Predicting Third Grade RISE English Language Arts Proficiency by Using Lexile Scores

Introduction

The purpose of this predictive analysis is to determine the approximate kindergarten, first, second, and third grade Lexile® cut scores needed to achieve proficiency on the third grade Utah Readiness Improvement Success Empowerment (RISE) English language arts (ELA) assessment. We adopted the methods of a 2019 analysis that utilized one year of RISE test scores, and first through third grade end of year (EOY) Lexile scores. The current analysis expanded the 2019 analysis by including six years of kindergarten through third grade RISE test data (as available), and beginning of year (BOY), middle of year (MOY), and end of year (EOY) Lexile scores.

Methods

Data

Our analyses utilize RISE ELA assessment data and Lexile scores to estimate the kindergarten through third grade Lexile cut scores that predict proficiency on the third grade RISE ELA assessment. RISE is a computer-adaptive criterion-referenced assessment system. Utah administers the summative RISE ELA test to third through eighth grade students usually from mid-March to early-June every year. Students earning a third grade RISE scale score of 334 are considered to have achieved third grade reading proficiency. We will refer to RISE scale scores as "RISE scores" in this report.

Lexile scores provide standardized measures of reading ability and text complexity. There is no dedicated "Lexile Test," so students take other reading assessments where reading scores are linked to Lexile scores. In Utah, students are required to take the Acadience Reading test three times a year (BOY, MOY, and EOY) in kindergarten through third grade. Acadience test data include Lexile scores that correspond to Acadience Reading Composite Scores (MetaMetrics, 2014). The scores are determined by a Lexile Linking Function, to which we do not have access, and are scaled for use within each grade level. Lexile scores are scaled between BR400L to 2000L, which have numeric equivalencies (which we use here) of -400 to 2000. For the remainder of the report, we simplify our language and refer to the Acadience testing sessions and Lexile scores that are derived from Composite Scores as "Lexile test sessions" and "Lexile scores," respectively.

Sample

We selected students who had third grade RISE ELA scores in 2016–2022 and who had Lexile[1] scores from any of their previous school years (kindergarten through third grade) and test sessions. Overall, this included data from school years 2016–2022, excluding 2020 RISE ELA and

[1] Lexile score data are from the [usoesql3-prod].[Acadience].[AccountabilityDataset] table, and third grade RISE ELA scale score data are from the [usoesql3-prod].[SAGE].[StudentTests] table, where TestSubjectID = '102' (third grade ELA).

EOY Lexile scores due to testing cancelations. Table 1 shows the counts of students in each grade level that we included in the analyses. Appendix A provides a detailed overview of the grade levels, school years, test sessions and student counts included in the analyses.

Table 1. Counts of students by test session and grade level

Grade Level	BOY	MOY	EOY
Kindergarten	58,045	60,177	87,999
First	124,817	124,939	118,838
Second	102,635	102,875	168,228
Third	192,473	192,903	266,400

Analysis

We used Python's *statsmodels* package to perform ordinary least squares (OLS) regressions for each grade level from kindergarten through third grade, such that Lexile scores for each grade were always compared to the student's present or future third grade RISE ELA score. This resulted in three sets of calculations (one for each Lexile test session) for each of the four grade levels, resulting in 12 separate analyses with all years (2016–2022) combined (See Appendix A).[2]

The regression analyses assume a linear relationship between the dependent variable (third grade RISE ELA score) and the independent variable (Lexile score) and provides parameters used to determine estimated Lexile scores for each grade and test session that predict proficiency on the third grade RISE ELA assessment (score = 334). The models take the form of a line:

$$y = \beta_0 + \beta_1 x$$

where y is the dependent variable (third grade RISE ELA score), x is the independent variable (Lexile score), β_0 is the y-intercept at $x = 0$, and β_1 is the slope (change in RISE ELA score due to change in one Lexile score). We obtained the Lexile cut scores by having the models predict RISE scores from the Lexile scores and then estimating the Lexile score that predicted a third grade proficient RISE ELA score of 334. We did this for each grade and Lexile test session. Each plot in Appendix B shows two dashed lines where the intersection is the coordinate: *(Lexile cut score, RISE ELA proficient score 334).*

Results

Table 2 shows the calculated Lexile cut scores for each grade level that predicted proficiency (score = 334) on the third grade RISE ELA assessment. The BOY, MOY, and EOY Lexile Cut Score that Predicted a 334 RISE Score columns are the results from these analyses, and the final column provides the results from the 2019 analyses as comparison.

[2] One noteworthy change from the 2019 analyses is that the previous RISE score was set to 336 as the cut score for proficiency, but the current analyses used a RISE score of 334 to indicate proficiency.

