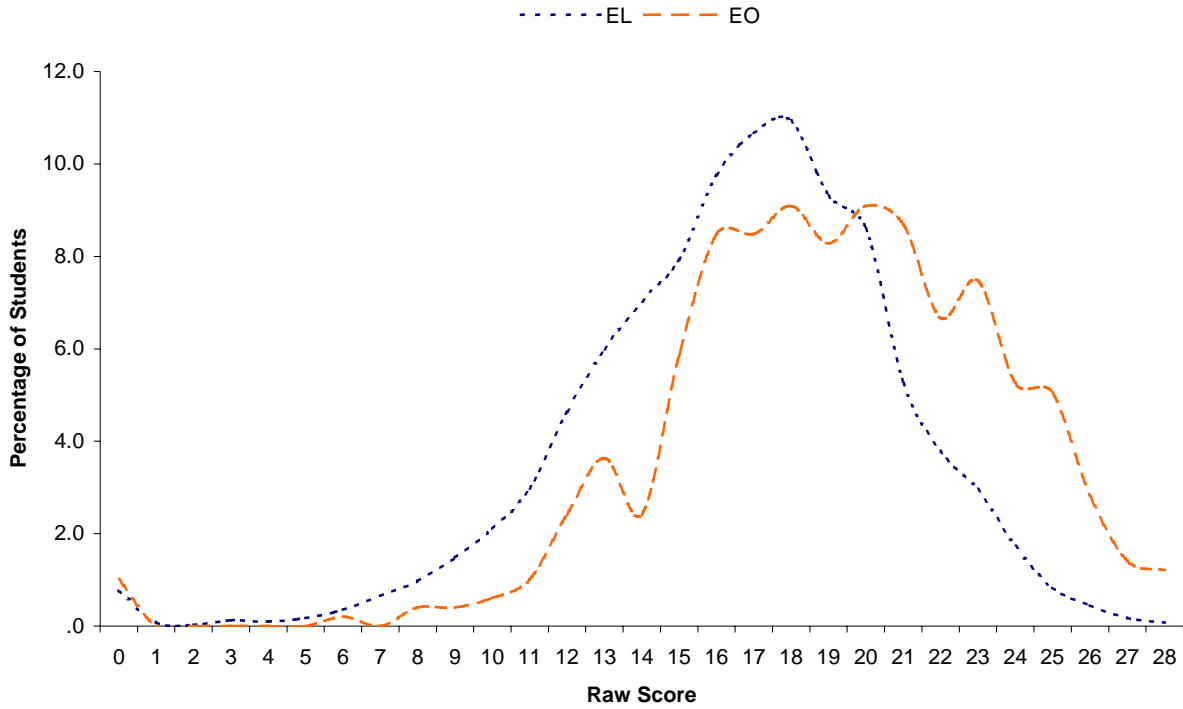


Table 3.3 shows scale score means and standard deviations (SDs) for the two samples, and table 3.4 presents results of significance tests for the mean differences. All the differences are significant beyond conventional levels, and EO students received higher scale scores than the EL students. Also, as might be expected, the differences are roughly twice as large for kindergarten students as for grade one students. The largest differences occur in speaking, where kindergarten EO students score 134 scale score points higher than kindergarten EL students. The smallest differences occur in writing, where grade one EO students score 17 points higher than grade one EL students. With respect to spread of scores, the picture is somewhat more mixed: roughly half the SDs are larger for EO students and the other half smaller. Tables 3.3 to 3.6 report comprehension and overall scale scores in addition to those for the four domains. The overall scale score was calculated as the average of the scale scores of the listening and speaking domains. The comprehension scale score was calculated as the average of the scale scores of the reading and listening domains.

**Table 3.3: Scale Score Comparisons of EO and EL Students**

Grade	Sample	Listening	Speaking	Reading	Writing	Compre- hension	Overall
K	N	4,350	4,350	4,350	4,350	4,350	4,350
	EL Mean	329.73	317.41	285.24	332.31	307.29	321.62
	SD	80.080	113.737	37.411	44.091	51.781	80.815
	N	1,386	1,386	1,386	1,386	1,386	1,386
	EO Mean	416.86	451.78	318.39	356.72	367.42	424.16
	SD	60.244	62.271	48.584	38.693	46.848	51.748
1	N	3,985	3,985	3,985	3,985	3,985	3,985
	EL Mean	394.38	392.63	365.49	393.17	379.73	391.61
	SD	61.177	77.506	51.763	28.900	47.693	57.990
	N	495	495	495	495	495	495
	EO Mean	448.95	488.03	405.26	410.12	426.92	461.97
	SD	63.404	86.758	77.978	37.998	62.125	66.457

**Table 3.4: Analysis of Variance Results for Tests of Mean Differences**

Domain	Source	Sums of Squares	Degrees of Freedom	Mean Squares	F	Prob- ability	$\eta^2$
<b>Kindergarten</b>							
Listening	Between	7979787.882	1	7979787.882	1390.101	.000	.195
	Within	32915660.843	5,734	5740.436			
	Total	40895448.725	5,735				
Speaking	Between	18978640.813	1	18978640.813	1765.756	.000	.235
	Within	61629986.028	5,734	10748.166			
	Total	80608626.841	5,735				
Reading	Between	1154661.783	1	1154661.783	707.663	.000	.110
	Within	9355907.648	5,734	1631.655			
	Total	10510569.430	5,735				
Writing	Between	626374.582	1	626374.582	341.143	.000	.056
	Within	10528243.368	5,734	1836.108			
	Total	11154617.950	5,735				
Compre- hension	Between	3799667.032	1	3799667.032	1482.093	.000	.205
	Within	14700352.232	5,734	2563.717			
	Total	18500019.263	5,735				
Overall	Between	11052298.041	1	11052298.041	1973.481	.000	.256
	Within	32112739.936	5,734	5600.408			
	Total	43165037.977	5,735				

Domain	Source	Sums of Squares	Degrees of Freedom	Mean Squares	F	Probability	$\eta^2$
<b>Grade 1</b>							
<b>Listening</b>	Between	1311332.114	1	1311332.114	347.531	.000	.072
	Within	16896770.180	4,478	3773.285			
	Total	18208102.294	4,479				
<b>Speaking</b>	Between	4007615.910	1	4007615.910	649.020	.000	.127
	Within	27651059.822	4,478	6174.868			
	Total	31658675.732	4,479				
<b>Reading</b>	Between	696421.190	1	696421.190	227.993	.000	.048
	Within	13678395.921	4,478	3054.577			
	Total	14374817.110	4,479				
<b>Writing</b>	Between	126464.307	1	126464.307	140.146	.000	.030
	Within	4040826.460	4,478	902.373			
	Total	4167290.768	4,479				
<b>Compre- hension</b>	Between	980452.366	1	980452.366	400.267	.000	.082
	Within	10968841.840	4,478	2449.496			
	Total	11949294.206	4,479				
<b>Overall</b>	Between	2179824.621	1	2179824.621	626.556	.000	.123
	Within	15579209.855	4,478	3479.055			
	Total	17759034.477	4,479				

Because there are large differences in size between EO and EL samples, the question arises: what impact might this discrepancy have on the resulting F tests and variance explained estimates? This question arises in the context of the assumption of variance homogeneity across treatment populations, which is made by the fixed effects analysis of variance model. Although some writers have suggested that tests of variance homogeneity should precede the tests of mean difference, homogeneity tests themselves usually prove to be not very useful. Moreover, Lindman (1974) has shown that the F statistic used to test for mean differences is itself very robust even when the assumption is violated. A possible more important issue is how useful the  $\eta^2$  statistics are when the domain scores are correlated. This question is answered below with a multivariate analysis of the language domain, which is reported in tables 3.8 and 3.9.

The CELDT Annual Assessment (AA) window (July 1–October 31) includes two types of EL records: those for students who have previously been tested with the CELDT and have received language services and are assessed annually (AA), and those for students who are being initially assessed (IA). Students in the latter group are unlikely to have received significant language instruction prior to testing. Most kindergarten students, of course, are in the IA group, and more grade one students are in the AA group.

Table 3.5 presents results comparable to those in table 3.3, but for EL AA students only. EO students score higher on all scales except kindergarten writing, where EL students actually score slightly higher, on average, than EO students, although the difference is not statistically significant, as table 3.6 shows.

The number of kindergarten AA records is relatively few—98 records—compared to the total kindergarten sample population. But kindergarten AA students may be somewhat unique in that they have presumably already had a year’s language instruction. They may be students who have been retained for a year, for example, in which case the comparison needs to be carefully considered as to its implications.

**Table 3.5: Scale Score Comparisons of EO and EL Samples, AA Students Only**

Grade	Sample	Listening	Speaking	Reading	Writing	Compre- hension	Overall	
K	N	98	98	98	98	98	98	
	EL	Mean	354.57	330.98	297.58	359.73	325.89	340.89
		SD	71.230	108.998	30.587	26.072	43.074	73.240
	EO	N	1,386	1,386	1,386	1,386	1,386	1,386
		Mean	416.86	451.78	318.39	356.72	367.42	424.16
		SD	60.244	62.271	48.584	38.693	46.848	51.748
1	N	3,837	3,837	3,837	3,837	3,837	3,837	
	EL	Mean	396.11	395.31	366.59	394.12	381.14	393.70
		SD	58.792	73.567	49.946	26.719	45.308	54.623
	EO	N	495	495	495	495	495	495
		Mean	448.95	488.03	405.26	410.12	426.92	461.97
		SD	63.404	86.758	77.978	37.998	62.125	66.457

**Table 3.6: Analysis of Variance Results for Tests of Mean Differences, AA Students Only**

Domain	Source	Sum of Squares	Degrees of Freedom	Mean Squares	F	Prob- ability	$\eta^2$
<b>Kindergarten</b>							
Listening	Between	355109.661	1	355109.661	95.361	.000	.047
	Within	5518725.565	1,482	3723.836			
	Total	5873835.226	1,483				
Speaking	Between	1335679.218	1	1335679.218	303.464	.000	.170
	Within	6522934.719	1,482	4401.440			
	Total	7858613.937	1,483				
Reading	Between	39626.438	1	39626.438	17.479	.000	.012
	Within	3359853.236	1,482	2267.107			
	Total	3399479.674	1,483				

Domain	Source	Sum of Squares	Degrees of Freedom	Mean Squares	F	Probability	$\eta^2$
<b>Writing</b>	Between	831.812	1	831.812	.576	.448	.000
	Within	2139462.484	1,482	1443.632			
	Total	2140294.296	1,483				
<b>Compre- hension</b>	Between	157868.044	1	157868.044	72.665	.000	.047
	Within	3219691.052	1,482	2172.531			
	Total	3377559.096	1,483				
<b>Overall</b>	Between	634673.304	1	634673.304	222.403	.000	.130
	Within	4229191.526	1,482	2853.705			
	Total	4863864.830	1,483				
<b>Grade 1</b>							
<b>Listening</b>	Between	1224159.349	1	1224159.349	347.698	.000	.074
	Within	15244850.318	4,330	3520.751			
	Total	16469009.667	4,331				
<b>Speaking</b>	Between	3769283.259	1	3769283.259	666.727	.000	.133
	Within	24479287.064	4,330	5653.415			
	Total	28248570.323	4,331				
<b>Reading</b>	Between	655579.839	1	655579.839	225.772	.000	.050
	Within	12573111.980	4,330	2903.721			
	Total	13228691.819	4,331				
<b>Writing</b>	Between	112199.405	1	112199.405	140.743	.000	.031
	Within	3451843.955	4,330	797.193			
	Total	3564043.360	4,331				
<b>Compre- hension</b>	Between	918627.303	1	918627.303	406.668	.000	.086
	Within	9781090.593	4,330	2258.912			
	Total	10699717.895	4,331				
<b>Overall</b>	Between	2043747.166	1	2043747.166	649.398	.000	.130
	Within	13627121.782	4,330	3147.141			
	Total	15670868.948	4,331				

Table 3.7 shows the percent of EO and EL scores in each of the five CELDT performance levels. Results are shown for all scores. Again, there are no surprises. Scores of EO students are two to six times more likely to fall into the Early Advanced or Advanced performance levels than are those of EL students, and are much less likely to fall into the Beginning performance level.

**Table 3.7: Percentages of Student Scores Falling into Each Performance Level**

Domain	Grade	Sample	Percent of Students				
			Beginning	Early Intermediate	Intermediate	Early Advanced	Advanced
Listening	K	EL	55.8	27.5	15.6	1.1	.0
		EO	11.8	27.3	37.7	18.9	4.3
	1	EL	18.9	30.9	43.7	6.3	.1
		EO	6.1	10.7	36.2	33.9	13.1
Speaking	K	EL	49.6	24.6	21.4	4.2	.2
		EO	3.4	14.2	40.8	26.2	15.4
	1	EL	19.3	25.2	42.9	12.0	.6
		EO	3.6	2.8	22.2	29.3	42.0
Reading	K	EL	48.3	37.0	13.1	1.4	.2
		EO	19.8	40.0	30.5	7.3	2.3
	1	EL	42.3	34.0	16.1	5.7	2.0
		EO	19.4	29.3	22.4	16.6	12.3
Writing	K	EL	45.1	37.3	15.2	2.3	.1
		EO	24.0	37.9	26.9	10.2	1.1
	1	EL	45.2	30.9	20.6	3.0	.3
		EO	26.5	25.9	31.9	13.1	2.6

The differences between the two samples are most noticeable with respect to listening and speaking. In speaking, for example, more than 70% of the EO grade one students fall in the top two levels, but only about one-third of the EL students fall into these levels.

Finally, the relative contribution of the four domains to the explanation of group differences was examined by conducting step-wise discriminant analyses. Whereas univariate tests of mean difference consider how groups differ on one variable at a time, discriminant analysis simultaneously examines how groups differ on a set of variables when the interrelationship among variables in the set is controlled. In this sense, discriminant analysis is similar to multiple regression analysis<sup>4</sup>. Consequently, when a step-wise approach is used, each subsequent step shows the relative contribution of the variable with all previously entered variables partialled out.

