



Linking ISIP Reading to the New Jersey Student Learning Assessment (NJSLA)

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**Linking ISIP Reading to the
New Jersey Student Learning
Assessment (NJSLA)**

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December 2022

Executive Summary

This study provides the proficiency projection of Istation’s Indicators of Progress (ISIP™) Reading on the New Jersey Student Learning Assessment—English Language Arts (NJSLA-ELA) for grades three through eight. Classification accuracy is also provided. All data came from students in two school districts in New Jersey. There was a total of 11,927 students (District A: 1,886; District B: 10,041).

The Pearson product-moment correlations of ISIP middle-of-the-year (MOY) scores and NJSLA-ELA scores range from 0.67 to 0.70, and for ISIP end-of-the-year (EOY) scores and NJSLA-ELA scores, the correlations range from 0.65 to 0.69. This indicates strong associations between the ISIP Reading and NJSLA-ELA assessments.

The linking study between NJSLA-ELA and ISIP Reading was conducted using multinomial logistic regression. At MOY, to achieve a high likelihood of NJSLA-ELA performance level 3 (*Approached Expectations*), students had to achieve ISIP scores corresponding to the following percentile ranks:

| Grade | Percentile Rank |
|--------------|------------------------|
| 3 | 50th |
| 4 | 35th |
| 5 – 6 | 35th |
| 7 – 8 | 25th |

To attain a medium probability of achieving performance level 4 (*Met Expectations*) on NJSLA-ELA, students had to attain ISIP scores between the following percentile ranges:

| Grade | Percentile Rank |
|--------------|------------------------|
| 3 | 50th – 80th |
| 4 | 30th – 70th |
| 5 | 35th – 65th |
| 6 | 40th – 70th |
| 7 | 25th – 55th |
| 8 | 25th – 50th |

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At EOY, students had to attain ISIP Reading scores at the following percentile ranks to meet a high likelihood of achieving level 3 (*Approached Expectations*):

| Grade | Percentile Rank |
|--------------|------------------------|
| 3 | 50th |
| 4 – 5 | 35th |
| 6 | 40th |
| 7 – 8 | 30th |

To attain a medium probability of achieving NJSLA-ELA performance level 4 (*Met Expectations*), students needed to reach the following percentile ranks on ISIP Reading at EOY:

| Grade | Percentile Rank |
|--------------|------------------------|
| 3 | 50th – 80th |
| 4 | 30th – 70th |
| 5 | 35th – 70th |
| 6 | 40th – 75th |
| 7 | 25th – 60th |
| 8 | 30th – 70th |

Classification accuracy analyses were conducted. Between 62% and 81% of students were correctly classified on ISIP Reading with respect to the performance on NJSLA-ELA (*Met Expectations* or higher), whereas 69–77% of students who were not classified as *Met Expectations* or above did in fact not reach level 4 or above.

Introduction

Istation's Indicators of Progress (ISIP™) assessments (ISIP Reading and ISIP Math) are web-delivered computer-adaptive testing (CAT) assessments. The purpose of this report is to explore how well performance on ISIP Reading predicts performance on the New Jersey Student Learning Assessment—English Language Arts (NJSLA-ELA) used by the state of New Jersey in the spring as an end-of-year summative assessment. The predictability of the ISIP assessments can inform students and stakeholders of the probability that a student will be successful on the spring NJSLA and provide information needed to inform personalized instruction.

Background

ISIP Assessments

A favorable feature of ISIP assessments is that they adapt to an individual student's ability level (Mathes et al., 2015). Typically, a student will receive an item of medium difficulty during the first CAT administration. If the student answers the item correctly, then they will receive a more difficult item. Similarly, if the student answers the item incorrectly then the next item delivered will be less difficult.

ISIP assessments are built using a two-parameter model from the family of Item Response Theory. ISIP gathers and reports frequent information about student progress in the critical domains throughout and across academic years (Patarapichayatham et al., 2013). ISIP accomplishes this by delivering monthly tests that target critical areas to inform instruction. With adequate computer resources, it is possible to administer ISIP assessments to an entire classroom, school, or district in a single day. Student results

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are immediately available online for teachers and administrators, illustrating each student's past and present performance and skill growth. Teachers are alerted when students are not making adequate progress so that the instructional program can be modified before a pattern of failure becomes established (Mathes, 2016).

ISIP Reading measures students' ability and identifies deficits in critical areas to provide continuous differentiated instruction. ISIP Reading is available for prekindergarten through eighth grade. Istation provides teachers and other school personnel with easy-to-interpret, web-based reports that detail student strengths and deficits and which provide links to teaching resources and targeted intervention strategies (Mathes, et al., 2022).

ISIP Reading has strong predictability with several state assessments, including the Virginia Standards of Learning (Campbell, L.O., Sutter, C. C., & Lambie, G. W. (2019)), the PARCC (Cook & Ross, 2020), the Idaho ISAT (Wolfe & Ross, 2020), the Renaissance Star (Campbell, L.O., Sutter, C. C., Lambie G. W., & Tinstman Jones, J. (2019)), the Colorado Measures of Academic Success (Patarapichayatham, 2019), and the Ohio AIR (LePlante, 2019).

New Jersey Student Learning Assessments (NJSLA)

The state of New Jersey requires public school students in grades 3 through 10 to participate in a statewide program of educational assessments in English language arts (ELA), mathematics, and science in the spring. Each student will participate in English, reading, writing, mathematics, and science end-of-year testing. This report focuses on ELA only.

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The NJSLA-ELA measures student proficiency with grade-level skills, knowledge, and concepts that are deemed critical for college and career readiness. The assessments target the importance of close reading, synthesizing ideas within and across texts, determining the meaning of words and phrases in context, and writing effectively when using and/or analyzing sources.