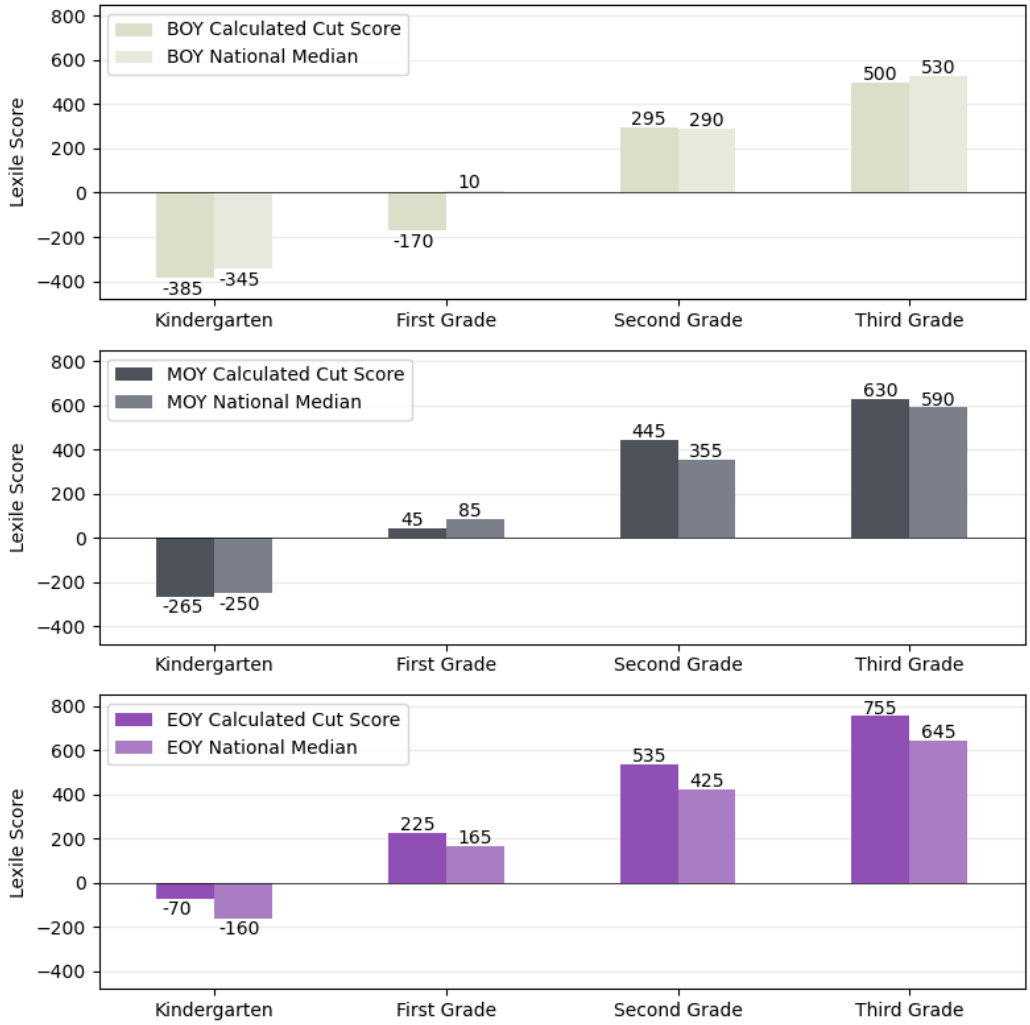
Table 2. Lexile cut scores that predicted third grade RISE ELA proficiency by Lexile test session for 2016 – 2022 and for EOY 2019 (from previous analyses)

Grade Level	BOY Lexile Cut Score that Predicted a 334 RISE Score	MOY Lexile Cut Score that Predicted a 334 RISE Score	EOY Lexile Cut Score that Predicted a 334 RISE Score	EOY Lexile Cut Score that Predicted a 336 RISE Score from the 2019 Analyses
Kindergarten	-385	-265	-70	--
First	-170	45	225	195
Second	295	445	535	544
Third	500	630	755	752

Appendix C provides detailed statistical summaries for each regression analysis; all p-values were below 0.01, indicating a positive, statistical relationship between the Lexile scores and the RISE ELA scores, such that as Lexile scores increase, RISE ELA scores tend to increase.

Figure 1 offers a comparison of the Lexile cut scores calculated in this study for all three test sessions and United States national student median Lexile scores (MetaMetrics, n.d). The calculated BOY Lexile cut scores for kindergarten, first, and third grade are lower than the national median, and for second grade, the calculated BOY Lexile cut score is slightly higher than the national median. The calculated MOY Lexile cut scores for kindergarten and first grade are lower than the national median, and for second and third grade, they are higher than the national median. The calculated EOY Lexile cut scores are higher than the national median for kindergarten through third grade.

Figure 1. Calculated Lexile cut scores by grade level and test session compared to the national median of Lexile scores.