As table 3.8 shows, all four domains contributed significantly to between-groups differences at the kindergarten level. Speaking entered the equation first, and was therefore the biggest separator of the two samples, followed by listening, reading, and

<sup>4</sup>In the case of two groups, discriminant analysis and multiple regression analysis in which the variable to be predicted is group membership (1/0) produce equivalent results. Under those conditions, the canonical correlation is equal to R, and the discriminant function coefficients are proportional to the beta weights of the regression solution.



finally, writing. For grade one, only speaking and reading entered. Once the effects of these two were accounted for, neither listening nor writing contributed significantly to group differences. If the level of significance to enter had been lowered, the next entry would have been writing, followed by listening. The canonical coefficients are 0.509 for kindergarten and 0.361 for grade one. The coefficients of the discriminant functions are shown in table 3.9. As the table shows, speaking is twice as important as listening and seven times as important as reading and writing in differentiating kindergarten students. For grade 1 students, speaking is five times as important as the only other significant contributor, reading, to between-group differences.

**Table 3.8: Step-wise Discriminant Analyses Results**

Grade	Step	Entered	Wilks' Lambda Statistic	F	df1 <sup>a</sup>	df2 <sup>b</sup>	Sig. <sup>c</sup>
K	1	Speaking	.765	1765.756	1	5,734	<.000
	2	Listening	.744	987.013	2	5,733	<.000
	3	Reading	.742	664.845	3	5,732	<.000
	4	Writing	.741	501.058	4	5,731	<.000
1	1	Speaking	.873	649.020	1	4,478	<.000
	2	Listening	.871	331.085	2	3,377	<.000
	3	Reading	.870	223.414	3	4,476	<.000

<sup>a</sup> Numerator degrees of freedom

<sup>b</sup> Denominator degrees of freedom

<sup>c</sup> Significance

**Table 3.9: Discriminant Function Coefficients**

Grade	Domain	Coefficients
K	Listening	0.388
	Speaking	0.658
	Reading	0.161
	Writing	-0.089
1	Listening	0.149
	Speaking	0.832
	Reading	0.128

### 3.3 Differences Across Language Groups

The EL comparison sample is predominantly (85%) Spanish speaking, so sample sizes for other language groups are relatively small, and repeating these comparisons by comparing each group directly is impractical. However, four groups other than Spanish (Vietnamese, Cantonese, Filipino, and Hmong) had sample sizes of 100 or more, and the question can be considered indirectly.

Table 3.10 compares the raw score distributions for these five groups of students. For the most part, the CELDT score distributions are reasonably similar. Although the mean differences across the five language groups are statistically significant, language explains less than one percent of the variance in score differences. Consequently, it does not seem that results by language groupings would be substantially different.

**Table 3.10: Raw Score Distribution for Five Major Language Groups**

		Percent of Scores					
		Language Group					
Grade	Domain	Raw Score	Spanish	Vietnamese	Cantonese	Filipino	Hmong
<b>K</b>	<b>Listening</b>	0	6.7	7.9	1.7		7.0
		1	5.5	2.6	4.2		3.5
		2	8.9	7.9	4.2	8.6	5.3
		3	10.3	8.4	8.5	8.6	14.0
		4	9.9	9.4	8.5	8.6	8.8
		5	8.9	5.8	5.1	8.6	7.0
		6	7.7	7.3	11.9	2.9	5.3
		7	7.3	5.8	9.3	11.4	8.8
		8	6.7	5.8	8.5	17.1	7.0
		9	6.7	6.8	8.5	11.4	3.5
		10	6.6	7.9	8.5	2.9	8.8
		11	5.3	7.3	7.6	11.4	8.8
		12	4.3	6.3	4.2		5.3
		13	2.5	4.2	4.2	5.7	
		14	1.9	3.7	4.2	2.9	
		15	.6	1.0	.8		7.0
		16	.3	1.0			
17	.1	1.0					
<b>1</b>	<b>Listening</b>	0	1.2	1.6			
		1	1.2	3.3	1.3		
		2	1.7	4.9			
		3	3.1	4.9	2.6	2.4	2.0
		4	3.3	1.6	1.3	2.4	2.0
		5	3.9	1.6	1.3	2.4	15.7
		6	4.3	1.6	3.9	4.9	3.9
		7	5.1	1.6	3.9	7.3	5.9
		8	6.6	6.6	1.3	12.2	5.9
		9	8.7	9.8	7.9	7.3	7.8
		10	11.1	3.3	7.9	12.2	11.8
		11	12.3	16.4	10.5	4.9	7.8
		12	12.0	8.2	11.8	9.8	9.8
		13	10.7	14.8	14.5	14.6	9.8
		14	8.6	8.2	21.1	9.8	5.9
		15	4.2	8.2	6.6	7.3	3.9
		16	1.6	3.3	3.9		5.9
		17	.3			2.4	2.0
18	.1						

		Percent of Scores					
		Language Group					
Grade	Domain	Raw Score	Spanish	Vietnamese	Cantonese	Filipino	Hmong
<b>1</b>	<b>Listening</b>	19	.0				
<b>K</b>	<b>Speaking</b>	0	26.6	17.3	12.7	8.6	21.1
		1	6.6	7.9	4.2	2.9	3.5
		2	5.3	2.6	5.9	2.9	3.5
		3	4.7	6.8	2.5	5.7	5.3
		4	4.1	6.3	2.5	2.9	5.3
		5	4.5	3.1	4.2	14.3	7.0
		6	4.6	3.7	6.8	2.9	3.5
		7	3.6	5.2	6.8		5.3
		8	4.0	4.7	4.2	5.7	3.5
		9	4.2	4.2	8.5		5.3
		10	4.0	6.8	7.6		3.5
		11	3.7	4.2	1.7	8.6	7.0
		12	3.7	4.7	7.6	5.7	7.0
		13	3.1	3.1	3.4	5.7	1.8
		14	2.8	3.7	4.2	5.7	3.5
		15	2.7	4.7	3.4	2.9	
		16	2.1	2.6	2.5	5.7	1.8
		17	2.1	2.1	2.5	2.9	3.5
		18	1.6	1.0	2.5	2.9	1.8
		19	1.8	2.1	.8	5.7	3.5
		20	1.5	1.0	1.7	2.9	1.8
		21	1.2	.5	.8	2.9	
		22	.7	1.0	1.7		
		23	.6				
		24	.1	.5	.8		1.8
		25	.0			2.9	
		26	.0				
		27	.0				
		28	.0				
		29	.0				
<b>1</b>	<b>Speaking</b>	0	5.4	8.2	2.6	2.4	
		1	2.7	3.3	1.3	2.4	7.8
		2	2.5	1.6		2.4	2.0
		3	3.3				3.9
		4	3.2		1.3		2.0
		5	2.6	1.6			
		6	3.3	4.9			2.0
		7	4.1	3.3	6.6		3.9
		8	3.5	4.9	1.3	7.3	2.0
		9	4.9	4.9	1.3	2.4	5.9
		10	4.7	1.6	5.3	4.9	9.8

		Percent of Scores					
		Language Group					
Grade	Domain	Raw Score	Spanish	Vietnamese	Cantonese	Filipino	Hmong
1	Speaking	11	5.3	4.9	6.6		3.9
		12	4.8	1.6	9.2	9.8	5.9
		13	5.7	8.2	7.9	12.2	9.8
		14	5.5	4.9	6.6	12.2	7.8
		15	5.7	4.9	5.3	19.5	9.8
		16	5.8	6.6	2.6		2.0
		17	5.1	8.2	7.9	2.4	
		18	4.9	4.9	17.1	4.9	7.8
		19	4.5	9.8	5.3	9.8	3.9
		20	4.2	1.6	3.9		2.0
		21	3.4	4.9	3.9	2.4	2.0
		22	2.2	1.6	1.3		3.9
		23	1.5	3.3	2.6	4.9	
		24	.6				
		25	.3				2.0
		26	.1				
27	.1						
28	.1						
<b>Total</b>			100.0	100.0	100.0	100.0	100.0
K	Reading	0	7.2	7.9	1.7		7.0
		1	4.6	2.1	1.7	2.9	1.8
		2	6.0	4.2	.8		
		3	7.0	3.7	2.5		7.0
		4	9.4	3.7	1.7	5.7	10.5
		5	9.5	4.7	1.7		5.3
		6	8.7	3.1	4.2	2.9	7.0
		7	8.9	7.3	4.2	8.6	1.8
		8	7.1	4.7	3.4		3.5
		9	5.5	7.3	11.0	8.6	3.5
		10	5.2	5.8	11.0	8.6	5.3
		11	5.5	7.3	13.6	8.6	10.5
		12	4.3	6.3	9.3	14.3	12.3
		13	4.0	7.9	5.9	8.6	3.5
		14	3.0	8.4	6.8		12.3
		15	1.9	2.6	5.9	8.6	1.8
		16	.9	2.1	4.2	8.6	1.8
		17	.6	3.1	3.4	5.7	5.3
		18	.2	.5	1.7	5.7	
		19	.2	2.1	1.7	2.9	
		20	.1	1.0	2.5		
		21	.1	2.1			
		22	.1	1.0	.8		
23	.0	1.0					

		Percent of Scores						
		Language Group						
Grade	Domain	Raw Score	Spanish	Vietnamese	Cantonese	Filipino	Hmong	
1	Reading	0	1.1	4.9				
		1	.2					
		2	.2					
		3	.3					
		4	.4			2.6	2.4	
		5	.8			1.3		
		6	.8	1.6			2.4	
		7	1.0					
		8	1.4	3.3	1.3			
		9	2.2	1.6			4.9	2.0
		10	2.2	3.3				3.9
		11	2.9			1.3		2.0
		12	4.5	1.6			4.9	3.9
		13	4.8	1.6	1.3	2.4	5.9	
		14	5.6	8.2	5.3	2.4	5.9	
		15	6.7	8.2	1.3	2.4	7.8	
		16	8.3	4.9	9.2	7.3	11.8	
		17	8.3	6.6	7.9	2.4	7.8	
		18	8.7	3.3	6.6		5.9	
		19	8.3	6.6	11.8	7.3	5.9	
		20	9.3	3.3	5.3	7.3	7.8	
		21	8.6	3.3	15.8	17.1	9.8	
		22	7.0	13.1	10.5	24.4	9.8	
		23	5.0	13.1	11.8	12.2	3.9	
24	1.6	11.5	6.6		5.9			
<b>Total</b>			100.0	100.0	100.0	100.0	100.0	
K	Writing	0	5.5	6.8	2.5		5.3	
		1	4.3	2.1	2.5		1.8	
		2	4.7	3.1		2.9	3.5	
		3	5.5	2.1	3.4	2.9	1.8	
		4	5.4	3.7	1.7	2.9	3.5	
		5	6.9	4.2	3.4	2.9	3.5	
		6	7.2	7.9	2.5		5.3	
		7	8.5	7.9	1.7	2.9	5.3	
		8	8.8	5.2	3.4	14.3	10.5	
		9	8.7	7.3	8.5	11.4	7.0	
		10	8.0	7.9	8.5	8.6	5.3	
		11	6.3	8.9	11.9	2.9	10.5	
		12	6.0	6.3	9.3	5.7	1.8	
		13	4.9	2.6	9.3	14.3	19.3	
		14	3.3	6.3	6.8	14.3	7.0	
		15	2.4	5.2	5.1	2.9	5.3	
		16	1.6	4.2	6.8	2.9	3.5	

		Percent of Scores						
		Language Group						
Grade	Domain	Raw Score	Spanish	Vietnamese	Cantonese	Filipino	Hmong	
K	Writing	17	.7	3.1	4.2	5.7		
		18	.6	1.0	3.4	2.9		
		19	.5	.5				
		20	.2	1.0	.8			
		21	.1	2.1	3.4			
		22	.1	.5				
		23	.0			.8		
1	Writing	0	.6	4.9				
		1	.1					
		2				1.3		
		3	.1	1.6	1.3			
		4	.1					
		5	.2					
		6	.3			1.3		
		7	.6	1.6				2.0
		8	1.0					
		9	1.5	3.3	1.3			
		10	2.1	1.6	2.6	2.4	2.0	
		11	3.2	1.6	1.3			
		12	4.9	3.3	1.3	4.9	2.0	
		13	5.9	3.3	1.3	4.9	11.8	
		14	7.4	1.6	1.3	2.4	13.7	
		15	7.8	11.5	3.9	12.2	15.7	
		16	10.1	4.9	7.9	14.6	5.9	
		17	11.2	3.3	10.5	2.4	7.8	
		18	11.1	11.5	7.9	7.3	11.8	
		19	8.9	13.1	13.2	14.6	13.7	
		20	8.8	14.8	11.8	4.9	3.9	
		21	5.1	4.9	5.3	9.8	3.9	
		22	3.6		11.8	7.3		
		23	2.7	6.6	5.3	7.3	2.0	
		24	1.7	1.6	5.3			
		25	.6	3.3		4.9	2.0	
		26	.4		2.6		2.0	
		27	.1		1.3			
28	.1	1.6						

## 4. CELDT Accuracy in Differentiating EO and EL Students

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As documented in previous sections of this report, it is clear that there are statistically significant differences in the CELDT performance of EO and EL students. The question that remains, though, is how practically useful the test scores are in differentiating the two samples. That is, how accurately do CELDT cut scores correctly classify students as either EO or EL?

A general approach is to examine the distributions of the two samples on the four domains and the effect at all possible scale score values.

Table 4.1 presents results for listening. The first column of the table shows the scale score corresponding to a potential cut score. The next three columns are for kindergarten students. The first of these shows the proportion of EL students falling at or above that point on the scale. The next shows the proportion of EO students falling at or above that point on the scale. The third shows the proportion of correct classifications. The next three columns provide the same information for grade one students.