The purpose of this study is to predict students' performance on the NJSLA based on their ISIP scores in reading. There are two objectives in the current study:

- 1) Use the middle-of-the-year assessment month (MOY) ISIP Reading scores to predict NJSLA-ELA outcomes.
- 2) Use the end-of-the-year assessment month (EOY) ISIP Reading scores to predict NJSLA-ELA outcomes.

There are five performance levels for the NJSLA assessments: level 1 – *Did Not Yet Meet Expectations*; level 2 – *Partially Met Expectations*; level 3 – *Approached Expectations*; level 4 – *Met Expectations*; level 5 – *Exceeded Expectations*. Students in levels 4 and 5 are considered on track for meeting college and career readiness criteria. The following table provides the scaled score ranges for each performance level on the NJSLA assessments.

Table 1. *Scaled Score Ranges for Each Performance Level by Grade on the NJSLA*

| Grade | Level 1 <i>Did Not Yet Meet Expectations</i> | Level 2 <i>Partially Met Expectations</i> | Level 3 <i>Approached Expectations</i> | Level 4 <i>Met Expectations</i> | Level 5 <i>Exceeded Expectations</i> |
|--------------|---|--|---|--|---|
| 3 | 650 – 699 | 700 – 724 | 725 – 749 | 750 – 809 | 810 – 850 |
| 4 | 650 – 699 | 700 – 724 | 725 – 749 | 750 – 789 | 790 – 850 |
| 5 | 650 – 699 | 700 – 724 | 725 – 749 | 750 – 798 | 799 – 850 |
| 6 | 650 – 699 | 700 – 724 | 725 – 749 | 750 – 789 | 790 – 850 |
| 7 | 650 – 699 | 700 – 724 | 725 – 749 | 750 – 784 | 785 – 850 |
| 8 | 650 – 699 | 700 – 724 | 725 – 749 | 750 – 793 | 794 – 850 |

ISIP™ and NJSLA-ELA Linking Study

Data from the 2021–2022 school year from two districts in the state of New Jersey were shared with Istation. Data were collected from students in third through eighth grade who had taken the ISIP Reading assessment during the 2021–2022 academic school year. The ISIP Reading assessment was renormed in 2022 using data from the 2018–2019 school year, and the scores were put on a vertical scale. For this analysis, we converted the old scores to the new scale using the equating constants from the new norms.

Methodology

Our analytic plan first consisted of evaluating the Pearson product-moment correlations between the ISIP assessment and the NJSLA. Then we used multinomial logistic regression to determine probabilities for reaching the *Met Expectations* level or above on the NJSLA. Lastly, we conducted a classification accuracy to determine the cut points that best predict whether the student will reach the *Met Expectations* level or above on the NJSLA-ELA assessment.

Analytic Samples

ISIP Reading

We obtained data from two districts in New Jersey for this analysis. Only students who had a valid ISIP score and NJSLA score were included in the analysis.

Across grades the demographic breakdown for District A consisted of 1,886 students, and District B had 10,041 students. District A predominately consisted of students who were Hispanic or Latino. A full description is available in Table 3. For District A, sample characteristics came from enrollment data for gender and

race/ethnicity. The ELL characteristics came from the National Center for Education Statistics (NCES) website. For district B, all sample characteristics were obtained from NCES.

Table 2. *Sample Size per District by Grade*

| Grade | District A | District B | Combined |
|-------|------------|------------|----------|
| 3 | 315 | 1,615 | 1,930 |
| 4 | 301 | 1,616 | 1,917 |
| 5 | 325 | 1,623 | 1,948 |
| 6 | 283 | 1,679 | 1,962 |
| 7 | 356 | 1,763 | 2,119 |
| 8 | 306 | 1,745 | 2,051 |

Table 3. *Demographic Description of the Sample by District*

| Demographic Characteristic | District A (N = 1,886) | District B (N = 10,041) |
|---|---------------------------|----------------------------|
| Gender: Female | 48% | 49% |
| Gender: Male | 52% | 51% |
| Race/Ethnicity: White Alone | 3.7% | 9% |
| Race/Ethnicity: Black or African American | 6.8% | 25% |
| Race/Ethnicity: Hispanic or Latino | 88.3% | 61% |
| Race/Ethnicity: Asian or other | 1.9% | 6% |
| ELL | 13.0% | 7.7% |

Analytic Plan

To provide teachers and administrators with the information they need to determine whether a student is likely to reach the *Met Expectations* level or above on the NJSLA-ELA assessment, we first evaluated the Pearson product-moment correlations to establish that performance on the two assessments was correlated. Next, we used multinomial logistic regression to determine the probabilities of reaching the *Approached Expectations* (level 3) *Met Expectations* (level 4) or *Exceeded Expectations* (level 5) of the NJSLA-ELA. The ISIP scores are the predictor, and the NJSLA-ELA

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performance levels are the outcome variable. Students who had ISIP scores between the 1st and 99th percentile ranks were included in the analysis. A total of 20 ISIP Reading scaled scores in MOY and EOY were chosen, which correspond to the following percentile ranks: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 99. The model is fitted for each grade separately. This study investigates performance levels 3 – 5.

The probability of achieving NJSLA performance level 3 (*Approached Expectations*) or above is computed by adding the probabilities of levels 3, 4 and 5. The probability of achieving NJSLA-ELA performance level 4 (*Met Expectations*) is the probability of level 4 and 5, and the probability for level 5 is the probability only for level 5. The analyses are computed using *R* software with the *nnet* package.

Lastly, we conducted a classification accuracy to determine ISIP cut points that could help differentiate students who would or would not attain level 4 *Met Expectations* or higher on the NJSLA-ELA.

Results

ISIP Reading and NJSLA-ELA

Tables 4 and 5 present descriptive statistics for NJSLA-ELA and ISIP performance by district and grade. Table 6 shows data for both districts combined.