Considerations for Interpreting Results

We used all available test data and applied no business rules to enrollment data. For example, we included students with test scores regardless of their school membership or attendance. As such, the resulting participation rates in the Lexile test for each grade was below 90% for almost all school years and test sessions; thus, this analysis should be considered as a sampling, and not as a census. Additionally, we did not calculate Lexile cut scores for various student groups, and therefore these cut scores may not be generalizable across all demographic groups.

Although we provided a calculated third grade EOY Lexile cut score for achieving third grade RISE proficiency, such a cut score may be of little value due to the timing of the EOY Lexile test and the RISE summative tests both occurring at the end of the school year.

Those who utilize the predicted cut scores presented in this report should recognize that the cut scores are estimates. For instance, we would not expect every single student who achieves

the predicted Lexile cut score in first grade to also achieve third grade RISE ELA proficiency. There are many influential factors not accounted for in the current analysis that will also impact third grade reading proficiency.

Limitations

There are many limitations to using the resulting Lexile cut scores, including concerns around data quality and variation of skills measured by the Lexile tests throughout the year and similarly between the Lexile and RISE ELA tests. In 2018, the majority of students tested in BOY and MOY sessions in kindergarten through third grade did not receive Lexile scores; in 2019, the RISE vendor applied a different adaptive algorithm than in other years; in 2020, there are no EOY Lexile scores or RISE scores due to cancelations of testing caused by the COVID-19 pandemic; in 2021, we encourage caution in interpreting data due to COVID-19 learning disruptions. Furthermore, subject matter experts may need to conduct a content analysis between the Lexile and RISE ELA test blueprints to investigate how they are correlated from a test-content perspective.

The Lexile tests measure different reading comprehension skills (or measures) at different times throughout the year, which may present variation in the relationships between the given Lexile scores and RISE ELA scores. The MetaMetrics study (2014) linking Acadience Composite Scores with Lexile scores used only first grade EOY Composite Scores and second through sixth grade MOY Composite Scores, yet Lexile scores are still given for all test sessions. There is also overlap between the assessed comprehension skills in test sessions throughout the year (Good et al., 2018), so the different assessed skills may not be cause for concern, but further investigation is required. There, however, remains additional uncontrolled variation that may occur between a BOY or MOY test and the third grade RISE ELA assessment, especially for first and second grade. Additionally, the Lexile cut scores used to predict proficiency cannot be seen as indicative of growth across grade levels.

Further analyses might include data that can provide census results, investigate potential differences among student demographic groups, and more precisely measure the predictive ability of the Lexile cut scores.

References

Good, R. H., III, Kaminski, R. A., Cummings, K., Dufour-Martel, C., Petersen, K., Powell-Smith, K. A., Stollar, S., & Wallin, J. (2018). AcadienceTM Reading Assessment Manual. In https://acadiencelearning.org/. Dynamic Measurement Group, Inc. Retrieved November 29, 2022, from https://acadiencelearning.org/wp-content/uploads/2020/01/AcadienceReading_AssessmentManual.pdf

MetaMetrics. (2014). Linking DIBELS Next® with the Lexile® Framework: A Study to Link DIBELS Next with The Lexile® Framework for Reading (Overview). In https://acadiencelearning.org/. Retrieved December 2, 2022, from https://acadiencelearning.org/wp-content/uploads/2020/01/Linking_DIBELS_Next_with_the_Lexile_Framework_2014.pdf

MetaMetrics. (n.d.). Lexile & Quantile Hub. Lexile.com. Retrieved January 5, 2023, from https://hub.lexile.com/lexile-grade-level-charts

Appendix A. Sample Description

Table A1 provides a summary of the grade level, school years, tests sessions, and student counts included in the analyses. Student counts are in parentheses. The summary row in Table A1 identifies the sample in the 12 plots presented in Appendix B (3 test sessions for four grade levels).

Table A1. Description of data used and sample sizes for each grade level, school year, and test session included in the analyses