Consider a scale score value of 450 as an example. If this were to be used as a cut score to define proficiency, the proportion of kindergarten EL students at or above is 0.07, and the proportion of EO students at or above is 0.31. This results in a proportion of correct classifications of 0.62  $\left(\frac{1.00 - 0.93 + 0.31}{2.00}\right)$ . Since table 4.1 shows all possible scale score cutoff points, the proportion of scores below 220, which is the lowest obtainable scale score, is zero. The boldfaced values for kindergarten at a scale score of 393 and first grade at 438 are the points on the scale where the proportion correct is at a maximum. The lines in the table define the CELDT performance levels.

**Table 4.1: Decision Outcomes for Listening**

Cut Score	Kindergarten			Grade 1		
	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications
	<u>Beginning</u>			<u>Beginning</u>		
220	1.00	1.00	.50	1.00	1.00	.50
310	.71	.96	.63	.93	.96	.52
338	.62	.94	.66	.90	.96	.54
356	.54	.91	.69	.85	.96	.55
	<u>Early Intermediate</u>			<u>Early Intermediate</u>		
370	.47	.88	.71	.81	.94	.56
382	.40	.83	.72	.76	.93	.58
393	<b>.33</b>	<b>.77</b>	<b>.72</b>	.70	.90	.60
403	.27	.69	.71	.61	.87	.63
	<u>Intermediate</u>			<u>Intermediate</u>		
414	.20	.61	.70	.50	.83	.67
426	.15	.49	.67	.38	.78	.70
438	.10	.40	.65	<b>.26</b>	<b>.70</b>	<b>.72</b>
450	.07	.31	.62	.15	.60	.72
	<u>Early Advanced</u>			<u>Early Advanced</u>		
464	.05	.23	.59	.06	.47	.70
479	.05	.15	.55	.02	.35	.66
496	.04	.08	.52	.01	.24	.62
	<u>Advanced</u>			<u>Advanced</u>		
518	.04	.04	.50	.00	.13	.57
551	.04	.02	.49	.00	.06	.53
570	.04	.01	.48	.00	.02	.51

Tables 4.2 through 4.4 present similar decision outcome results for speaking, reading, and writing.



**Table 4.2: Decision Outcomes for Speaking**

Cut Score	Kindergarten			Grade 1		
	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications
	<u>Beginning</u>			<u>Beginning</u>		
140	1.00	1.00	.50	1.00	1.00	.50
273	.76	.99	.62	.95	.97	.51
305	.70	.99	.65	.92	.97	.53
324	.65	.99	.67	.89	.97	.54
338	.60	.98	.69	.86	.97	.55
350	.57	.97	.70	.83	.97	.57
	<u>Early Intermediate</u>			<u>Early Intermediate</u>		
360	.52	.97	.72	.81	.96	.58
370	.48	.96	.74	.78	.96	.59
378	.45	.95	.75	.74	.96	.61
386	.41	.92	.76	.70	.96	.63
393	.37	.90	.77	.65	.95	.65
400	.33	.86	.77	.61	.95	.67
	<u>Intermediate</u>			<u>Intermediate</u>		
407	<b>.29</b>	<b>.82</b>	<b>.77</b>	.56	.94	.69
414	.25	.78	.77	.51	.93	.71
420	.22	.73	.75	.45	.90	.73
427	.19	.67	.74	.39	.88	.75
433	.16	.61	.72	.33	.85	.76
440	.14	.56	.71	.28	.81	.77
447	.12	.51	.70	.23	.78	.78
454	.10	.46	.68	.17	.75	.79
	<u>Early Advanced</u>			<u>Early Advanced</u>		
462	.08	.42	.67	<b>.13</b>	<b>.71</b>	<b>.79</b>
470	.07	.36	.65	.09	.66	.79
479	.06	.32	.63	.05	.61	.78
489	.05	.26	.61	.03	.55	.76
500	.05	.21	.58	.01	.50	.74
	<u>Advanced</u>			<u>Advanced</u>		
514	.04	.15	.56	.01	.42	.71

Cut Score	Kindergarten			Grade 1		
	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications
531	.04	.12	.54	.00	.33	.66
554	.04	.08	.52	.00	.23	.61
590	.04	.05	.50	.00	.13	.57
630	.04	0.01	.49	.00	.05	.52

Table 4.3: Decision Outcomes for Reading

Cut Score	Kindergarten			Grade 1		
	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications
		<u>Beginning</u>			<u>Beginning</u>	
220	1.00	1.00	.50	1.00	1.00	.50
245	.89	.98	.54	.99	.97	.49
258	.84	.96	.56	.98	.97	.49
267	.78	.93	.58	.98	.96	.49
274	.70	.89	.60	.98	.96	.49
281	.61	.85	.62	.97	.96	.50
		<u>Early Intermediate</u>				
286	.54	.80	.63	.96	.96	.50
292	<b>.46</b>	<b>.75</b>	<b>.65</b>	.95	.96	.51
298	.39	.68	.64	.94	.96	.51
304	.34	.62	.64	.92	.95	.52
311	.29	.55	.63	.90	.94	.52
318	.23	.47	.62	.87	.93	.53
		<u>Intermediate</u>				
326	.18	.40	.61	.83	.92	.55
335	.14	.32	.59	.78	.88	.55
344	.11	.25	.57	.72	.86	.57

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Cut Score	Kindergarten			Grade 1		
	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications
354	.08	.20	.56	.66	.83	.59
				<u>Early Intermediate</u>		
363	.07	.16	.55	.58	.81	.61
372	.06	.13	.53	.50	.73	.62
				<u>Early Advanced</u>		
379	.06	.10	.52	.41	.68	.63
388	.05	.07	.51	<b>.33</b>	<b>.61</b>	<b>.64</b>
				<u>Intermediate</u>		
398	.05	.05	.50	.24	.51	.64
411	.05	.04	.50	.15	.41	.63
				<u>Advanced</u>		
446	.04	.02	.49	.08	.29	.61
				<u>Advanced</u>		
570	.04	.01	.48	.02	.12	.55

**Table 4.4: Decision Outcomes for Writing**

Cut Score	Kindergarten			Grade 1		
	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications
	<u>Beginning</u>			<u>Beginning</u>		
220	1.00	1.00	.50	1.00	1.00	.50
251	.95	.99	.52	.99	.99	.50
275	.91	.98	.53	.99	.99	.50
291	.87	.95	.54	.99	.99	.50
304	.82	.92	.55	.99	.99	.50
315	.77	.89	.56	.99	.99	.50
324	.71	.85	.57	.99	.99	.50
333	.64	.81	.58	.98	.99	.50
	<u>Early Intermediate</u>			<u>Early Intermediate</u>		
341	.57	.76	.60	.98	.99	.51
348	.49	.69	.60	.97	.98	.51
355	<b>.41</b>	<b>.62</b>	<b>.61</b>	.95	.98	.51
361	.33	.54	.60	.93	.97	.52
367	.27	.46	.59	.90	.96	.53
	<u>Intermediate</u>			<u>Intermediate</u>		
373	.21	.38	.59	.86	.94	.54
379	.16	.32	.58	.80	.90	.55
384	.12	.26	.57	.73	.88	.58
390	.10	.20	.55	.65	.82	.59
396	.08	.15	.54	<u>Early Intermediate</u>		
	<u>Early Advanced</u>			<u>Early Intermediate</u>		
401	.06	.11	.52	.55	.74	.59
407	.06	.08	.51	.33	.56	.61
	<u>Advanced</u>			<u>Intermediate</u>		
413	.05	.05	.50	<b>.24</b>	<b>.48</b>	<b>.62</b>
420	.05	.03	.49	.15	.39	.62
426	.05	.02	.49	.10	.30	.60
433	.04	.01	.48	.06	.23	.59

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Cut Score	Kindergarten			Grade 1		
	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications	Proportion of EL Students At or Above Cut Score	Proportion of EO Students At or Above Cut Score	Proportion Correct Classifications
440	.04	.01	.48	.03	.16	.56
449	.04	.00	.48	.02	.11	.55
460	.04	.00	.48	.01	.05	.52
				<u>Advanced</u>		
480	.04	.00	.48	.00	.03	.51
600	.04	.00	.48	.00	.01	.51

For kindergarten, the optimum scale score cut point is located between the Early Intermediate and Intermediate CELDT performance levels for all domains except speaking, where it falls between the Intermediate and Early Advanced performance levels. For grade one, the optimum scale score cut point is located between the Intermediate and Early Advanced CELDT cut score for all domains except speaking, where it falls between the Early Advanced and Advanced performance levels. These results can be seen more easily in the graphs that follow.

Figure 4.1: Decision Outcomes for Listening: Grade K

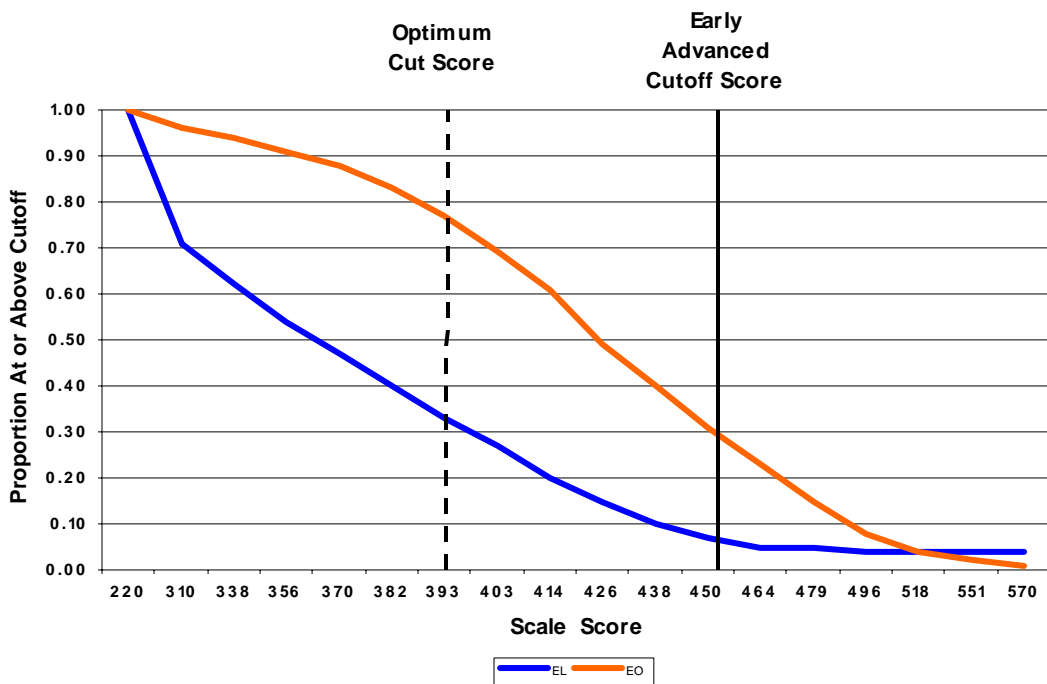
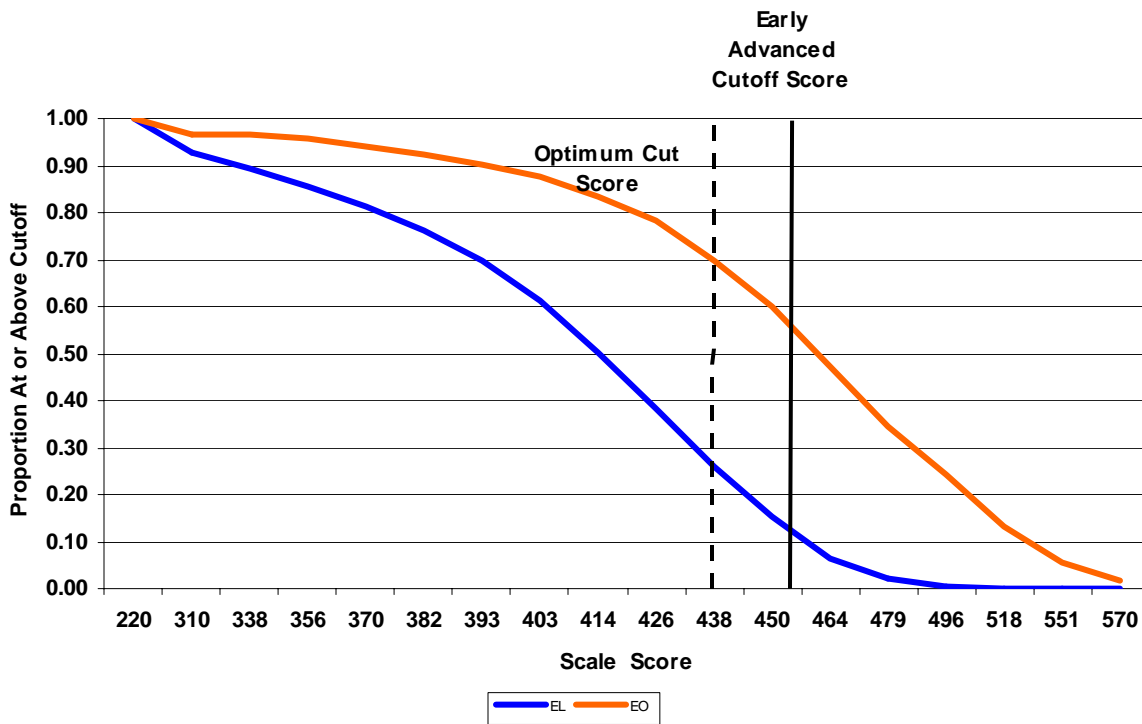
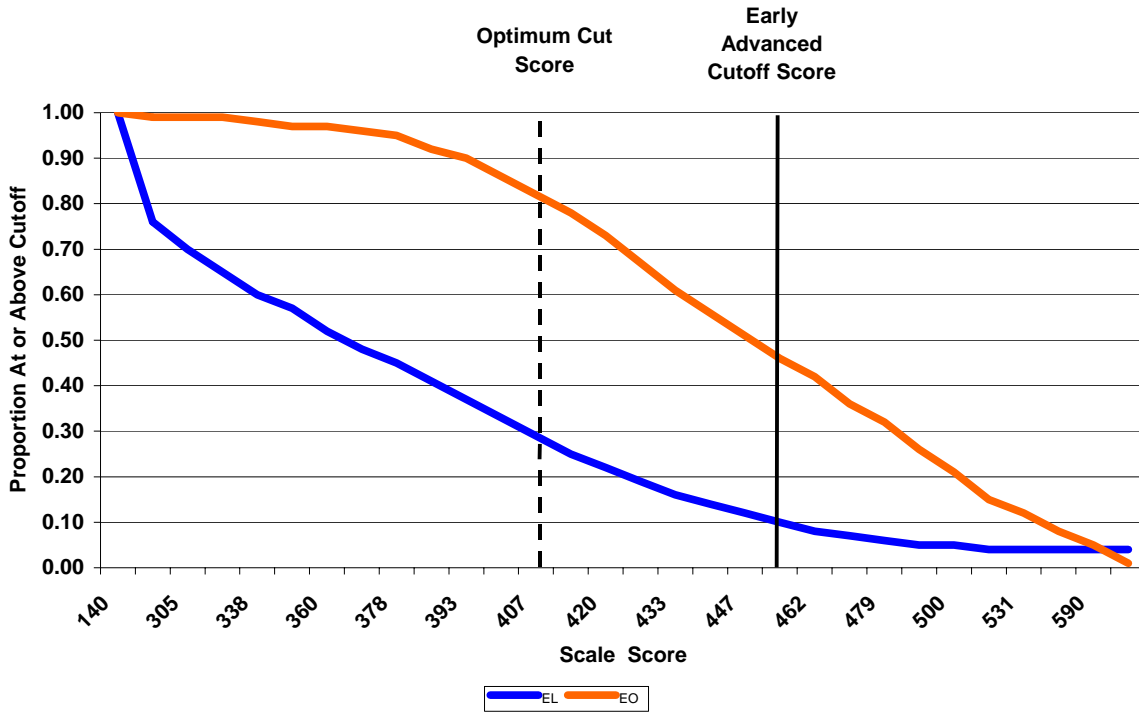