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Table 4. District A Mean and Standard Deviation (SD) for NJSLA-ELA and ISIP Reading Scores by Grade

| Grade | NJSLA-ELA Score (SD) | ISIP BOY Reading (SD) | ISIP MOY Reading (SD) | ISIP EOY Reading (SD) |
|-------|----------------------|-----------------------|-----------------------|-----------------------|
| 3 | 732.59 (35.15) | 411.47 (59.23) | 422.56 (72.54) | 448.22 (73.61) |
| 4 | 739.05 (30.33) | 454.05 (55.05) | 473.28 (59.00) | 481.44 (64.00) |
| 5 | 742.24 (29.22) | 488.42 (59.45) | 500.23 (62.05) | 514.00 (72.20) |
| 6 | 737.27 (28.38) | 526.24 (55.26) | 534.91 (60.83) | 547.43 (72.67) |
| 7 | 740.88 (30.42) | 544.36 (52.93) | 558.40 (61.79) | 571.37 (77.48) |
| 8 | 734.49 (30.25) | 577.15 (61.90) | 560.95 (91.48) | 586.57 (85.46) |

Table 5. District B Mean and Standard Deviation (SD) for NJSLA-ELA and ISIP Reading Scores by Grade

| Grade | NJSLA-ELA Score (SD) | ISIP BOY Reading (SD) | ISIP MOY Reading (SD) | ISIP EOY Reading (SD) |
|-------|----------------------|-----------------------|-----------------------|-----------------------|
| 3 | 707.74 (41.04) | 395.94 (68.76) | 408.32 (87.63) | 404.77 (111.05) |
| 4 | 720.42 (36.86) | 458.09 (67.56) | 463.18 (73.55) | 473.85 (79.33) |
| 5 | 722.59 (36.56) | 492.45 (69.16) | 494.02 (75.07) | 503.14 (86.91) |
| 6 | 724.10 (33.17) | 520.74 (66.24) | 521.33 (80.37) | 539.19 (94.85) |
| 7 | 727.54 (40.23) | 536.42 (66.39) | 543.20 (81.52) | 549.03 (95.62) |
| 8 | 728.07 (42.22) | 560.52 (78.83) | 558.97 (96.33) | 579.06 (112.33) |

Table 6. *Districts' Combined Mean and Standard Deviation (SD) for NJSLA-ELA and ISIP Reading Scores by Grade*

| Grade | NJSLA-ELA Score (SD) | ISIP BOY Reading (SD) | ISIP MOY Reading (SD) | ISIP EOY Reading (SD) |
|-------|----------------------|-----------------------|-----------------------|-----------------------|
| 3 | 711.80 (41.17) | 401.22 (66.05) | 411.44 (84.73) | 413.59 (105.98) |
| 4 | 723.35 (36.54) | 456.88 (64.06) | 465.07 (71.21) | 475.28 (76.71) |
| 5 | 725.87 (36.19) | 491.19 (66.27) | 495.43 (72.34) | 505.59 (83.91) |
| 6 | 726.00 (32.84) | 522.28 (63.39) | 524.01 (77.07) | 540.60 (91.45) |
| 7 | 729.78 (39.07) | 539.01 (62.40) | 546.49 (77.91) | 554.03 (92.32) |
| 8 | 729.03 (40.71) | 563.37 (76.43) | 559.19 (95.77) | 580.40 (108.01) |

Table 7 shows the Pearson product-moment correlation coefficients between ISIP Reading scores and NJSLA-ELA scores for MOY and EOY for both districts combined. The coefficients range from .65 to .70, indicating a strong relationship between ISIP Reading and the NJSLA-ELA. If a student does well on ISIP Reading, then it is likely that the student will do well on the NJSLA-ELA. This finding holds across all grades.

Table 7. *Pearson Product-Moment Correlation Coefficients between ISIP and NJSLA-ELA*

| Grade | MOY ISIP Reading | EOY ISIP Reading |
|-------|------------------|------------------|
| 3 | .68* | .67* |
| 4 | .68* | .66* |
| 5 | .67* | .68* |
| 6 | .69* | .69* |
| 7 | .70* | .67* |
| 8 | .69* | .65* |

* $p < .001$

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Tables 8 through 13 show the probability projection of MOY and EOY ISIP Reading scores to predict NJSLA-ELA performance levels. Low, medium, and high likelihood of attaining a proficiency level can be defined as follows: low is less than 33.0%, medium is 33.1% to 66.0%, and high is greater than 66.1%.

Third Grade

Table 8 shows the probability projection of third grade MOY and EOY ISIP Reading scores to predict NJSLA-ELA performance levels. Students in third grade who attained an ISIP Reading score at MOY and EOY corresponding to the 50th percentile rank had a high probability of achieving level 3 (*Approached Expectations*) on the NJSLA-ELA. Furthermore, students who had ISIP scores around the 50th – 80th percentile ranks had a medium likelihood of achieving level 4 (*Met Expectations*) on the NJSLA-ELA. Similarly, at EOY, ISIP Reading scores corresponding to the 50th – 80th percentile ranks had a medium probability of achieving level 4. A high probability of *level 4* is achieved at the 85th percentile rank.

Students who attained ISIP Reading scores corresponding to the 99th percentile ranks at MOY and EOY had a medium likelihood of achieving level 5 (*Exceeded Expectations*) on the NJSLA-ELA.