Year	Kindergarten Analyses	First Grade Analyses	Second Grade Analyses	Third Grade Analyses
2016	RISE scores for 2019 (third grade) BOY Lexile (27,304) MOY Lexile (27,806) EOY Lexile (27,986)	RISE scores for 2018 (third grade) BOY Lexile (38,223) MOY Lexile (38,255) EOY Lexile (38,221)	RISE scores for 2017 (third grade) BOY Lexile (40,482) MOY Lexile (40,558) EOY Lexile (40,523)	RISE scores for 2016 (third grade) BOY Lexile (42,264) MOY Lexile (42,342) EOY Lexile (42,322)
2017		RISE scores for 2019 (third grade) BOY Lexile (41,149) MOY Lexile (41,144) EOY Lexile (41,152)	RISE scores for 2018 (third grade) BOY Lexile (43,028) MOY Lexile (43,068) EOY Lexile (43,061)	RISE scores for 2017 (third grade) BOY Lexile (45,680) MOY Lexile (45,704) EOY Lexie (45,771)
2018	RISE scores for 2021 (third grade) EOY Lexile (27,637)		RISE scores for 2019 (third grade) BOY Lexile (8,427) MOY Lexile (8,437) EOY Lexile (42,741)	RISE scores for 2018 (third grade) BOY Lexile (9,153) MOY Lexile (9,180) EOY Lexile (44,960)
2019	RISE scores for 2022 (third grade) BOY Lexile (30,741) MOY Lexile (32,371) EOY Lexile (32,376)	RISE scores for 2021 (third grade) BOY Lexile (39,417) MOY Lexile (39,475) EOY Lexile (39,465)		RISE scores for 2019 (third grade) BOY Lexile (45,528) MOY Lexile (45,605) EOY Lexile (45,680)
2020		RISE scores for 2022 (third grade) BOY Lexile (6,028) MOY Lexile (6,065)	RISE scores for 2021 (third grade) BOY Lexile (5,961) MOY Lexile (6,008)	
2021			RISE scores for 2022 (third grade) BOY Lexile (4,737) MOY Lexile (4,804) EOY Lexile (41,903)	RISE scores for 2021 (third grade) BOY Lexile (4,523) MOY Lexile (4,652) EOY Lexile (42,171)
2022				RISE scores for 2022 (third grade) BOY Lexile (45,325) MOY Lexile (45,420) EOY Lexile (45,496)
Summary and Total Sample Sizes for Each Test Session	**Includes kindergarten Lexile scores and third grade RISE scores** BOY Lexile (58,045) MOY Lexile (60,177) EOY Lexile (87,999)	**Includes first grade Lexile scores and third grade RISE scores** BOY Lexile (124,817) MOY Lexile (124,939) EOY Lexile (118,838)	**Includes second grade Lexile scores and third grade RISE scores** BOY Lexile (102,635) MOY Lexile (102,875) EOY Lexile (168,228)	**Includes third grade Lexile scores and third grade RISE scores** BOY Lexile (192,473) MOY Lexile (192,903) EOY Lexile (266,400)

Appendix B. Plots of Calculated Lexile Cut Scores

Appendix B shows three sets (one for each test session) of four plots (one for each grade level). Each of the figures include scatter plots of third grade RISE ELA scores plotted against BOY, MOY, or EOY Lexile scores, as well as trend lines, calculated Lexile scores for achieving proficiency, and RISE ELA score of 334.

Figure B1. Scatter plots of third grade RISE ELA scores plotted against BOY Lexile scores with trend lines, calculated Lexile scores, and RISE ELA score of 334 for kindergarten through third grade.