Figure 4.2: Decision Outcomes for Listening: Grade 1



**Figure 4.3: Decision Outcomes for Speaking: Grade K**



**Figure 4.4: Decision Outcomes for Speaking: Grade 1**

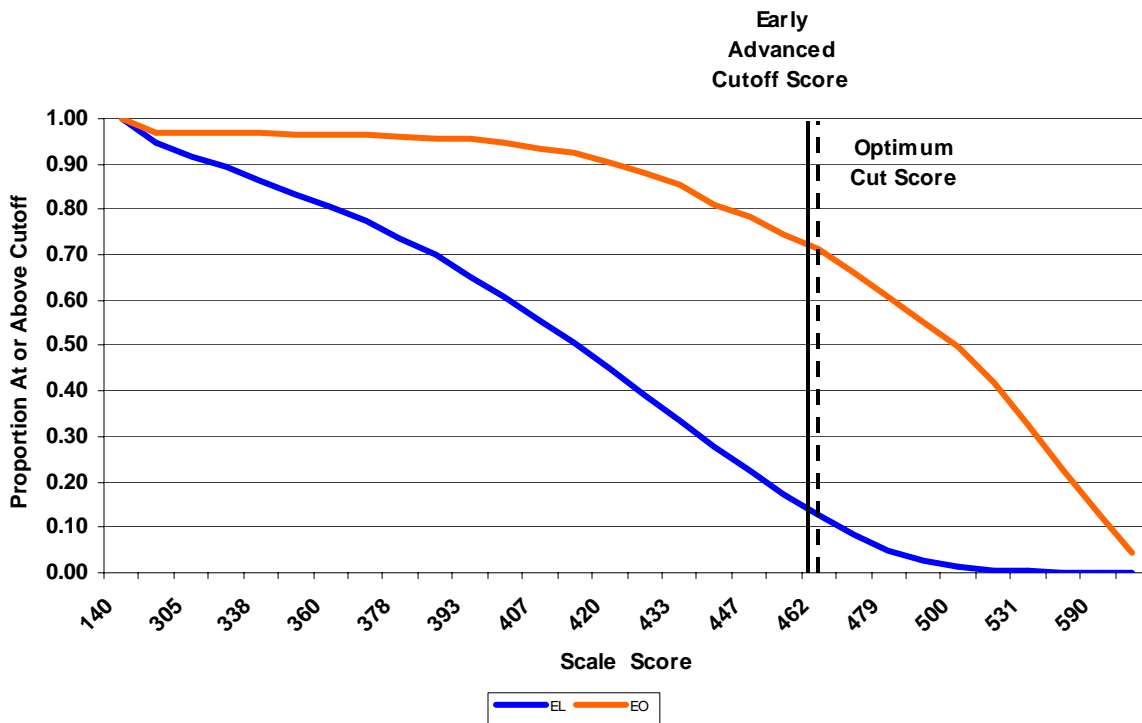


Figure 4.5: Decision Outcomes for Reading: Grade K

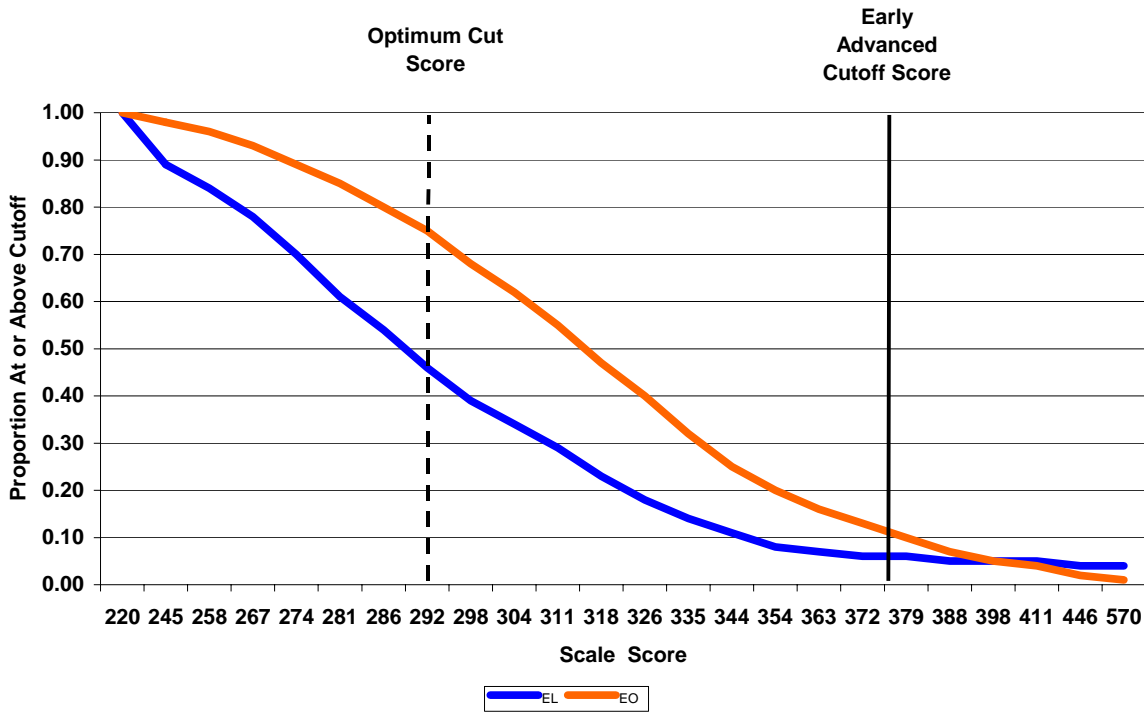


Figure 4.6: Decision Outcomes for Reading: Grade 1

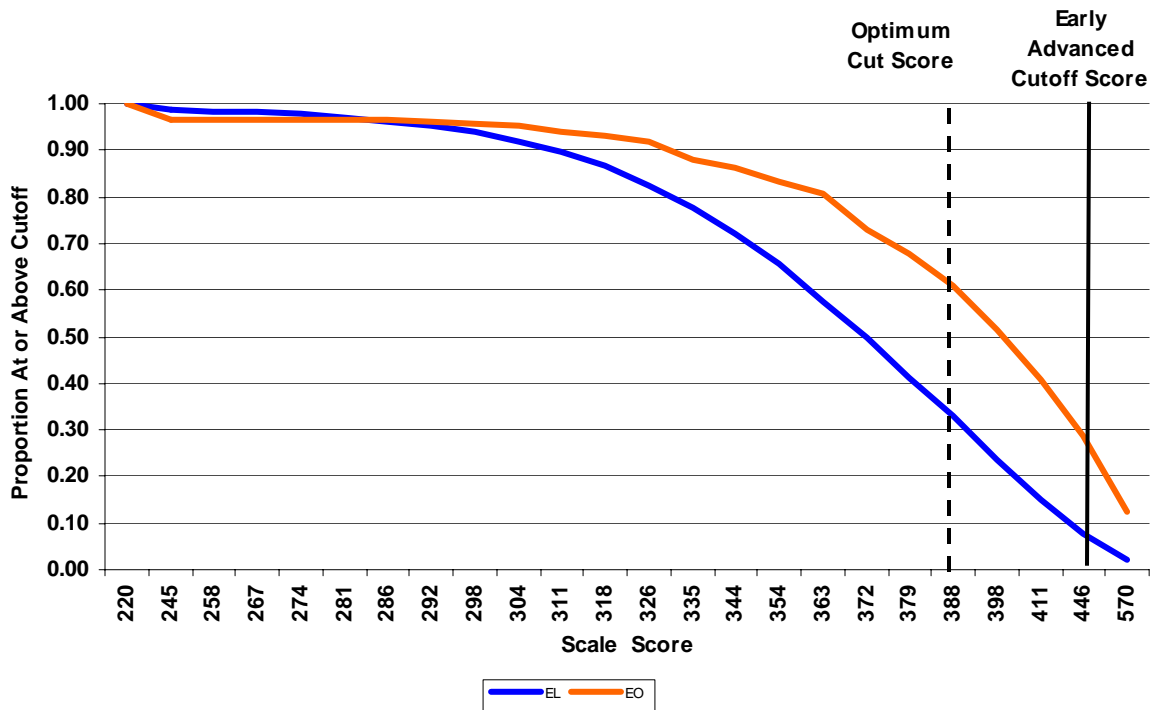




Figure 4.7: Decision Outcomes for Writing: Grade K

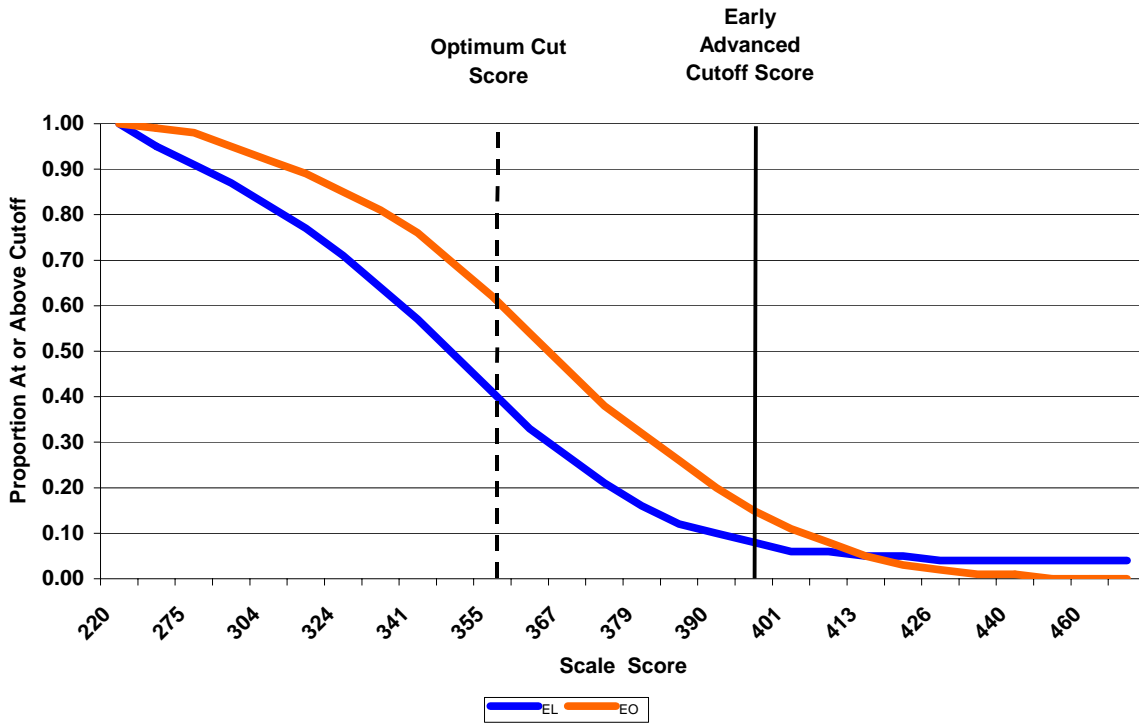
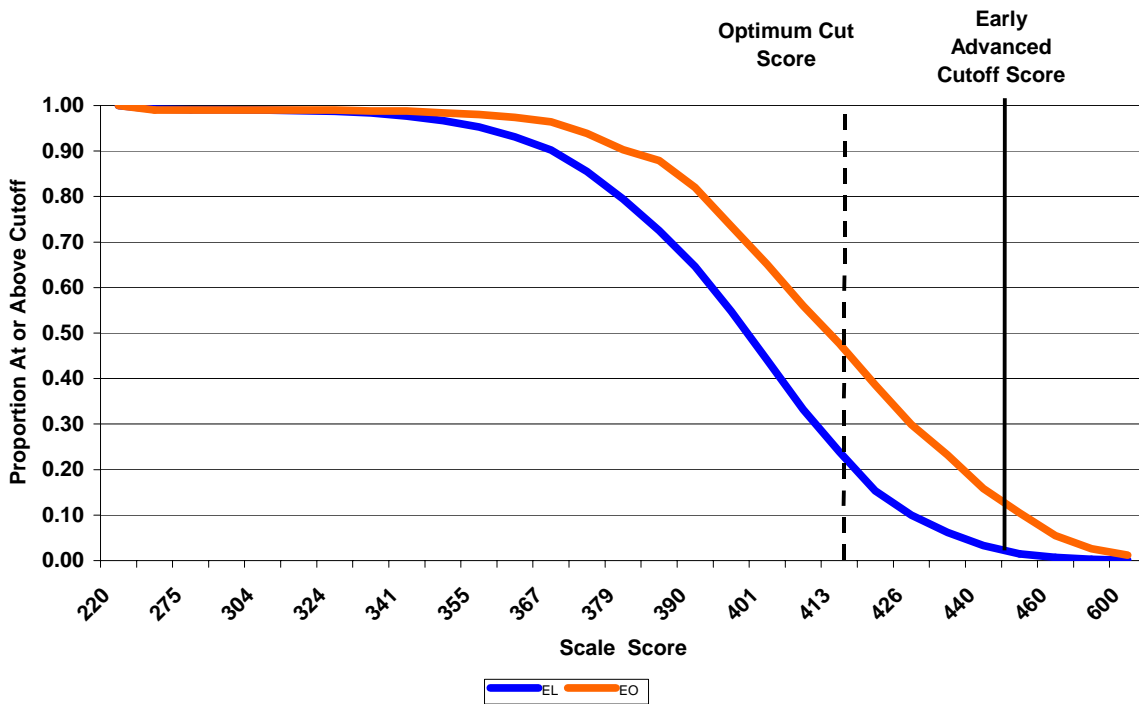


Figure 4.8: Decision Outcomes for Writing: Grade 1



Do the results provide evidence for the validity of the K–1 CELDT? The data show that the test differentiates EO and EL students in practically significant ways. The listening and speaking domains differentiate the two samples more sharply than the reading and writing domains. However, this is not unexpected since kindergarten students, in particular, are unlikely to have had very much instruction in reading and writing before coming to school, regardless of their language background.