Table 8. *Third Grade MOY and EOY ISIP Reading Scores to Predict NJSLA-ELA Performance Levels*

| ISIP Score MOY/EOY | Percentile | Level 3 MOY Probability | Level 3 MOY | Level 3 EOY Probability | Level 3 EOY | Level 4 MOY Probability | Level 4 MOY | Level 4 EOY Probability | Level 4 EOY | Level 5 MOY Probability | Level 5 MOY | Level 5 EOY Probability | Level 5 EOY |
|--------------------|------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|
| 363/371 | 5 | 0.186 | Low | 0.148 | Low | 0.027 | Low | 0.018 | Low | 0.000 | Low | 0.000 | Low |
| 392/402 | 10 | 0.290 | Low | 0.250 | Low | 0.063 | Low | 0.047 | Low | 0.001 | Low | 0.000 | Low |
| 410/422 | 15 | 0.369 | Medium | 0.334 | Medium | 0.101 | Low | 0.081 | Low | 0.002 | Low | 0.001 | Low |
| 423/436 | 20 | 0.431 | Medium | 0.400 | Medium | 0.138 | Low | 0.116 | Low | 0.003 | Low | 0.001 | Low |
| 434/448 | 25 | 0.485 | Medium | 0.460 | Medium | 0.176 | Low | 0.153 | Low | 0.005 | Low | 0.002 | Low |
| 443/458 | 30 | 0.531 | Medium | 0.511 | Medium | 0.212 | Low | 0.190 | Low | 0.007 | Low | 0.003 | Low |
| 452/467 | 35 | 0.576 | Medium | 0.556 | Medium | 0.251 | Low | 0.228 | Low | 0.009 | Low | 0.004 | Low |
| 460/475 | 40 | 0.616 | Medium | 0.597 | Medium | 0.290 | Low | 0.264 | Low | 0.012 | Low | 0.005 | Low |
| 467/483 | 45 | 0.649 | Medium | 0.636 | Medium | 0.325 | Low | 0.303 | Low | 0.015 | Low | 0.007 | Low |
| 474/491 | 50 | 0.682 | High | 0.674 | High | 0.363 | Medium | 0.345 | Medium | 0.019 | Low | 0.010 | Low |
| 481/499 | 55 | 0.714 | High | 0.711 | High | 0.401 | Medium | 0.388 | Medium | 0.023 | Low | 0.013 | Low |
| 489/506 | 60 | 0.748 | High | 0.741 | High | 0.446 | Medium | 0.427 | Medium | 0.029 | Low | 0.017 | Low |
| 496/514 | 65 | 0.776 | High | 0.773 | High | 0.485 | Medium | 0.472 | Medium | 0.035 | Low | 0.022 | Low |
| 504/523 | 70 | 0.805 | High | 0.807 | High | 0.530 | Medium | 0.523 | Medium | 0.043 | Low | 0.030 | Low |
| 512/532 | 75 | 0.832 | High | 0.837 | High | 0.574 | Medium | 0.573 | Medium | 0.052 | Low | 0.040 | Low |
| 522/542 | 80 | 0.862 | High | 0.867 | High | 0.627 | Medium | 0.627 | Medium | 0.065 | Low | 0.054 | Low |
| 533/555 | 85 | 0.890 | High | 0.899 | High | 0.681 | High | 0.693 | High | 0.083 | Low | 0.077 | Low |
| 548/571 | 90 | 0.921 | High | 0.931 | High | 0.748 | High | 0.764 | High | 0.112 | Low | 0.117 | Low |
| 572/592 | 95 | 0.956 | High | 0.964 | High | 0.835 | High | 0.855 | High | 0.170 | Low | 0.206 | Low |
| 626/653 | 99 | 0.990 | High | 0.994 | High | 0.946 | High | 0.965 | High | 0.354 | Medium | 0.515 | Medium |

Fourth Grade

Table 9 shows the probability projection of fourth grade MOY and EOY ISIP Reading scores to predict NJSLA-ELA performance levels.

Students in fourth grade who attained an ISIP Reading score corresponding to the 35th percentile rank at MOY and EOY had a high likelihood of attaining level 3 (*Approached Expectations*) on the NJSLA-ELA. Students with an ISIP performance around the 35th – 70th percentile ranks at MOY or EOY had a medium probability of reaching level 4 (*Met Expectations*) on the NJSLA-ELA. At EOY, Students who attained an ISIP reading score relating to percentile ranks of 90th – 95th in MOY or EOY had a medium probability of achieving level 5 (*Exceeded Expectations*) on the NJSLA-ELA.

Table 9. *Fourth Grade MOY and EOY ISIP Reading Scores to Predict NJSLA-ELA Performance Levels*

| ISIP Score MOY/EOY | Percentile | Level 3 MOY Probability | Level 3 MOY | Level 3 EOY Probability | Level 3 EOY | Level 4 MOY Probability | Level 4 MOY | Level 4 EOY Probability | Level 4 EOY | Level 5 MOY Probability | Level 5 MOY | Level 5 EOY Probability | Level 5 EOY |
|--------------------|------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|
| 408/419 | 5 | 0.253 | Low | 0.260 | Low | 0.049 | Low | 0.056 | Low | 0.000 | Low | 0.001 | Low |
| 435/448 | 10 | 0.373 | Medium | 0.383 | Medium | 0.102 | Low | 0.115 | Low | 0.001 | Low | 0.003 | Low |
| 452/465 | 15 | 0.458 | Medium | 0.464 | Medium | 0.152 | Low | 0.166 | Low | 0.003 | Low | 0.005 | Low |
| 465/479 | 20 | 0.524 | Medium | 0.532 | Medium | 0.201 | Low | 0.217 | Low | 0.005 | Low | 0.009 | Low |
| 476/490 | 25 | 0.580 | Medium | 0.585 | Medium | 0.249 | Low | 0.263 | Low | 0.008 | Low | 0.014 | Low |
| 485/500 | 30 | 0.624 | Medium | 0.632 | Medium | 0.292 | Low | 0.310 | Low | 0.012 | Low | 0.020 | Low |
| 493/509 | 35 | 0.663 | High | 0.673 | High | 0.334 | Medium | 0.354 | Medium | 0.018 | Low | 0.027 | Low |
| 501/517 | 40 | 0.700 | High | 0.708 | High | 0.377 | Medium | 0.396 | Medium | 0.025 | Low | 0.036 | Low |
| 509/525 | 45 | 0.736 | High | 0.741 | High | 0.423 | Medium | 0.439 | Medium | 0.034 | Low | 0.047 | Low |
| 516/533 | 50 | 0.765 | High | 0.773 | High | 0.465 | Medium | 0.483 | Medium | 0.045 | Low | 0.060 | Low |
| 524/541 | 55 | 0.797 | High | 0.802 | High | 0.513 | Medium | 0.527 | Medium | 0.060 | Low | 0.076 | Low |
| 531/549 | 60 | 0.823 | High | 0.829 | High | 0.555 | Medium | 0.571 | Medium | 0.077 | Low | 0.095 | Low |
| 539/557 | 65 | 0.850 | High | 0.854 | High | 0.604 | Medium | 0.614 | Medium | 0.102 | Low | 0.118 | Low |
| 547/565 | 70 | 0.875 | High | 0.876 | High | 0.651 | Medium | 0.656 | Medium | 0.132 | Low | 0.145 | Low |
| 556/575 | 75 | 0.899 | High | 0.901 | High | 0.702 | High | 0.707 | High | 0.173 | Low | 0.184 | Low |
| 566/586 | 80 | 0.923 | High | 0.924 | High | 0.756 | High | 0.758 | High | 0.228 | Low | 0.234 | Low |
| 578/598 | 85 | 0.946 | High | 0.944 | High | 0.814 | High | 0.809 | High | 0.307 | Low | 0.297 | Low |
| 593/614 | 90 | 0.967 | High | 0.965 | High | 0.875 | High | 0.865 | High | 0.420 | Medium | 0.390 | Medium |
| 616/638 | 95 | 0.986 | High | 0.984 | High | 0.939 | High | 0.926 | High | 0.599 | Medium | 0.537 | Medium |
| 661/685 | 99 | 0.998 | High | 0.997 | High | 0.989 | High | 0.982 | High | 0.852 | High | 0.779 | High |