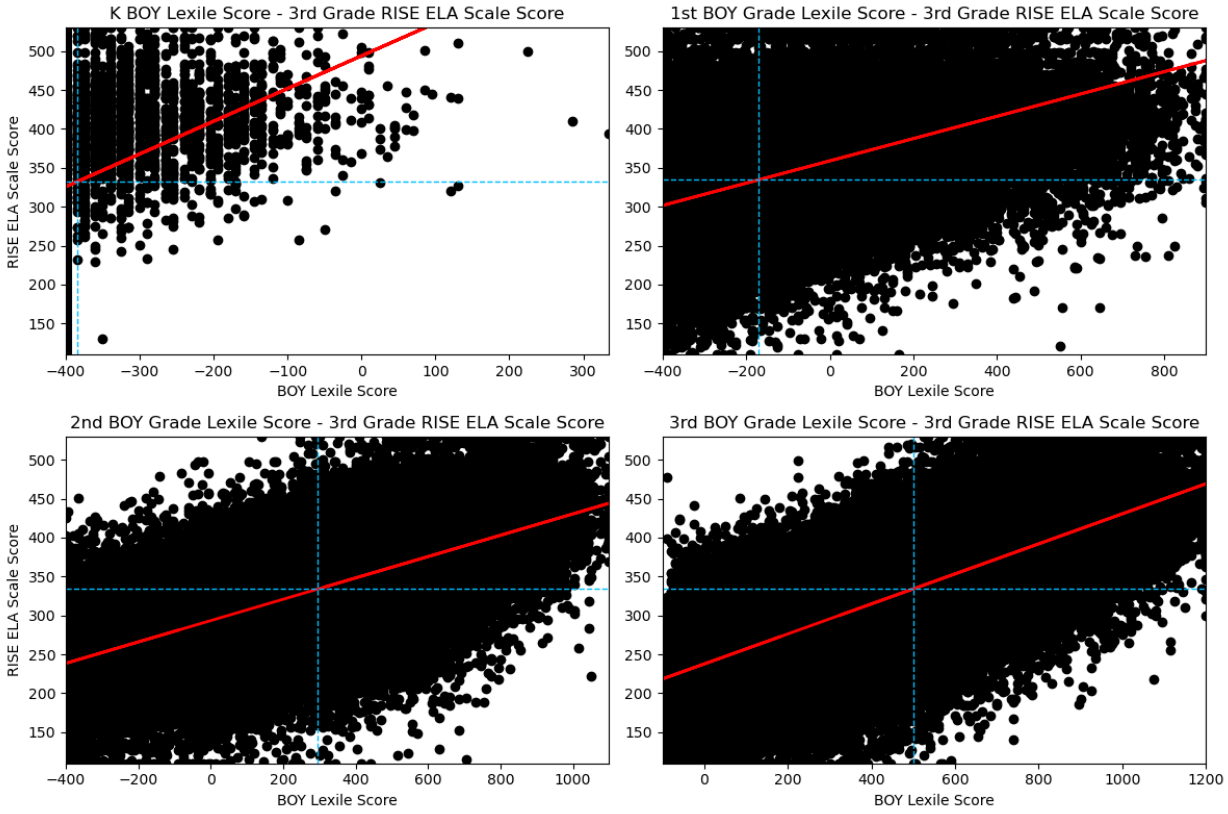


Figure B2. Scatter plots of third grade RISE ELA scores plotted against MOY Lexile scores with trend