How reasonable are the cut scores used to define CELDT performance levels? About 94% of EL students in kindergarten score below the Early Advanced cut score, as do 74% of the EO students. In first grade, 92% of EL students score below the Early Advanced cut score, as do nearly half of the EO students. Whether this is a reasonable outcome or not depends on the intended outcome of the decision. It appears that almost all the EL students are included in the sample that would be called “not fluent,” which is surely what we expect the test to show. On the other hand, if the CELDT were the sole criterion used to determine access to program services, a great many more students would be receiving services. It isn’t, of course.

The results from the present study provide information that can be used to review the cut scores and the decision rules carefully and to consider alternatives that may make the test even more useful in achieving its purpose.

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# **Appendix A**

## **Recruitment Materials**



EDUCATIONAL DATA SYSTEMS

[date], 2010

Dear Select CELDT District Coordinators:

The California Department of Education (CDE) and Educational Data Systems, the California English Language Development Test (CELDT) contractor, would like to announce and encourage your participation in the upcoming CELDT special study.

The purpose of the study is to compare the performance on the CELDT between two groups: regular CELDT examinees (i.e., K–1 students identified as having a primary language other than English) and “English-Only” students (i.e., students whose primary language is English and students identified as Initial Fluent English Proficient).

Selected schools around the state will administer the CELDT during the Annual Assessment window (July 1 through October 31, 2010) using the same test sites and same examiners for both groups.

One or more of your schools has been selected for participation in the study. The selected school(s) and the selected grade are listed on the attached “Confirmation Form” (Attachment 1). Please complete this form and fax it to the number provided on the form.

Attachment 2 is a “Fact Sheet” with key information about the study.

To help cover district costs, your district will be given \$10 for each “English-Only” student tested.

Representatives of Educational Data Systems at the Sacramento County Office of Education (SCOE) will contact you soon to discuss your participation in this important effort. We hope that you will agree to participate. If you have any questions regarding the CELDT K–1 special study, please contact Jackie Adams at SCOE by phone at 916-228-2207 or by e-mail at [jadams@scoe.net](mailto:jadams@scoe.net).

Sincerely,

A handwritten signature in black ink, appearing to read "Caroline Fahmy".

Caroline Fahmy  
CELDT Project Manager  
President, Educational Data Systems

cc: Select District Superintendents

Attachments

**2010–11 CELDT K–1 SPECIAL STUDY  
 CONFIRMATION FORM**

**District:** [preprinted]

**District Contact for Testing:**

Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

Telephone: (\_\_\_\_\_) \_\_\_\_\_ Telephone (June/July): (\_\_\_\_\_) \_\_\_\_\_

**District Contact for Reimbursement (purchase order):**

Name: \_\_\_\_\_ Fax: (\_\_\_\_\_) \_\_\_\_\_

Telephone: (\_\_\_\_\_) \_\_\_\_\_ E-mail: \_\_\_\_\_

**Participating Schools:** The following schools and grades have been selected for participation in the CELDT K–1 special study. For each school, please indicate whether or not the school will participate by testing 25 “English-Only” students in conjunction with at least 25 regular CELDT examinees at the identified grade level. If a selected school/grade will not participate, you may identify another school/grade as a replacement.

Selected School(s) and Grade(s)			Will Participate?	
CDS Code	School Name	Grade	Yes	No
[preprinted (pp)]	[pp]	[pp]		
[pp]	[pp]	[pp]		

Replacement School(s) and Grade(s) That Will Participate		
CDS Code	School Name	Grade

**Testing Period:** Check the approximate weeks when students will be tested during the AA Window.

July				August				September				October			

**Testing Materials:** For “English-Only” students, materials will be shipped to the CELDT District Coordinator separately from the regular CELDT materials. For regular CELDT examinees, materials will be shipped out on the regular schedule.

**Questions:** For more information contact Jackie Adams, CELDT Coordinator, Sacramento County Office of Education, by phone at 916-228-2207 or by e-mail at: [jadams@scoe.net](mailto:jadams@scoe.net).

**Please FAX this form to Jackie Adams at 916-228-2665.**

## 2010–11 CELDT K–1 SPECIAL STUDY

### FACT SHEET

**Who is to be assessed?** Elementary schools throughout the state have been selected for participation in the study. At each school, 25 “English-Only” students in either kindergarten or first grade will be assessed.

**How were schools selected?** The schools were sampled from among those where the CELDT is administered and selected to reflect a range of district sizes, second languages, and geographical regions across the state.

**What about the costs?** To help cover district costs, your district will be given \$10 for each “English-Only” student tested.

**How should the “English-Only” students be selected?** “English-Only” students are defined for the purpose of this study as (a) students to whom you have not had to administer the CELDT because their primary language is English or (b) students who have been previously designated as Initial Fluent English Proficient (IFEP). From an administrative perspective it may be simplest to schedule an entire classroom of such students for testing. Please do not include any students who have been held back a grade or those whose disabilities would preclude them from participating meaningfully in the CELDT.

**When do the students need to be assessed?** Schools should administer the CELDT to the “English-Only” students at the same time that they administer the CELDT to the regular CELDT examinees during the July 1 through October 31, 2010, Annual Assessment Window. The completed scorable test materials are to be returned to Educational Data Systems as soon as testing is completed.

**Who will assess the students?** The “English-Only” students are to be assessed by the same trained test examiners who will administer the CELDT to the regular CELDT examinees. Therefore, no additional training will be required.

**How is the test administered and how long will it take?** The K–1 CELDT is administered individually to students with one exception: for grade 1, Teacher Talk and Extended Listening Comprehension in the Listening domain may be administered in a group setting, depending on the perceived maturity level of the students. The average testing time for the entire test is 1 hour and 20 minutes.

**How do we get the materials we will need?** All materials necessary for administering the CELDT to K–1 “English-Only” students will be provided. Educational Data Systems will ship the materials separately to the CELDT District Coordinator (CDC), who will distribute them to the participating schools. (Test materials ordered for the regular CELDT testing will be shipped out on the regular schedule.)

**How do we mark the test materials of the “English-Only” students?** The test materials will be pre-identified with special labels. (District pre-ID labels will not be used for these students.) These materials are to be used only for this special study. Additional instructions on filling in the demographic pages of the scannable Student Books will be provided.

**How will we return these special study documents?** Once testing is completed, materials will have to be shipped back to Educational Data Systems in a separate shipment from the regular CELDT English learner tests. Special return shipping labels and “Comparison Study” labels will be provided to identify the boxes. It is imperative that these materials be kept separate from all other CELDT tests.

**Where can we get more information about the study?** Contact Jackie Adams at the Sacramento County Office of Education by phone at 916-228-2207 or by e-mail at [jadams@scoe.net](mailto:jadams@scoe.net).



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**Table B.1: Districts and Schools Testing EO Students**

District	School	Kindergarten Tested	Grade 1 Tested
ALAMEDA CITY UNIFIED	HAIGHT ELEMENTARY	25	
MT. DIABLO UNIFIED	RIO VISTA ELEMENTARY	15	10
PITTSBURG UNIFIED	LOS MEDANOS ELEMENTARY	25	
SAN RAMON VALLEY UNIFIED	QUAIL RUN ELEMENTARY	25	
SANGER UNIFIED	LONE STAR ELEMENTARY	22	
HEBER ELEMENTARY	HEBER ELEMENTARY	13	12
NUEVA VISTA LANGUAGE ACADEMY	NUEVA VISTA LANGUAGE ACADEMY	25	
DELANO UNION ELEMENTARY	TERRACE ELEMENTARY	8	
LAMONT ELEMENTARY	LAMONT ELEMENTARY	11	14
WASCO UNION ELEMENTARY	PRUEITT (JOHN L.) ELEMENTARY	25	
ABC UNIFIED	PALMS ELEMENTARY	24	1
BALDWIN PARK UNIFIED	DE ANZA ELEMENTARY	13	12
	VINELAND ELEMENTARY	7	17
	WALNUT ELEMENTARY	10	15
BASSETT UNIFIED	DON JULIAN ELEMENTARY	25	
LAWNDALE ELEMENTARY	GREEN (WILLIAM) ELEMENTARY	25	
LENNOX	JEFFERSON ELEMENTARY	25	
LOS ANGELES UNIFIED	CESAR CHAVEZ ELEMENTARY	11	
	BROOKLYN AVENUE ELEMENTARY	4	
	BURTON STREET ELEMENTARY	3	
	DANUBE AVENUE ELEMENTARY	10	
	DYER STREET ELEMENTARY	4	
	ELIZABETH LEARNING CENTER	1	
	GAULT STREET ELEMENTARY	10	
	NINETY-SECOND STREET ELEMENTARY	10	
	STERRY (NORA) ELEMENTARY	2	
	ONE HUNDRED EIGHTY-SIXTH STREET	10	
	SIERRA PARK ELEMENTARY	17	
	STRATHERN STREET ELEMENTARY	10	
	SYLVAN PARK ELEMENTARY	5	
	SAN MIGUEL ELEMENTARY	4	
	NUEVA VISTA ELEMENTARY	4	
	LOS ANGELES ELEMENTARY	2	
	INDEPENDENCE ELEMENTARY	9	
MACARTHUR PARK PRIMARY CENTER	4		
NORWALK-LA MIRADA UNIFIED	CHAVEZ (CESAR) ELEMENTARY	5	
	LAMPTON (LORETTA) ELEMENTARY	25	
	DOLLAND (JOHN) ELEMENTARY	25	
	MORRISON (JULIA B.) ELEMENTARY	24	
WILLITS UNIFIED	BROOKSIDE ELEMENTARY	14	
MERCED CITY ELEMENTARY	REYES (ALICIA) ELEMENTARY	9	6

District	School	Kindergarten Tested	Grade 1 Tested
<b>GREENFIELD UNION ELEMENTARY</b>	OAK AVENUE ELEMENTARY	17	
<b>SALINAS CITY ELEMENTARY</b>	EL GABILAN ELEMENTARY	25	
<b>SOLEDAD UNIFIED</b>	FRANK LEDESMA ELEMENTARY	20	
<b>CAPISTRANO UNIFIED</b>	LAS PALMAS ELEMENTARY	8	
<b>OCEAN VIEW</b>	WESTMONT ELEMENTARY	16	9
<b>PLACENTIA-YORBA LINDA UNIFIED</b>	RIO VISTA ELEMENTARY	11	14
	RUBY DRIVE ELEMENTARY	10	15
<b>CORONA-NORCO UNIFIED</b>	CORONA RANCH ELEMENTARY	25	
<b>MORENO VALLEY UNIFIED</b>	CLOVERDALE ELEMENTARY	12	13
<b>PALM SPRINGS UNIFIED</b>	CORSINI (JULIUS) ELEMENTARY	25	
	LANDAU ELEMENTARY	20	
<b>LAKE ELSINORE UNIFIED</b>	WITHROW ELEMENTARY	25	
<b>SACRAMENTO CITY UNIFIED</b>	ELDER CREEK ELEMENTARY	25	
	MAPLE ELEMENTARY	12	
	PETER BURNETT ELEMENTARY	6	18
	JUDAH (THEODORE) ELEMENTARY	25	
	STILL (JOHN H.) ELEMENTARY	25	
	HUNTINGTON (COLLIS) ELEMENTARY	0	25
<b>SAN JUAN UNIFIED</b>	KINGSWOOD ELEMENTARY	26	
<b>ONTARIO-MONTCLAIR ELEMENTARY</b>	HAYNES (RICHARD) ELEMENTARY	25	
	HOWARD ELEMENTARY	25	
<b>RIALTO UNIFIED</b>	PRESTON ELEMENTARY	16	6
<b>HESPERIA UNIFIED</b>	KINGSTON ELEMENTARY	25	
	CARMEL ELEMENTARY	25	
<b>UPLAND UNIFIED</b>	CABRILLO ELEMENTARY	10	15
	CITRUS ELEMENTARY	15	10
<b>LA MESA-SPRING VALLEY</b>	KEMPTON STREET ELEMENTARY	25	
<b>LEMON GROVE</b>	GOLDEN AVENUE ELEMENTARY	25	
<b>POWAY UNIFIED</b>	HIGHLAND RANCH ELEMENTARY	25	
<b>SAN FRANCISCO UNIFIED</b>	ALAMO ELEMENTARY	21	
	FRANCIS SCOTT KEY ELEMENTARY	23	
	JEFFERSON ELEMENTARY	25	
<b>REDWOOD CITY ELEMENTARY</b>	FORD (HENRY) ELEMENTARY	15	
	ADELANTE SPANISH IMMERSION	6	
<b>EVERGREEN ELEMENTARY</b>	HOLLY OAK ELEMENTARY	25	
	MILLBROOK ELEMENTARY	25	
<b>SAN JOSE UNIFIED</b>	DARLING (ANNE) ELEMENTARY	9	
	EMPIRE GARDENS ELEMENTARY	11	
	GRANT ELEMENTARY	5	
<b>SANTA CLARA UNIFIED</b>	WESTWOOD ELEMENTARY	24	