Fifth Grade

Table 10 shows the probability projection of fifth grade MOY and EOY ISIP Reading scores to predict NJSLA -ELA performance levels.

Students in fifth grade who attained an ISIP Reading score corresponding to the 35th percentile at MOY and EOY had a high probability of attaining level 3 (Approached Expectations) on the NJSLA-ELA.. Students with an ISIP Reading score corresponding to the 35th – 65th percentile ranks at MOY had a medium probability of achieving level 4 (*Met Expectations*) on the NJSLA-ELA. A similar trend was observed for EOY in that students with ISIP scores corresponding to the 35th – 70th percentile ranks had a medium probability of reaching level 4 on the NJSLA-ELA.

At MOY and EOY, students who had ISIP scores around the 99th percentiles had a medium probability of reaching level 5 (*Exceeded Expectations*) performance level on the NJSLA-ELA.

Table 10. *Fifth Grade MOY and EOY ISIP Reading Scores to Predict NJSLA-ELA Performance Levels*

| ISIP Score MOY/EOY | Percentile | Level 3 MOY Probability | Level 3 MOY | Level 3 EOY Probability | Level 3 EOY | Level 4 MOY Probability | Level 4 MOY | Level 4 EOY Probability | Level 4 EOY | Level 5 MOY Probability | Level 5 MOY | Level 5 EOY Probability | Level 5 EOY |
|--------------------|------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|
| 432/440 | 5 | 0.261 | Low | 0.244 | Low | 0.040 | Low | 0.045 | Low | 0.000 | Low | 0.000 | Low |
| 461/470 | 10 | 0.391 | Medium | 0.372 | Medium | 0.094 | Low | 0.099 | Low | 0.001 | Low | 0.001 | Low |
| 479/488 | 15 | 0.480 | Medium | 0.457 | Medium | 0.147 | Low | 0.149 | Low | 0.002 | Low | 0.002 | Low |
| 492/502 | 20 | 0.545 | Medium | 0.525 | Medium | 0.197 | Low | 0.198 | Low | 0.003 | Low | 0.004 | Low |
| 504/514 | 25 | 0.604 | Medium | 0.582 | Medium | 0.251 | Low | 0.247 | Low | 0.005 | Low | 0.006 | Low |
| 513/524 | 30 | 0.648 | Medium | 0.629 | Medium | 0.297 | Low | 0.292 | Low | 0.007 | Low | 0.008 | Low |
| 522/533 | 35 | 0.689 | High | 0.669 | High | 0.345 | Medium | 0.335 | Medium | 0.010 | Low | 0.011 | Low |
| 531/542 | 40 | 0.729 | High | 0.707 | High | 0.396 | Medium | 0.380 | Medium | 0.013 | Low | 0.015 | Low |
| 539/550 | 45 | 0.761 | High | 0.739 | High | 0.443 | Medium | 0.421 | Medium | 0.017 | Low | 0.019 | Low |
| 547/559 | 50 | 0.792 | High | 0.772 | High | 0.490 | Medium | 0.468 | Medium | 0.021 | Low | 0.025 | Low |
| 555/567 | 55 | 0.820 | High | 0.800 | High | 0.536 | Medium | 0.510 | Medium | 0.026 | Low | 0.031 | Low |
| 563/575 | 60 | 0.845 | High | 0.825 | High | 0.582 | Medium | 0.551 | Medium | 0.032 | Low | 0.039 | Low |
| 571/584 | 65 | 0.868 | High | 0.851 | High | 0.626 | Medium | 0.597 | Medium | 0.038 | Low | 0.049 | Low |
| 580/593 | 70 | 0.891 | High | 0.875 | High | 0.673 | High | 0.641 | Medium | 0.047 | Low | 0.061 | Low |
| 589/603 | 75 | 0.910 | High | 0.897 | High | 0.716 | High | 0.687 | High | 0.058 | Low | 0.078 | Low |
| 600/614 | 80 | 0.930 | High | 0.918 | High | 0.764 | High | 0.734 | High | 0.073 | Low | 0.099 | Low |
| 612/627 | 85 | 0.948 | High | 0.939 | High | 0.810 | High | 0.784 | High | 0.092 | Low | 0.130 | Low |
| 629/643 | 90 | 0.966 | High | 0.958 | High | 0.863 | High | 0.837 | High | 0.124 | Low | 0.177 | Low |
| 653/669 | 95 | 0.982 | High | 0.979 | High | 0.917 | High | 0.902 | High | 0.183 | Low | 0.273 | Low |
| 702/719 | 99 | 0.996 | High | 0.995 | High | 0.973 | High | 0.969 | High | 0.347 | Medium | 0.508 | Medium |

Sixth Grade

Table 11 shows the probability projection of sixth grade MOY and EOY ISIP Reading scores to predict NJSLA-ELA Reading performance levels.