lines, calculated Lexile scores, and RISE ELA score of 334.

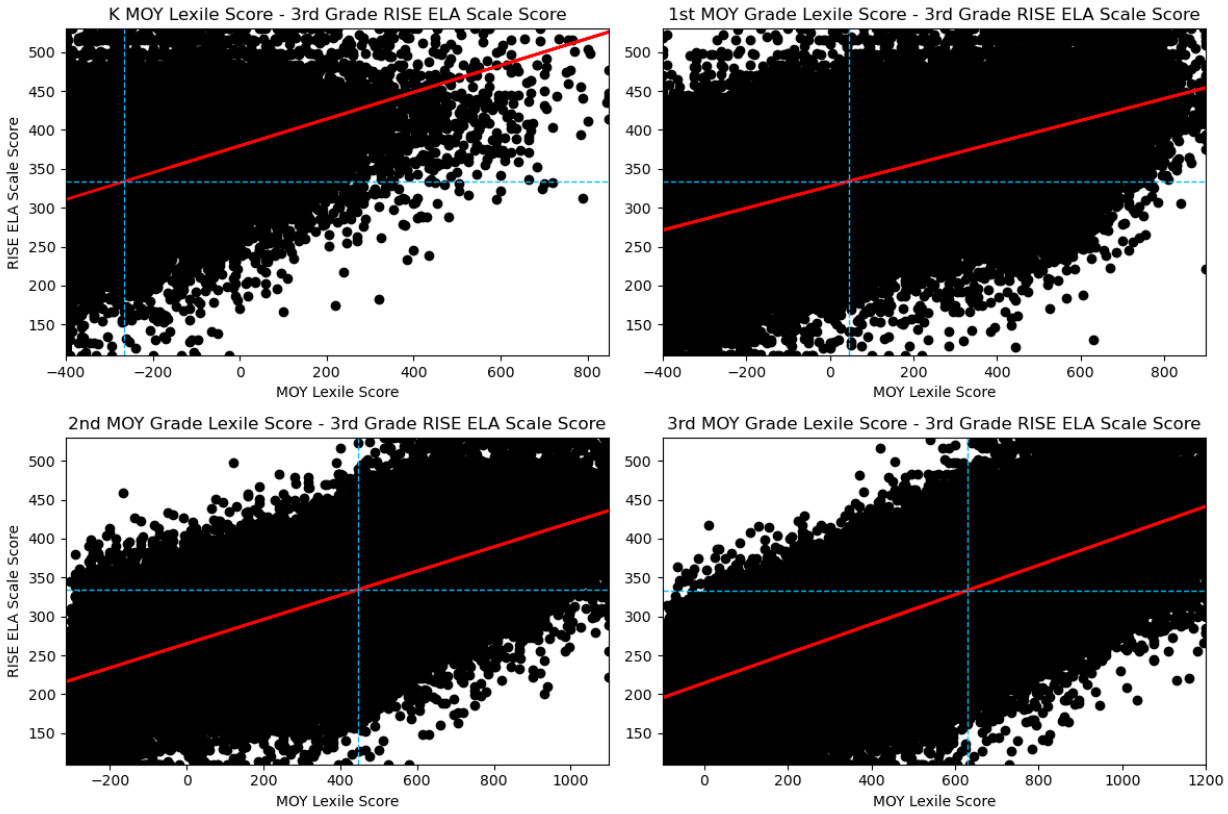
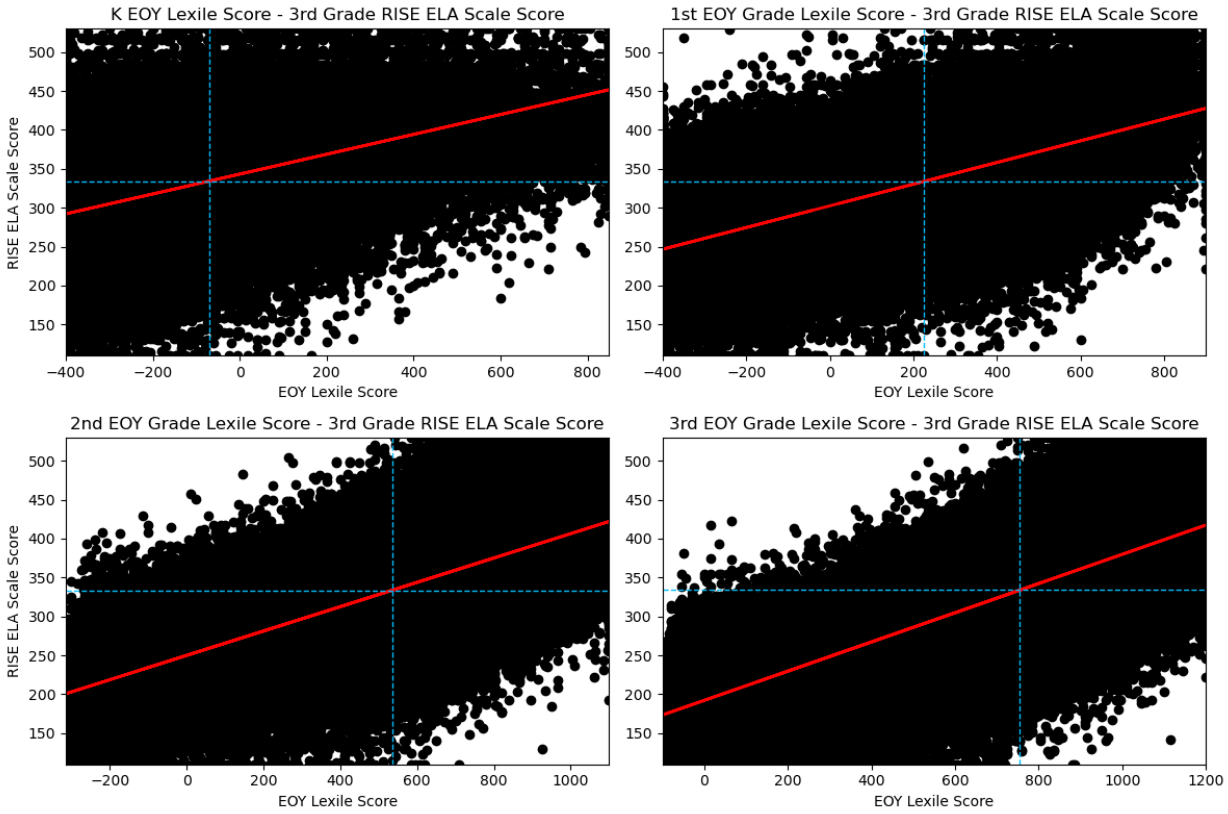