<b>District</b>	<b>School</b>	<b>Kindergarten Tested</b>	<b>Grade 1 Tested</b>
<b>PAJARO VALLEY UNIFIED</b>	BRADLEY ELEMENTARY	20	
	LANDMARK ELEMENTARY	0	9
<b>CERES UNIFIED</b>	HIDAHL (JOEL J.) ELEMENTARY	12	13
<b>TURLOCK UNIFIED</b>	WAKEFIELD ELEMENTARY	21	
<b>LIVE OAK UNIFIED</b>	LUTHER ELEMENTARY	25	
<b>VENTURA UNIFIED</b>	WILL ROGERS ELEMENTARY	25	
	MONTALVO ELEMENTARY	0	25
<b>LATON JOINT UNIFIED</b>	LATON ELEMENTARY	0	19
<b>LIVINGSTON UNION ELEMENTARY</b>	CAMPUS PARK ELEMENTARY	0	13
	SELMA HERNDON ELEMENTARY	0	11
<b>KING CITY UNION</b>	DEL REY ELEMENTARY	0	12
	LINCOLN (ABRAHAM) ELEMENTARY	0	25
<b>SAN LUIS COASTAL UNIFIED</b>	PACHECO ELEMENTARY	0	25
<b>SANTA MARIA-BONITA</b>	LIBERTY ELEMENTARY	0	25
	ADAM (WILLIAM LAIRD) ELEMENTARY	0	24
	OAKLEY (CALVIN C.) ELEMENTARY	0	14
	BATTLES ELEMENTARY	0	25
<b>SANTA BARBARA ELEMENTARY</b>	MONROE ELEMENTARY	0	25
<b>VALLEJO CITY UNIFIED</b>	DAN MINI ELEMENTARY	0	18

**Table B.2: Descriptive Statistics for the Study Population and the Total CELDT Population**

Grade	Purpose		Study Population				Total CELDT Population			
			Listening	Speaking	Reading	Writing	Listening	Speaking	Reading	Writing
0	IA	Mean	335.01	324.52	287.38	333.34	343.40	341.17	292.35	335.17
		N	4,432	4,432	4,432	4,432	162,202	162,202	162,202	162,202
		SD	83.70	117.33	40.24	44.53	85.62	116.49	46.20	47.16
	AA	Mean	363.86	344.95	301.29	361.56	373.79	369.20	313.98	362.63
		N	107	107	107	107	5,189	5,189	5,189	5,189
		SD	75.18	114.14	33.57	26.32	75.28	98.22	44.46	34.67
	Unknown	Mean	346.00	259.00	286.50	358.00	353.94	350.20	294.52	334.59
		N	2	2	2	2	407	407	407	407
		SD	50.91	168.29	7.78	4.24	79.94	113.43	49.09	49.40
1	IA	Mean	388.95	376.98	366.34	385.51	407.51	404.80	379.36	396.21
		N	205	205	205	205	13,544	13,544	13,544	13,544
		SD	104.01	141.32	92.67	62.16	90.09	125.13	86.75	52.73
	AA	Mean	418.81	424.61	385.66	401.68	426.05	435.52	390.73	403.06
		N	5,275	5,275	5,275	5,275	176,117	176,117	176,117	176,117
		SD	64.75	81.73	65.90	30.57	61.65	79.43	68.29	35.14
	Unknown	Mean	437.50	481.50	357.50	412.25	429.90	437.96	392.98	400.26
		N	4	4	4	4	366	366	366	366
		SD	66.86	80.96	27.78	15.76	76.29	99.47	82.97	49.62
2	IA	Mean	436.57	425.52	427.35	427.02	441.06	441.70	428.59	427.56
		N	161	161	161	161	8,119	8,119	8,119	8,119
		SD	96.57	148.98	86.05	97.50	95.06	136.90	87.57	101.40
	AA	Mean	466.53	480.64	438.69	453.24	468.88	488.28	441.97	454.85
		N	4,943	4,943	4,943	4,943	169,529	169,529	169,529	169,529
		SD	57.20	69.09	70.99	69.35	57.67	73.41	71.58	70.98
	Unknown	Mean	504.67	496.67	476.67	463.00	461.50	479.44	435.91	433.70
		N	3	3	3	3	288	288	288	288
		SD	97.17	103.10	46.58	53.68	73.06	89.64	74.22	81.99
3	IA	Mean	447.91	444.64	455.48	457.72	450.32	451.11	456.85	458.63
		N	122	122	122	122	7,232	7,232	7,232	7,232
		SD	112.95	124.08	100.20	109.50	104.25	116.63	98.42	104.55
	AA	Mean	471.17	487.68	472.49	487.22	470.94	489.91	473.38	487.65
		N	4,612	4,612	4,612	4,612	158,878	158,878	158,878	158,878
		SD	71.52	54.12	77.12	62.37	73.92	58.56	77.02	64.84
	Unknown	Mean	220.00	381.00	549.00	461.00	470.19	478.27	463.11	476.97
		N	1	1	1	1	221	221	221	221
		SD					82.55	80.89	90.67	81.71

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Grade	Purpose		Study Population				Total CELDT Population			
			Listening	Speaking	Reading	Writing	Listening	Speaking	Reading	Writing
4	IA	Mean	445.57	430.36	468.08	452.89	477.07	463.53	485.56	476.31
		N	107	107	107	107	6,489	6,489	6,489	6,489
		SD	138.17	160.33	112.89	132.36	115.01	127.48	104.16	111.94
	AA	Mean	504.02	506.88	504.68	508.62	506.97	509.09	505.16	509.82
		N	3,888	3,888	3,888	3,888	135,562	135,562	13,562	135,562
		SD	68.49	60.07	68.96	61.60	71.41	60.41	70.93	62.14
	Unknown	Mean					495.18	492.55	499.72	496.66
		N					177	177	177	177
		SD					93.35	102.29	86.16	85.73
5	IA	Mean	493.77	472.34	512.55	493.58	500.50	475.64	511.59	496.32
		N	103	103	103	103	5,948	5,948	5,948	5,948
		SD	122.21	140.88	107.69	132.48	119.60	131.17	107.24	114.21
	AA	Mean	532.93	523.53	530.53	528.30	531.71	522.34	529.15	527.36
		N	3,110	3,110	3,110	3,110	114,231	114,231	114,231	114,231
		SD	64.64	56.07	63.33	54.99	71.13	64.70	68.54	61.94
	Unknown	Mean					529.35	523.68	530.11	523.43
		N					167	167	167	167
		SD					91.54	97.55	81.98	79.83
6	IA	Mean	487.08	480.88	504.84	469.52	529.49	507.36	535.35	509.84
		N	25	25	25	25	5,886	5,886	5,886	5,886
		SD	159.66	179.89	131.19	145.17	135.17	136.48	105.16	110.53
	AA	Mean	556.06	538.14	536.07	535.13	550.74	537.78	529.75	528.49
		N	1,107	1,107	1,107	1,107	87,712	87,712	87,712	87,712
		SD	81.76	75.85	71.99	50.38	87.05	78.59	75.03	59.31
	Unknown	Mean	514.00	490.00	441.50	548.00	565.09	556.00	547.65	534.82
		N	2	2	2	2	229	229	229	229
		SD	15.56	15.56	171.83	12.73	96.98	95.27	83.69	76.79
7	IA	Mean	469.25	437.75	521.75	438.00	525.65	504.63	541.98	508.75
		N	4	4	4	4	5,299	5,299	5,299	5,299
		SD	95.95	174.60	67.35	149.01	148.69	155.13	112.69	121.72
	AA	Mean	565.27	555.88	561.84	542.34	565.67	555.46	543.46	538.86
		N	156	156	156	156	77,416	77,416	77,416	77,416
		SD	70.47	80.79	61.21	50.04	88.45	84.81	74.91	61.27
	Unknown	Mean					595.72	574.56	579.69	558.74
		N					159	159	159	159
		SD					93.04	117.31	82.58	75.22

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Grade	Purpose		Study Population				Total CELDT Population			
			Listening	Speaking	Reading	Writing	Listening	Speaking	Reading	Writing
8	IA	Mean	486.50	357.25	515.00	456.00	521.70	503.47	546.98	511.60
		N	8	8	8	8	4,196	4,196	4,196	4,196
		SD	69.85	125.49	48.64	65.03	151.87	158.19	114.36	124.30
	AA	Mean	548.87	563.74	547.55	536.92	576.75	568.68	559.11	548.25
		N	168	168	168	168	74,043	74,043	74,043	74,043
		SD	85.26	94.47	74.44	58.42	90.50	91.57	75.05	63.53
	Unknown	Mean					590.01	582.52	575.60	558.94
		N					170	170	170	170
		SD					106.22	111.54	85.85	64.50
9	IA	Mean					550.10	533.58	562.72	540.35
		N					11,491	11,491	11,491	11,491
		SD					137.21	142.75	110.34	118.94
	AA	Mean	523.41	582.19	542.78	553.32	551.23	560.47	552.85	550.57
		N	37	37	37	37	70,634	70,634	70,634	70,634
		SD	83.34	66.80	72.13	40.21	96.49	85.56	76.41	68.10
	Unknown	Mean					570.87	562.10	581.22	564.81
		N					271	271	271	271
		SD					111.96	109.17	88.94	89.11
10	IA	Mean					531.79	500.85	553.70	518.49
		N					5,692	5,692	5,692	5,692
		SD					146.82	156.70	116.87	128.56
	AA	Mean	563.04	596.92	573.83	557.75	565.47	568.61	567.38	555.65
		N	24	24	24	24	67,945	67,945	67,945	67,945
		SD	75.64	59.82	48.66	37.70	98.53	93.26	78.96	71.60
	Unknown	Mean					562.92	546.46	568.40	549.66
		N					168	168	168	168
		SD					117.69	122.80	101.16	99.96
11	IA	Mean					552.43	521.23	572.19	536.85
		N					4,553	4,553	4,553	4,553
		SD					145.94	148.72	116.87	121.49
	AA	Mean	554.00	618.38	563.81	567.88	579.01	576.81	580.62	560.88
		N	16	16	16	16	60,605	60,605	60,605	60,605
		SD	63.76	67.69	64.17	53.72	99.59	95.03	79.83	73.56
	Unknown	Mean					579.12	562.50	590.28	555.79
		N					169	169	169	169
		SD					117.31	123.39	95.25	96.99

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Grade	Purpose		Study Population				Total CELDT Population			
			Listening	Speaking	Reading	Writing	Listening	Speaking	Reading	Writing
12	IA	Mean					555.64	529.25	577.51	538.94
		N					3,304	3,304	3,304	3,304
		SD					146.65	145.81	115.57	117.83
	AA	Mean	584.75	627.36	590.93	560.68	578.86	577.26	581.99	555.50
		N	28	28	28	28	54,348	54,348	54,348	54,348
		SD	91.98	56.13	69.75	42.20	110.86	105.82	88.59	87.96
	Unknown	Mean					575.28	560.07	586.38	553.98
		N					123	123	123	123
		SD					112.58	111.38	90.62	93.60



**Table B.3: Item Parameters for EO and EL Comparison Groups**

Item	a parameter		b parameter(s)	
	EL	EO	EL	EO
<b>Listening</b>				
1	0.5903	0.6151	-0.8265	-0.8034
2	1.6535	1.3479	-3.1897	-2.2447
3	0.8278	0.7597	-1.5134	-1.7646
4	0.9483	0.9595	-1.3071	-0.8974
5	1.0983	1.2179	-1.4183	-1.5067
6	0.9829	0.9316	-1.7999	-1.6999
7	0.8817	0.9652	-2.2295	-2.3382
8	0.9995	1.3767	-0.8494	-0.7270
9	1.9657	1.6259	-2.0063	-0.7253
10	1.9192 <sup>a</sup>	1.9187 <sup>a</sup>	-2.0155 <sup>b</sup>	-0.6541 <sup>b</sup>
11	2.4748	1.5816	-0.4650	-0.8209
12	1.4298	1.0633	-0.4178	-0.9093
13	1.5859	1.0889	-0.5520	-1.2537
14	3.3666	2.1426	-0.4329	-0.6934
15	3.3776	1.9328	-0.4504	-0.7470
16	2.4651	1.4701	-0.4074	-0.7061
17	1.4906	0.9615	-0.5139	-1.3067
18	1.0044	1.0012	0.6280	0.1123
19	0.9963	0.8563	-0.0283	-0.3779
20	1.0151	0.7890	-0.0144	-0.2724
<b>Speaking</b>				
1	1.4739	0.4410	-0.3248	-1.4034
2	2.0217 <sup>a</sup>	0.7076 <sup>a</sup>	-1.2713	-2.5642
3	1.4216	0.5375	-0.0668 <sup>b</sup>	-1.9610 <sup>b</sup>
4	1.6634	0.5652	-0.3713	-2.1889
5	1.4709	0.4323	0.2064	-1.0191
6	1.3614	0.3797	1.2134	0.9783
7	1.8517	0.4802	-0.6845	-2.1333
8	2.1409	0.6015	-0.6663	-1.8356
9	1.4827	0.3911	0.0627	-0.7888
10	1.9074	0.4505	-0.0043	-0.7509
11	1.4912	0.3836	0.5094	-0.3647
12	1.9135	0.5006	0.0034	-1.0079
13	2.3655	0.6965	-0.4846	-2.0231
14	0.4924	0.1799	0.5310	0.0326
			0.5905	-0.0723
15	0.4421	0.1808	0.6875	0.2045