Students in sixth grade who attained an ISIP Reading score corresponding to the 35th percentile at MOY and the 40th percentile at EOY had a high probability of achieving level 3 (*Approached Expectations*) on the NJSLA-ELA. Students who attained ISIP scores around the 40th – 70th percentile ranks at MOY and 45th – 75th at EOY had a medium probability of level 4 (*Met Expectations*) on the NJSLA-ELA. To have a medium probability of reaching level 5 (*Exceeded Expectations*) on the NJSLA-ELA, students needed to attain an ISIP score around the 95th percentile at MOY and 99th percentile at EOY.

Table 11. *Sixth Grade MOY and EOY ISIP Reading Scores to Predict NJSLA-ELA Performance Levels*

| ISIP Score MOY/EOY | Percentile | Level 3 MOY Probability | Level 3 MOY | Level 3 EOY Probability | Level 3 EOY | Level 4 MOY Probability | Level 4 MOY | Level 4 EOY Probability | Level 4 EOY | Level 5 MOY Probability | Level 5 MOY | Level 5 EOY Probability | Level 5 EOY |
|--------------------|------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|
| 453/462 | 5 | 0.265 | Low | 0.237 | Low | 0.029 | Low | 0.028 | Low | 0.000 | Low | 0.000 | Low |
| 480/491 | 10 | 0.379 | Medium | 0.360 | Medium | 0.066 | Low | 0.064 | Low | 0.000 | Low | 0.001 | Low |
| 498/509 | 15 | 0.461 | Medium | 0.442 | Medium | 0.108 | Low | 0.099 | Low | 0.001 | Low | 0.001 | Low |
| 512/524 | 20 | 0.527 | Medium | 0.511 | Medium | 0.152 | Low | 0.139 | Low | 0.002 | Low | 0.002 | Low |
| 523/536 | 25 | 0.580 | Medium | 0.565 | Medium | 0.195 | Low | 0.177 | Low | 0.003 | Low | 0.004 | Low |
| 533/547 | 30 | 0.627 | Medium | 0.614 | Medium | 0.241 | Low | 0.218 | Low | 0.005 | Low | 0.006 | Low |
| 543/556 | 35 | 0.673 | High | 0.652 | Medium | 0.291 | Low | 0.255 | Low | 0.007 | Low | 0.007 | Low |
| 552/565 | 40 | 0.713 | High | 0.688 | High | 0.342 | Medium | 0.294 | Low | 0.011 | Low | 0.010 | Low |
| 560/574 | 45 | 0.747 | High | 0.723 | High | 0.389 | Medium | 0.337 | Medium | 0.015 | Low | 0.013 | Low |
| 568/583 | 50 | 0.779 | High | 0.756 | High | 0.438 | Medium | 0.382 | Medium | 0.021 | Low | 0.017 | Low |
| 576/591 | 55 | 0.809 | High | 0.784 | High | 0.489 | Medium | 0.423 | Medium | 0.028 | Low | 0.022 | Low |
| 585/600 | 60 | 0.840 | High | 0.813 | High | 0.546 | Medium | 0.470 | Medium | 0.039 | Low | 0.028 | Low |
| 593/608 | 65 | 0.865 | High | 0.836 | High | 0.596 | Medium | 0.512 | Medium | 0.051 | Low | 0.035 | Low |
| 602/617 | 70 | 0.890 | High | 0.861 | High | 0.650 | Medium | 0.559 | Medium | 0.069 | Low | 0.044 | Low |
| 612/627 | 75 | 0.914 | High | 0.885 | High | 0.707 | High | 0.609 | Medium | 0.094 | Low | 0.056 | Low |
| 622/638 | 80 | 0.934 | High | 0.907 | High | 0.758 | High | 0.663 | High | 0.125 | Low | 0.072 | Low |
| 635/651 | 85 | 0.954 | High | 0.930 | High | 0.817 | High | 0.721 | High | 0.177 | Low | 0.095 | Low |
| 651/667 | 90 | 0.972 | High | 0.951 | High | 0.876 | High | 0.784 | High | 0.258 | Low | 0.131 | Low |
| 675/692 | 95 | 0.988 | High | 0.974 | High | 0.937 | High | 0.862 | High | 0.409 | Medium | 0.202 | Low |
| 721/739 | 99 | 0.998 | High | 0.993 | High | 0.988 | High | 0.949 | High | 0.707 | High | 0.385 | Medium |

Seventh Grade

Table 12 shows the probability projection of seventh grade MOY and EOY ISIP Reading scores to predict NJSLA-ELA performance levels.

Students in seventh grade who attained an ISIP Reading score corresponding to at least the 25th percentile at MOY and at least the 30th percentile at EOY had a high likelihood of achieving level 3 (*Approached Expectations*) on the NJSLA-ELA. Students who attained an ISIP Reading score that corresponded to the 25th – 55th percentile ranks at MOY and the 25th – 60th percentile ranks at EOY had a medium probability of achieving level 4 (*Met Expectations*) on the NJSLA-ELA. Students who attained ISIP scores around the 80th – 95th percentile ranks at MOY and above the 95th percentile rank at EOY had a medium probability of achieving level 5 (*Exceeded Expectations*) on the NJSLA-ELA.