Figure B3. Scatter plots of third grade RISE ELA scores plotted against EOY Lexile scores with trend lines, calculated Lexile scores, and RISE ELA score of 334.



Appendix C. OLS Regression Results Tables

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==============================================================================
Lexile Scores - 3rd Grade RISE ELA Scale Score Linear Regression Results
==============================================================================


BEGINNING OF YEAR


==============================================================================
Kindergarten BOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.025
Model:                            OLS   Adj. R-squared:                  0.025
Method:                 Least Squares   F-statistic:                     1500.
Date:                Wed, 11 Jan 2023   Prob (F-statistic):          4.94e-324
Time:                        11:20:47   Log-Likelihood:            -3.3086e+05
No. Observations:               58045   AIC:                         6.617e+05
Df Residuals:                   58043   BIC:                         6.618e+05
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        493.9584      4.311    114.583      0.000     485.509      502.408
x1             0.4203      0.011     38.725      0.000       0.399        0.442
==============================================================================
Omnibus:                      362.242   Durbin-Watson:                   1.834
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              368.186
Skew:                          -0.193   Prob(JB):                     1.12e-80
Kurtosis:                       2.940   Cond. No.                     5.70e+03
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.
[2] The condition number is large, 5.7e+03. This might indicate that there are
strong multicollinearity or other numerical problems.

Closest Predicted Proficient RISE (334): 332.1330428198324
Corresponding Lexile Cut Score: -385

==============================================================================
First Grade BOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.201
Model:                            OLS   Adj. R-squared:                  0.201
Method:                 Least Squares   F-statistic:                 3.149e+04
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:20:47   Log-Likelihood:            -6.9693e+05
No. Observations:              124817   AIC:                         1.394e+06
Df Residuals:                  124815   BIC:                         1.394e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        358.9848      0.265   1356.240      0.000     358.466      359.504
x1             0.1432      0.001    177.456      0.000       0.142        0.145
==============================================================================
Omnibus:                      641.776   Durbin-Watson:                   1.817
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              651.600
Skew:                          -0.177   Prob(JB):                    3.21e-142
Kurtosis:                       3.021   Cond. No.                         476.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.