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Item	a parameter		b parameter(s)	
	EL	EO	EL	EO
			1.2121	0.5731
16	0.3916	0.1623	-0.1376	-0.3649
			-0.0729	-0.6005
17	0.3738	0.1500	0.3854	0.1541
			0.1222	-0.2887
18	0.4899	0.2158	-0.9575	-1.3831
			0.4161	-0.1679
19	0.4838	0.2063	-1.1179	-1.4670
			0.4134	-0.1255
20	0.3406	0.1357	-1.6703	-2.1732
			-0.4771 <sup>b</sup>	-1.4551 <sup>b</sup>
			0.6800	-0.1272
			2.7438	1.8912
<b>Reading</b>				
1	0.7952	0.3098	0.3184	-0.2832
2	0.8855	0.3017	0.9605	2.1612
3	1.6555	0.4501	-0.0106	-0.9756
4	1.2711	0.4709	-0.5448	-2.9123
5	2.2022	0.6304	0.0390	-0.1455
6	1.1548	0.3538	0.4372	0.4754
7	0.8424	0.2457	0.2990	-0.3997
8	1.2791	0.4259	0.3620	0.3153
9	1.9701	0.5275	-0.2399	-1.9272
10	2.6984 <sup>a</sup>	0.7265 <sup>a</sup>	-0.2200	-1.8017
11	2.9916	0.8986	-0.2227	-1.7836
12	1.5919	0.4957	0.2855	0.0997
13	1.8764	0.6097	0.3914	0.4686
14	4.1046	1.6449	0.6050	1.4276
15	4.1223	1.7773	0.9544	2.1873
16	4.4208	1.6594	0.6956	1.6047
17	1.2509	0.3966	1.0287 <sup>b</sup>	1.1682 <sup>b</sup>
18	1.7546	0.5189	-0.3777 <sup>b</sup>	-4.1188 <sup>b</sup>
19	3.3509	1.4321	-0.3771	-0.3827
			-0.3417	-0.4184
			-0.3323	-0.4105
20	3.3830	1.2922	-3.0129	-3.2810
			-2.8489	-3.0054
			-2.1661	-2.5668

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Item	a parameter		b parameter(s)	
	EL	EO	EL	EO
<b>Writing</b>				
1	0.8838	0.7108	0.7368	0.9967
2	0.6976	0.5970	1.8138	1.7564
3	0.8571	0.7047	0.5559	0.8024
4	0.8166	0.6144	1.2866	1.4407
5	1.0911	1.0422	0.8412	0.7337
6	0.7647	0.6079	0.7155 <sup>b</sup>	0.1620 <sup>b</sup>
7	0.9546	0.8303	1.1213	1.1426
8	0.8462	0.7258	0.5000	0.1369
9	1.8452	1.6107	-1.1740	-1.0905
10	2.0041	1.6009	-0.9458	-0.9308
11	1.8930	1.4630	-0.5541	-0.4034
12	1.8274	1.6636	-1.1829	-1.0854
13	0.7003	0.5516	-0.3608	-0.4675
			-0.0735 <sup>b</sup>	0.3666 <sup>b</sup>
14	1.2678	0.9837	-1.4839	-1.7500
			0.0933	0.3718
15	0.7469	0.6162	-0.7194	-0.7849
			-0.1169	0.1356
16	0.6586	0.5484	-0.7645	-0.7215
			-0.8996	-0.7813
17	1.5747	1.3894	-0.3885	-0.4588
			0.9766	0.9798
18	1.8693	1.9461	-0.0596	-0.2194
			1.6469	1.9244
19	1.5641	1.5656	0.3396	0.2347
			1.5918	1.9521
20	1.7207	1.6572	0.0641	0.0247
			1.1414	1.2266

<sup>a</sup>Statistically significant difference in *a* parameters.

<sup>b</sup>Statistically significant difference in *b* parameters.

**Table B.4: Classification Data for Listening**

Grade	Scale Score	Frequency		N Below		N At/ Above		Proportion Correct Classifications	Proportion Incorrect Classifications
		EL	EO	EL	EO	EL	EO		
K	220	1,318	49	0	0	1,386	4,541	0.24	0.76
	310	413	35	1,318	49	1,337	3,223	0.45	0.55
	338	370	35	1,731	84	1,302	2,810	0.52	0.48
	356	325	45	2,101	119	1,267	2,440	0.58	0.42
	370	317	75	2,426	164	1,222	2,115	0.62	0.38
	382	296	85	2,743	239	1,147	1,798	0.67	0.33
	393	296	108	3,039	324	1,062	1,502	0.70	0.30
	403	288	110	3,335	432	954	1,206	0.73	0.27
	414	252	158	3,623	542	844	918	0.77	0.23
	426	216	128	3,875	700	686	666	0.78	0.22
	438	148	129	4,091	828	558	450	0.80	0.20
	450	122	108	4,239	957	429	302	0.80	0.20
	464	69	118	4,361	1,065	321	180	0.80	0.20
	479	59	90	4,430	1,183	203	111	0.79	0.21
	496	29	54	4,489	1,273	113	52	0.79	0.21
	518	16	32	4,518	1,327	59	23	0.78	0.22
	551	7	19	4,534	1,359	27	7	0.78	0.22
570	0	8	4,541	1,378	8	0	0.78	0.22	
1	220	295	18	0	0	495	5,484	0.08	0.92
	310	125	0	295	18	477	5,189	0.13	0.87
	338	162	3	420	18	477	5,064	0.15	0.85
	356	172	9	582	21	474	4,902	0.18	0.82
	370	196	7	754	30	465	4,730	0.21	0.79
	382	262	11	950	37	458	4,534	0.24	0.76
	393	340	14	1,212	48	447	4,272	0.28	0.72
	403	435	21	1,552	62	433	3,932	0.34	0.66
	414	494	25	1,987	83	412	3,497	0.41	0.59
	426	542	42	2,481	108	387	3,003	0.49	0.51
	438	541	49	3,023	150	345	2,461	0.58	0.42
	450	544	63	3,564	199	296	1,920	0.66	0.34
	464	455	62	4,108	262	233	1,376	0.74	0.26
	479	353	51	4,563	324	171	921	0.81	0.19
	496	289	55	4,916	375	120	568	0.86	0.14
	518	168	37	5,205	430	65	279	0.90	0.10
	551	76	19	5,373	467	28	111	0.93	0.07
570	0	9	5,449	486	9	35	0.94	0.06	

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**Table B.5: Classification Data for Speaking**

Grade	Scale Score	Frequency		N Below		N At/ Above		Proportion Correct Classifications	Proportion Incorrect Classifications
		EL	EO	EL	EO	EL	EO		
K	140	1,104	7	0	0	1,386	4,541	0.24	0.76
	273	273	5	1,104	7	1,379	3,437	0.43	0.57
	305	221	3	1,377	12	1,374	3,164	0.47	0.53
	324	200	7	1,598	15	1,371	2,943	0.51	0.49
	338	169	13	1,798	22	1,364	2,743	0.54	0.46
	350	191	12	1,967	35	1,351	2,574	0.57	0.43
	360	193	11	2,158	47	1,339	2,383	0.60	0.40
	370	162	15	2,351	58	1,328	2,190	0.63	0.37
	378	175	35	2,513	73	1,313	2,028	0.66	0.34
	386	191	34	2,688	108	1,278	1,853	0.68	0.32
	393	184	47	2,879	142	1,244	1,662	0.71	0.29
	400	167	55	3,063	189	1,197	1,478	0.73	0.27
	407	174	55	3,230	244	1,142	1,311	0.75	0.25
	414	135	76	3,404	299	1,087	1,137	0.77	0.23
	420	136	81	3,539	375	1,011	1,002	0.78	0.22
	427	130	84	3,675	456	930	866	0.79	0.21
	433	99	64	3,805	540	846	736	0.80	0.20
	440	100	71	3,904	604	782	637	0.80	0.20
	447	87	70	4,004	675	711	537	0.81	0.19
	454	94	64	4,091	745	641	450	0.81	0.19
	462	72	74	4,185	809	577	356	0.82	0.18
	470	72	66	4,257	883	503	284	0.82	0.18
	479	62	72	4,329	949	437	212	0.82	0.18
	489	45	77	4,391	1,021	365	150	0.81	0.19
	500	41	74	4,436	1,098	288	105	0.81	0.19
	514	21	51	4,477	1,172	214	64	0.80	0.20
531	12	56	4,498	1,223	163	43	0.80	0.20	
554	19	42	4,510	1,279	107	31	0.79	0.21	
590	8	46	4,529	1,321	65	12	0.79	0.21	
630	4	19	4,537	1,367	19	4	0.78	0.22	
1	140	217	16	0	0	495	5,484	0.08	0.92
	273	113		217	16	479	5,267	0.12	0.88
	305	92		330	16	479	5,154	0.14	0.86
	324	125		422	16	479	5,062	0.15	0.85
	338	121	1	547	16	479	4,937	0.18	0.82

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Grade	Scale Score	Frequency		N Below		N At/ Above		Proportion Correct Classifications	Proportion Incorrect Classifications
		EL	EO	EL	EO	EL	EO		
	350	102	1	668	17	478	4,816	0.20	0.80
	360	125		770	18	477	4,714	0.21	0.79
	370	158	1	895	18	477	4,589	0.24	0.76
	378	139	2	1,053	19	476	4,431	0.26	0.74
	386	190	2	1,192	21	474	4,292	0.29	0.71
	393	185	3	1,382	23	472	4,102	0.32	0.68
	400	206	6	1,567	26	469	3,917	0.35	0.65
	407	195	4	1,773	32	463	3,711	0.38	0.62
	414	235	13	1,968	36	459	3,516	0.42	0.58
	420	226	9	2,203	49	446	3,281	0.45	0.55
	427	239	15	2,429	58	437	3,055	0.49	0.51
	433	245	20	2,668	73	422	2,816	0.53	0.47
	440	220	15	2,913	93	402	2,571	0.57	0.43
	447	260	18	3,133	108	387	2,351	0.60	0.40
	454	242	16	3,393	126	369	2,091	0.64	0.36
	462	269	26	3,635	142	353	1,849	0.68	0.32
	470	253	26	3,904	168	327	1,580	0.72	0.28
	479	225	28	4,157	194	301	1,327	0.76	0.24
	489	236	26	4,382	222	273	1,102	0.80	0.20
	500	246	39	4,618	248	247	866	0.83	0.17
	514	221	46	4,864	287	208	620	0.87	0.13
	531	160	48	5,085	333	162	399	0.90	0.10
	554	130	49	5,245	381	114	239	0.92	0.08
	590	75	42	5,375	430	65	109	0.93	0.07
	630	34	23	5,450	472	23	34	0.94	0.06

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**Table B.6: Classification Data for Reading**

Grade	Scale Score	Frequency		N Below		N At/ Above		Proportion Correct Classifications	Proportion Incorrect Classifications
		EL	EO	EL	EO	EL	EO		
K	220	498	29	0	0	1,386	4,541	0.24	0.76
	245	234	30	498	29	1,357	4,043	0.32	0.68
	258	279	36	732	59	1,327	3,809	0.35	0.65
	267	372	52	1,011	95	1,291	3,530	0.39	0.61
	274	378	64	1,383	147	1,239	3,158	0.45	0.55
	281	346	64	1,761	211	1,175	2,780	0.50	0.50
	286	368	75	2,107	275	1,111	2,434	0.55	0.45
	292	295	90	2,475	350	1,036	2,066	0.60	0.40
	298	254	81	2,770	440	946	1,771	0.64	0.36
	304	263	97	3,024	521	865	1,517	0.67	0.33
	311	282	114	3,287	618	768	1,254	0.69	0.31
	318	223	98	3,569	732	654	972	0.72	0.28
	326	209	115	3,792	830	556	749	0.74	0.26
	335	167	94	4,001	945	441	540	0.76	0.24
	344	120	71	4,168	1,039	347	373	0.77	0.23
	354	63	52	4,288	1,110	276	253	0.78	0.22
	363	59	46	4,351	1,162	224	190	0.78	0.22
	372	27	45	4,410	1,208	178	131	0.79	0.21
	379	24	34	4,437	1,253	133	104	0.78	0.22
	388	21	29	4,461	1,287	99	80	0.78	0.22
398	21	19	4,482	1,316	70	59	0.78	0.22	
411	16	19	4,503	1,335	51	38	0.78	0.22	
446	16	17	4,519	1,354	32	22	0.78	0.22	
570	6	15	4,535	1,371	15	6	0.78	0.22	
1	220	58	17	0	0	495	5,484	0.08	0.92
	245	9	0	58	17	478	5,426	0.09	0.91
	258	11	1	67	17	478	5,417	0.09	0.91
	267	17	0	78	18	477	5,406	0.10	0.90
	274	32	0	95	18	477	5,389	0.10	0.90
	281	30	0	127	18	477	5,357	0.10	0.90
	286	39	1	157	18	477	5,327	0.11	0.89
	292	59	2	196	19	476	5,288	0.12	0.88
	298	88	2	255	21	474	5,229	0.12	0.88
	304	87	7	343	23	472	5,141	0.14	0.86
311	116	3	430	30	465	5,054	0.15	0.85	
318	175	8	546	33	462	4,938	0.17	0.83	