Table 12. *Seventh Grade MOY and EOY ISIP Reading Scores to Predict NJSLA-ELA Performance Levels*

| ISIP SCORE MOY/EOY | Percentile | Level 3 MOY Probability | Level 3 MOY | Level 3 EOY Probability | Level 3 EOY | Level 4 MOY Probability | Level 4 MOY | Level 4 EOY Probability | Level 4 EOY | Level 5 MOY Probability | Level 5 MOY | Level 5 EOY Probability | Level 5 EOY |
|--------------------|------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|
| 476/484 | 5 | 0.313 | Low | 0.346 | Medium | 0.080 | Low | 0.102 | Low | 0.002 | Low | 0.005 | Low |
| 506/516 | 10 | 0.469 | Medium | 0.474 | Medium | 0.163 | Low | 0.180 | Low | 0.008 | Low | 0.012 | Low |
| 526/537 | 15 | 0.569 | Medium | 0.556 | Medium | 0.238 | Low | 0.246 | Low | 0.016 | Low | 0.021 | Low |
| 541/553 | 20 | 0.638 | Medium | 0.616 | Medium | 0.304 | Low | 0.303 | Low | 0.025 | Low | 0.030 | Low |
| 554/566 | 25 | 0.693 | High | 0.662 | Medium | 0.366 | Medium | 0.353 | Medium | 0.038 | Low | 0.040 | Low |
| 565/578 | 30 | 0.737 | High | 0.702 | High | 0.421 | Medium | 0.401 | Medium | 0.052 | Low | 0.051 | Low |
| 576/588 | 35 | 0.776 | High | 0.733 | High | 0.477 | Medium | 0.441 | Medium | 0.070 | Low | 0.061 | Low |
| 585/598 | 40 | 0.806 | High | 0.762 | High | 0.524 | Medium | 0.482 | Medium | 0.088 | Low | 0.074 | Low |
| 595/608 | 45 | 0.836 | High | 0.789 | High | 0.576 | Medium | 0.523 | Medium | 0.112 | Low | 0.088 | Low |
| 604/617 | 50 | 0.861 | High | 0.812 | High | 0.621 | Medium | 0.560 | Medium | 0.137 | Low | 0.102 | Low |
| 612/626 | 55 | 0.880 | High | 0.833 | High | 0.660 | Medium | 0.596 | Medium | 0.163 | Low | 0.117 | Low |
| 621/635 | 60 | 0.900 | High | 0.852 | High | 0.703 | High | 0.630 | Medium | 0.195 | Low | 0.134 | Low |
| 630/645 | 65 | 0.918 | High | 0.872 | High | 0.742 | High | 0.667 | High | 0.231 | Low | 0.155 | Low |
| 640/655 | 70 | 0.934 | High | 0.890 | High | 0.783 | High | 0.703 | High | 0.275 | Low | 0.177 | Low |
| 650/665 | 75 | 0.948 | High | 0.906 | High | 0.820 | High | 0.736 | High | 0.323 | Low | 0.201 | Low |
| 662/677 | 80 | 0.962 | High | 0.923 | High | 0.858 | High | 0.773 | High | 0.383 | Medium | 0.232 | Low |
| 675/690 | 85 | 0.973 | High | 0.938 | High | 0.893 | High | 0.809 | High | 0.450 | Medium | 0.268 | Low |
| 692/707 | 90 | 0.984 | High | 0.954 | High | 0.928 | High | 0.850 | High | 0.538 | Medium | 0.318 | Low |
| 717/733 | 95 | 0.993 | High | 0.972 | High | 0.962 | High | 0.899 | High | 0.658 | Medium | 0.398 | Medium |
| 764/781 | 99 | 0.999 | High | 0.990 | High | 0.990 | High | 0.956 | High | 0.826 | High | 0.549 | Medium |

Eighth Grade

Table 13 shows the probability projection of eighth grade MOY and EOY ISIP Reading scores to predict NJSLA-ELA performance levels.

Students in eighth grade who attained an ISIP Reading score corresponding to the 25th percentile at MOY and the 30th percentile at EOY had a high probability of achieving level 3 (*Approached Expectations*) on the NJSLA-ELA. Students who attained an ISIP reading score corresponding to the 25th – 50th percentiles at MOY and 30th – 70th percentiles at EOY had a medium likelihood of attaining level 4 (*Met Expectations*) on the NJSLA-ELA. Students who scored at or above the 85th percentile at MOY and the 99th percentile at EOY had a medium likelihood of reaching level 5 (*Exceeded Expectations*) on the NJSLA-ELA.

Table 13. Eighth Grade MOY and EOY ISIP Reading Scores to Predict NJSLA-ELA Performance Levels