Closest Predicted Proficient RISE (334): 334.6359084213459
Corresponding Lexile Cut Score: -170
```

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==============================================================================
Second Grade BOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.445
Model:                            OLS   Adj. R-squared:                  0.445
Method:                 Least Squares   F-statistic:                 8.219e+04
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:20:47   Log-Likelihood:            -5.4754e+05
No. Observations:              102635   AIC:                         1.095e+06
Df Residuals:                  102633   BIC:                         1.095e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        293.3764      0.198   1478.979      0.000     292.988     293.765
x1             0.1371      0.000    286.686      0.000       0.136       0.138
==============================================================================
Omnibus:                      917.376   Durbin-Watson:                   1.866
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             1082.593
Skew:                          -0.173   Prob(JB):                    8.28e-236
Kurtosis:                       3.365   Cond. No.                         525.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.

Closest Predicted Proficient RISE (334): 333.82992254622746
Corresponding Lexile Cut Score: 295

==============================================================================
Third Grade BOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.525
Model:                            OLS   Adj. R-squared:                  0.525
Method:                 Least Squares   F-statistic:                 2.129e+05
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:20:48   Log-Likelihood:            -1.0155e+06
No. Observations:              192473   AIC:                         2.031e+06
Df Residuals:                  192471   BIC:                         2.031e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        237.7515      0.222   1069.439      0.000     237.316     238.187
x1             0.1929      0.000    461.410      0.000       0.192       0.194
==============================================================================
Omnibus:                     1593.505   Durbin-Watson:                   1.900
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             2055.528
Skew:                          -0.136   Prob(JB):                         0.00
Kurtosis:                       3.427   Cond. No.                     1.10e+03
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.
[2] The condition number is large, 1.1e+03. This might indicate that there are
strong multicollinearity or other numerical problems.

Closest Predicted Proficient RISE (334): 334.1975574170259
Corresponding Lexile Cut Score: 500
==============================================================================


MIDDLE OF YEAR


==============================================================================
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Kindergarten MOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.149
Model:                            OLS   Adj. R-squared:                  0.149
Method:                 Least Squares   F-statistic:                 1.056e+04
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:22:44   Log-Likelihood:            -3.3896e+05
No. Observations:               60177   AIC:                         6.779e+05
Df Residuals:                   60175   BIC:                         6.779e+05
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        379.5751      0.580    654.727      0.000     378.439     380.711
x1             0.1723      0.002    102.771      0.000       0.169       0.176
==============================================================================
Omnibus:                      272.653   Durbin-Watson:                   1.852
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              276.285
Skew:                          -0.166   Prob(JB):                     1.01e-60
Kurtosis:                       3.011   Cond. No.                         727.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.

Closest Predicted Proficient RISE (334): 333.907413989056
Corresponding Lexile Cut Score: -265

==============================================================================
First Grade MOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.371
Model:                            OLS   Adj. R-squared:                  0.371
Method:                 Least Squares   F-statistic:                 7.372e+04
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:22:44   Log-Likelihood:            -6.8271e+05
No. Observations:              124939   AIC:                         1.365e+06
Df Residuals:                  124937   BIC:                         1.365e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        327.6275      0.162   2023.073      0.000     327.310     327.945
x1             0.1409      0.001    271.516      0.000       0.140       0.142
==============================================================================
Omnibus:                      478.890   Durbin-Watson:                   1.863
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              495.205
Skew:                          -0.137   Prob(JB):                    2.93e-108
Kurtosis:                       3.141   Cond. No.                         313.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.

Closest Predicted Proficient RISE (334): 333.9657496094579
Corresponding Lexile Cut Score: 45

==============================================================================
Second Grade MOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.500
Model:                            OLS   Adj. R-squared:                  0.500
Method:                 Least Squares   F-statistic:                 1.031e+05
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:22:44   Log-Likelihood:            -5.4347e+05
No. Observations:              102875   AIC:                         1.087e+06
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Df Residuals:                   102873   BIC:                          1.087e+06
Df Model:                            1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        265.1285      0.246   1076.612      0.000     264.646     265.611
x1             0.1555      0.000    321.055      0.000       0.155       0.156
==============================================================================
Omnibus:                      833.209   Durbin-Watson:                   1.863
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             1018.020
Skew:                          -0.151   Prob(JB):                    8.71e-222
Kurtosis:                       3.382   Cond. No.                         843.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.

Closest Predicted Proficient RISE (334): 334.3168458979042
Corresponding Lexile Cut Score: 445

==============================================================================
Third Grade MOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.546
Model:                            OLS   Adj. R-squared:                  0.546
Method:                 Least Squares   F-statistic:                 2.316e+05
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:22:44   Log-Likelihood:            -1.0137e+06
No. Observations:              192903   AIC:                         2.027e+06
Df Residuals:                  192901   BIC:                         2.027e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        214.5632      0.257    834.624      0.000     214.059     215.067
x1             0.1891      0.000    481.210      0.000       0.188       0.190
==============================================================================
Omnibus:                     1377.088   Durbin-Watson:                   1.905
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             1815.897
Skew:                          -0.112   Prob(JB):                         0.00
Kurtosis:                       3.419   Cond. No.                     1.59e+03
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.
[2] The condition number is large, 1.59e+03. This might indicate that there are
strong multicollinearity or other numerical problems.

Closest Predicted Proficient RISE (334): 333.72672789862884
Corresponding Lexile Cut Score: 630
==============================================================================


END OF YEAR


==============================================================================
Kindergarten EOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.203
Model:                            OLS   Adj. R-squared:                  0.203
Method:                 Least Squares   F-statistic:                 2.245e+04
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:24:01   Log-Likelihood:            -4.9413e+05
No. Observations:               87999   AIC:                         9.883e+05
Df Residuals:                   87997   BIC:                         9.883e+05
Df Model:                           1
```

```
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        343.2321      0.259   1327.127      0.000     342.725     343.739
x1             0.1276      0.001    149.835      0.000       0.126       0.129
==============================================================================
Omnibus:                      280.704   Durbin-Watson:                   1.834
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              282.632
Skew:                          -0.136   Prob(JB):                     4.24e-62
Kurtosis:                       2.946   Cond. No.                         351.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.

Closest Predicted Proficient RISE (334): 334.2967458866701
Corresponding Lexile Cut Score: -70

==============================================================================
First Grade EOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.421
Model:                            OLS   Adj. R-squared:                  0.421
Method:                 Least Squares   F-statistic:                 8.636e+04
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:24:01   Log-Likelihood:            -6.4384e+05
No. Observations:              118838   AIC:                         1.288e+06
Df Residuals:                  118836   BIC:                         1.288e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        302.4559      0.176   1721.637      0.000     302.112     302.800
x1             0.1394      0.000    293.878      0.000       0.138       0.140
==============================================================================
Omnibus:                      452.554   Durbin-Watson:                   1.865
Prob(Omnibus):                  0.000   Jarque-Bera (JB):              480.688
Skew:                          -0.126   Prob(JB):                    4.17e-105
Kurtosis:                       3.182   Cond. No.                         411.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.

Closest Predicted Proficient RISE (334): 333.8143747848708
Corresponding Lexile Cut Score: 225

==============================================================================
Second Grade EOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.496
Model:                            OLS   Adj. R-squared:                  0.496
Method:                 Least Squares   F-statistic:                 1.659e+05
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:24:01   Log-Likelihood:            -8.9486e+05
No. Observations:              168228   AIC:                         1.790e+06
Df Residuals:                  168226   BIC:                         1.790e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        250.0135      0.225   1112.059      0.000     249.573     250.454
x1             0.1564      0.000    407.256      0.000       0.156       0.157
==============================================================================
Omnibus:                     1034.168   Durbin-Watson:                   1.892
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             1299.360
```

```
Skew:                          -0.113   Prob(JB):                    7.04e-283
Kurtosis:                       3.367   Cond. No.                     1.09e+03
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.
[2] The condition number is large, 1.09e+03. This might indicate that there are
strong multicollinearity or other numerical problems.

Closest Predicted Proficient RISE (334): 333.7042315002443
Corresponding Lexile Cut Score: 535

==============================================================================
Third Grade EOY
                            OLS Regression Results
==============================================================================
Dep. Variable:             ScaleScore   R-squared:                       0.554
Model:                            OLS   Adj. R-squared:                  0.554
Method:                 Least Squares   F-statistic:                 3.306e+05
Date:                Wed, 11 Jan 2023   Prob (F-statistic):               0.00
Time:                        11:24:01   Log-Likelihood:            -1.4029e+06
No. Observations:              266400   AIC:                         2.806e+06
Df Residuals:                  266398   BIC:                         2.806e+06
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const        192.2268      0.249    773.062      0.000     191.739     192.714
x1             0.1876      0.000    574.937      0.000       0.187       0.188
==============================================================================
Omnibus:                     1943.005   Durbin-Watson:                   1.896
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             2441.712
Skew:                          -0.131   Prob(JB):                         0.00
Kurtosis:                       3.389   Cond. No.                     2.09e+03
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is
correctly specified.
[2] The condition number is large, 2.09e+03. This might indicate that there are
strong multicollinearity or other numerical problems.

Closest Predicted Proficient RISE (334): 333.90151187530284
Corresponding Lexile Cut Score: 755
==============================================================================
```