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Grade	Scale Score	Frequency		N Below		N At/ Above		Proportion Correct Classifications	Proportion Incorrect Classifications
		EL	EO	EL	EO	EL	EO		
	326	197	18	721	41	454	4,763	0.20	0.80
	335	236	9	918	59	436	4,566	0.23	0.77
	344	285	14	1,154	68	427	4,330	0.27	0.73
	354	359	14	1,439	82	413	4,045	0.32	0.68
	363	376	38	1,798	96	399	3,686	0.38	0.62
	372	391	25	2,174	134	361	3,310	0.43	0.57
	379	427	34	2,565	159	336	2,919	0.50	0.50
	388	527	48	2,992	193	302	2,492	0.56	0.44
	398	525	53	3,519	241	254	1,965	0.65	0.35
	411	525	58	4,044	294	201	1,440	0.73	0.27
	446	519	82	4,569	352	143	915	0.81	0.19
	570	396	61	5,088	434	61	396	0.88	0.12



**Table B.7: Classification Data for Writing**

Grade	Scale Score	Frequency		N Below		N At/ Above		Proportion Correct Classifications	Proportion Incorrect Classifications
		EL	EO	EL	EO	EL	EO		
K	220	236	19	0	0	1,386	4,541	0.24	0.76
	251	179	15	236	19	1,367	4,305	0.27	0.73
	275	187	32	415	34	1,352	4,126	0.30	0.70
	291	219	38	602	66	1,320	3,939	0.33	0.67
	304	222	43	821	104	1,282	3,720	0.36	0.64
	315	282	58	1,043	147	1,239	3,498	0.39	0.61
	324	306	61	1,325	205	1,181	3,216	0.43	0.57
	333	353	66	1,631	266	1,120	2,910	0.47	0.53
	341	375	104	1,984	332	1,054	2,557	0.52	0.48
	348	378	94	2,359	436	950	2,182	0.57	0.43
	355	352	109	2,737	530	856	1,804	0.62	0.38
	361	302	116	3,089	639	747	1,452	0.66	0.34
	367	274	102	3,391	755	631	1,150	0.69	0.31
	373	240	82	3,665	857	529	876	0.72	0.28
	379	182	91	3,905	939	447	636	0.75	0.25
	384	150	78	4,087	1,030	356	454	0.76	0.24
	390	107	65	4,237	1,108	278	304	0.77	0.23
	396	57	57	4,344	1,173	213	197	0.78	0.22
	401	49	52	4,401	1,230	156	140	0.78	0.22
	407	39	31	4,450	1,282	104	91	0.78	0.22
	413	23	25	4,489	1,313	73	52	0.78	0.22
	420	17	17	4,512	1,338	48	29	0.78	0.22
	426	5	16	4,529	1,355	31	12	0.78	0.22
433	3	6	4,534	1,371	15	7	0.78	0.22	
440	2	5	4,537	1,377	9	4	0.78	0.22	
449	1	1	4,539	1,382	4	2	0.78	0.22	
460	0	2	4,540	1,383	3	1	0.78	0.22	
480	1	0	4,540	1,385	1	1	0.78	0.22	
			4,541	1,386	0	0	0.78	0.22	
1	220	31	5	0	0	495	5,484	0.08	0.92
	251	3	0	31	5	490	5,453	0.09	0.91
	275	1	0	34	5	490	5,450	0.09	0.91
	291	5	0	35	5	490	5,449	0.09	0.91
	304	5	0	40	5	490	5,444	0.09	0.91
	315	7	0	45	5	490	5,439	0.09	0.91
	324	14	1	52	5	490	5,432	0.09	0.91

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Grade	Scale Score	Frequency		N Below		N At/ Above		Proportion Correct Classifications	Proportion Incorrect Classifications
		EL	EO	EL	EO	EL	EO		
	333	26	0	66	6	489	5,418	0.10	0.90
	341	41	2	92	6	489	5,392	0.10	0.90
	348	61	2	133	8	487	5,351	0.11	0.89
	355	86	3	194	10	485	5,290	0.12	0.88
	361	128	5	280	13	482	5,204	0.13	0.87
	367	191	12	408	18	477	5,076	0.15	0.85
	373	259	18	599	30	465	4,885	0.18	0.82
	379	300	12	858	48	447	4,626	0.22	0.78
	384	357	29	1,158	60	435	4,326	0.27	0.73
	390	448	42	1,515	89	406	3,969	0.33	0.67
	396	498	42	1,963	131	364	3,521	0.40	0.60
	401	552	45	2,461	173	322	3,023	0.48	0.52
	407	523	41	3,013	218	277	2,471	0.56	0.44
	413	489	45	3,536	259	236	1,948	0.65	0.35
	420	407	43	4,025	304	191	1,459	0.72	0.28
	426	337	33	4,432	347	148	1,052	0.78	0.22
	433	267	37	4,769	380	115	715	0.84	0.16
	440	187	26	5,036	417	78	448	0.88	0.12
	449	114	25	5,223	443	52	261	0.90	0.10
	460	80	14	5,337	468	27	147	0.92	0.08
	480	40	7	5,417	482	13	67	0.93	0.07
	600	27	6	5,457	489	6	27	0.94	0.06

**Table B.8: Scale Score Frequency Distribution**

Scale Score	EL Students			EO Students	
	Frequency	Cumulative %	Frequency	Cumulative %	
<b>Kindergarten</b>					
<b>Listening</b>	220	1,318	29.0%	49	3.5%
	310	413	38.1%	35	6.1%
	338	370	46.3%	35	8.6%
	356	325	53.4%	45	11.8%
	370	317	60.4%	75	17.2%
	382	296	66.9%	85	23.4%
	393	296	73.4%	108	31.2%
	403	288	79.8%	110	39.1%
	414	252	85.3%	158	50.5%
	426	216	90.1%	128	59.7%
	438	148	93.3%	129	69.0%
	450	122	96.0%	108	76.8%
	464	69	97.6%	118	85.4%
	479	59	98.9%	90	91.8%
	496	29	99.5%	54	95.7%
	518	16	99.8%	32	98.1%
551	7	100.0%	19	99.4%	
570	0	100.0%	8	100.0%	
<b>Speaking</b>	140	1,104	24.3%	7	0.5%
	273	273	30.3%	5	0.9%
	305	221	35.2%	3	1.1%
	324	200	39.6%	7	1.6%
	338	169	43.3%	13	2.5%
	350	191	47.5%	12	3.4%
	360	193	51.8%	11	4.2%
	370	162	55.3%	15	5.3%
	378	175	59.2%	35	7.8%
	386	191	63.4%	34	10.2%
	393	184	67.5%	47	13.6%
	400	167	71.1%	55	17.6%
	407	174	75.0%	55	21.6%
	414	135	77.9%	76	27.1%
	420	136	80.9%	81	32.9%
427	130	83.8%	84	39.0%	

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	EL Students			EO Students	
	Scale Score	Frequency	Cumulative %	Frequency	Cumulative %
	433	99	86.0%	64	43.6%
	440	100	88.2%	71	48.7%
	447	87	90.1%	70	53.8%
	454	94	92.2%	64	58.4%
	462	72	93.7%	74	63.7%
	470	72	95.3%	66	68.5%
	479	62	96.7%	72	73.7%
	489	45	97.7%	77	79.2%
	500	41	98.6%	74	84.6%
	514	21	99.1%	51	88.2%
	531	12	99.3%	56	92.3%
	554	19	99.7%	42	95.3%
	590	8	99.9%	46	98.6%
	630	4	100.0%	19	100.0%
<b>Reading</b>	220	498	11.0%	29	2.1%
	245	234	16.1%	30	4.3%
	258	279	22.3%	36	6.9%
	267	372	30.5%	52	10.6%
	274	378	38.8%	64	15.2%
	281	346	46.4%	64	19.8%
	286	368	54.5%	75	25.3%
	292	295	61.0%	90	31.7%
	298	254	66.6%	81	37.6%
	304	263	72.4%	97	44.6%
	311	282	78.6%	114	52.8%
	318	223	83.5%	98	59.9%
	326	209	88.1%	115	68.2%
	335	167	91.8%	94	75.0%
	344	120	94.4%	71	80.1%
	354	63	95.8%	52	83.8%
	363	59	97.1%	46	87.2%
	372	27	97.7%	45	90.4%
	379	24	98.2%	34	92.9%
	388	21	98.7%	29	94.9%
	398	21	99.2%	19	96.3%
	411	16	99.5%	19	97.7%
	446	16	99.9%	17	98.9%
	570	6	100.0%	15	100.0%

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	EL Students			EO Students	
	Scale Score	Frequency	Cumulative %	Frequency	Cumulative %
<b>Writing</b>	220	236	5.2%	19	1.4%
	251	179	9.1%	15	2.5%
	275	187	13.3%	32	4.8%
	291	219	18.1%	38	7.5%
	304	222	23.0%	43	10.6%
	315	282	29.2%	58	14.8%
	324	306	35.9%	61	19.2%
	333	353	43.7%	66	24.0%
	341	375	51.9%	104	31.5%
	348	378	60.3%	94	38.2%
	355	352	68.0%	109	46.1%
	361	302	74.7%	116	54.5%
	367	274	80.7%	102	61.8%
	373	240	86.0%	82	67.7%
	379	182	90.0%	91	74.3%
	384	150	93.3%	78	79.9%
	390	107	95.7%	65	84.6%
	396	57	96.9%	57	88.7%
	401	49	98.0%	52	92.5%
	407	39	98.9%	31	94.7%
413	23	99.4%	25	96.5%	
420	17	99.7%	17	97.8%	
426	5	99.8%	16	98.9%	
433	3	99.9%	6	99.4%	
440	2	100.0%	5	99.7%	
449	1	100.0%	1	99.8%	
460	0	100.0%	2	99.9%	
480	1	100.0%	0	99.9%	
600		100.0%	1	100.0%	
<b>Grade 1</b>					
<b>Listening</b>	220	295	5.4%	18	3.6%
	310	125	7.7%	0	3.6%
	338	162	10.6%	3	4.2%
	356	172	13.7%	9	6.1%
	370	196	17.3%	7	7.5%
	382	262	22.1%	11	9.7%
	393	340	28.3%	14	12.5%
	403	435	36.2%	21	16.8%
	414	494	45.2%	25	21.8%

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	EL Students			EO Students	
	Scale Score	Frequency	Cumulative %	Frequency	Cumulative %
	426	542	55.1%	42	30.3%
	438	541	65.0%	49	40.2%
	450	544	74.9%	63	52.9%
	464	455	83.2%	62	65.5%
	479	353	89.6%	51	75.8%
	496	289	94.9%	55	86.9%
	518	168	98.0%	37	94.3%
	551	76	99.4%	19	98.2%
	570	35	100.0%	9	100.0%
<b>Speaking</b>	140	217	4.0%	16	3.2%
	273	113	6.0%	0	3.2%
	305	92	7.7%	0	3.2%
	324	125	10.0%	0	3.2%
	338	121	12.2%	1	3.4%
	350	102	14.0%	1	3.6%
	360	125	16.3%	0	3.6%
	370	158	19.2%	1	3.8%
	378	139	21.7%	2	4.2%
	386	190	25.2%	2	4.6%
	393	185	28.6%	3	5.3%
	400	206	32.3%	6	6.5%
	407	195	35.9%	4	7.3%
	414	235	40.2%	13	9.9%
	420	226	44.3%	9	11.7%
	427	239	48.7%	15	14.7%
	433	245	53.1%	20	18.8%
	440	220	57.1%	15	21.8%
	447	260	61.9%	18	25.5%
	454	242	66.3%	16	28.7%
	462	269	71.2%	26	33.9%
	470	253	75.8%	26	39.2%
	479	225	79.9%	28	44.8%
	489	236	84.2%	26	50.1%
	500	246	88.7%	39	58.0%
	514	221	92.7%	46	67.3%
	531	160	95.6%	48	77.0%
	554	130	98.0%	49	86.9%
	590	75	99.4%	42	95.4%
	630	34	100.0%	23	100.0%

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	EL Students			EO Students	
	Scale Score	Frequency	Cumulative %	Frequency	Cumulative %
<b>Reading</b>	220	58	1.1%	17	3.4%
	245	9	1.2%	0	3.4%
	258	11	1.4%	1	3.6%
	267	17	1.7%	0	3.6%
	274	32	2.3%	0	3.6%
	281	30	2.9%	0	3.6%
	286	39	3.6%	1	3.8%
	292	59	4.6%	2	4.2%
	298	88	6.3%	2	4.6%
	304	87	7.8%	7	6.1%
	311	116	10.0%	3	6.7%
	318	175	13.1%	8	8.3%
	326	197	16.7%	18	11.9%
	335	236	21.0%	9	13.7%
	344	285	26.2%	14	16.6%
	354	359	32.8%	14	19.4%
	363	376	39.6%	38	27.1%
	372	391	46.8%	25	32.1%
	379	427	54.6%	34	39.0%
	388	527	64.2%	48	48.7%
398	525	73.7%	53	59.4%	
411	525	83.3%	58	71.1%	
446	519	92.8%	82	87.7%	
570	396	100.0%	61	100.0%	
<b>Writing</b>	220	31	0.6%	5	1.0%
	251	3	0.6%	0	1.0%
	275	1	0.6%	0	1.0%
	291	5	0.7%	0	1.0%
	304	5	0.8%	0	1.0%
	315	7	0.9%	0	1.0%
	324	14	1.2%	1	1.2%
	333	26	1.7%	0	1.2%
	341	41	2.4%	2	1.6%
	348	61	3.5%	2	2.0%
	355	86	5.1%	3	2.6%
	361	128	7.4%	5	3.6%
	367	191	10.9%	12	6.1%
	373	259	15.6%	18	9.7%
	379	300	21.1%	12	12.1%

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Scale Score	EL Students		EO Students	
	Frequency	Cumulative %	Frequency	Cumulative %
384	357	27.6%	29	18.0%
390	448	35.8%	42	26.5%
396	498	44.9%	42	34.9%
401	552	54.9%	45	44.0%
407	523	64.5%	41	52.3%
413	489	73.4%	45	61.4%
420	407	80.8%	43	70.1%
426	337	87.0%	33	76.8%
433	267	91.8%	37	84.2%
440	187	95.2%	26	89.5%
449	114	97.3%	25	94.5%
460	80	98.8%	14	97.4%
480	40	99.5%	7	98.8%
600	27	100.0%	6	100.0%