| ISIP SCORE MOY/EOY | Percentile | Level 3 MOY Probability | Level 3 MOY | Level 3 EOY Probability | Level 3 EOY | Level 4 MOY Probability | Level 4 MOY | Level 4 EOY Probability | Level 4 EOY | Level 5 MOY Probability | Level 5 MOY | Level 5 EOY Probability | Level 5 EOY |
|--------------------|------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|
| 496/503 | 5 | 0.326 | Low | 0.332 | Low | 0.087 | Low | 0.098 | Low | 0.002 | Low | 0.003 | Low |
| 530/539 | 10 | 0.474 | Low | 0.451 | Medium | 0.173 | Low | 0.167 | Low | 0.006 | Low | 0.008 | Low |
| 552/561 | 15 | 0.574 | Low | 0.526 | Medium | 0.250 | Low | 0.221 | Low | 0.013 | Low | 0.014 | Low |
| 569/579 | 20 | 0.648 | Low | 0.585 | Medium | 0.319 | Low | 0.271 | Low | 0.021 | Low | 0.020 | Low |
| 583/593 | 25 | 0.705 | High | 0.630 | Medium | 0.381 | Medium | 0.313 | Low | 0.031 | Low | 0.026 | Low |
| 595/606 | 30 | 0.749 | High | 0.669 | High | 0.437 | Medium | 0.354 | Medium | 0.043 | Low | 0.033 | Low |
| 606/618 | 35 | 0.787 | High | 0.704 | High | 0.489 | Medium | 0.394 | Medium | 0.057 | Low | 0.041 | Low |
| 617/628 | 40 | 0.821 | High | 0.731 | High | 0.541 | Medium | 0.427 | Medium | 0.074 | Low | 0.049 | Low |
| 627/639 | 45 | 0.849 | High | 0.759 | High | 0.587 | Medium | 0.464 | Medium | 0.092 | Low | 0.059 | Low |
| 636/649 | 50 | 0.871 | High | 0.783 | High | 0.627 | Medium | 0.498 | Medium | 0.111 | Low | 0.069 | Low |
| 646/659 | 55 | 0.893 | High | 0.805 | High | 0.671 | High | 0.531 | Medium | 0.136 | Low | 0.080 | Low |
| 656/669 | 60 | 0.912 | High | 0.826 | High | 0.712 | High | 0.564 | Medium | 0.165 | Low | 0.093 | Low |
| 665/679 | 65 | 0.927 | High | 0.845 | High | 0.746 | High | 0.597 | Medium | 0.193 | Low | 0.107 | Low |
| 676/689 | 70 | 0.942 | High | 0.863 | High | 0.785 | High | 0.628 | Medium | 0.232 | Low | 0.122 | Low |
| 687/700 | 75 | 0.955 | High | 0.881 | High | 0.820 | High | 0.662 | High | 0.275 | Low | 0.141 | Low |
| 699/713 | 80 | 0.966 | High | 0.900 | High | 0.854 | High | 0.700 | High | 0.325 | Low | 0.165 | Low |
| 713/727 | 85 | 0.976 | High | 0.917 | High | 0.887 | High | 0.738 | High | 0.388 | Medium | 0.194 | Low |
| 730/745 | 90 | 0.985 | High | 0.936 | High | 0.920 | High | 0.783 | High | 0.467 | Medium | 0.235 | Low |
| 756/771 | 95 | 0.993 | High | 0.957 | High | 0.955 | High | 0.838 | High | 0.586 | Medium | 0.300 | Low |
| 805/820 | 99 | 0.998 | High | 0.981 | High | 0.987 | High | 0.914 | High | 0.771 | High | 0.438 | Medium |

Classification Accuracy

We conducted a classification accuracy analysis (Table 14) for third through eighth grade MOY and EOY ISIP Reading scores and NJSLA-ELA levels. Classification accuracy analyses are performed to determine ISIP cut points that can help determine which students likely will or will not attain level 4 (*Met Expectations*) or higher on the NJSLA-ELA. To that end, we computed sensitivity (students who met the *Met Expectations* level or above), specificity (students who did not meet the *Met Expectations* level or above), and the AUC (area under the curve) to determine the best ISIP cut points to identify students who would most likely meet the *Met Expectations* level or higher in the winter and spring for all students. Students at risk are those that did not score well enough on ISIP to reach either the *Met* or *Exceeded Expectations* on the NJSLA-ELA.

The State Department of Education showed that in the 2021 – 2022 school year, 42 % of third grade students in New Jersey met the benchmark in reading (36% in level 4: *Met Expectations* and 6% in level 5: *Exceeded Expectations*). In fourth grade, 49% met benchmark in reading (35% in level 4; 14% in level 5). 49% of fifth grade students met benchmark in reading in New Jersey (40% in level 4; 9% in level 5). In sixth grade, 47% of students were level 4 or above in reading (37% in level 4; 10% in level 5), and 52% of students in seventh grade *met* or *exceeded expectations* in reading (31% in level 4; 21% in level 5). A similar trend was observed for students in eighth grade in that 52% were on levels 4 or above (36% in level 4; 16% in level 5).

In our sample of students, 17% of third grade students were on track to meet expectations (level 4: 16%; level 5=1%) on NJSLA-ELA. In fourth and fifth grades, 25%

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of students were on track to meet expectations (level 4=20%; level 5: 4%). There were 24% (level 4:21%; level 5: 3%), 32% (level 4: 24%; level 5: 8%), and 30% (level 4: 24%; level 5: 6%) of students who were on track to *meet expectations* in sixth, seventh, and eighth grades respectively.

Table 14 shows that sensitivity ranged from .62 (grade 8) to .81 (grade 6) indicating that 62 – 81% of students who were classified by ISIP as likely *Met Expectations* or above on the NJSLA-ELA did achieve those levels. Specificity was .70 in grades 4 and 8, and .77 in grade 30, meaning that 70 – 77% of students who were classified as at risk of not meeting expectations by ISIP did in fact not reach level 4 (*Met Expectations*) or higher level on the NJSLA-ELA. The AUC ranges from .68 to .77, meaning that the model has discriminatory ability: 68–77% of the time, the model will correctly assign a higher absolute risk to a randomly selected student who is at risk of not meeting benchmark or expectations than to a randomly selected student who is not at risk.

Table 14. *Classification Accuracy Indices by Benchmark and Grade*

| Grade | Cut Point | Benchmark | AUC | Sensitivity | Specificity |
|-------|-----------|-----------|-----|-------------|-------------|
| 3 | 35th | Winter | .76 | .76 | .76 |
| 3 | 35th | Spring | .77 | .76 | .77 |
| 4 | 30th | Winter | .71 | .71 | .70 |
| 4 | 30th | Spring | .71 | .67 | .74 |
| 5 | 30th | Winter | .77 | .79 | .74 |
| 5 | 30th | Spring | .75 | .79 | .71 |
| 6 | 35th | Winter | .75 | .78 | .71 |
| 6 | 35th | Spring | .76 | .81 | .71 |
| 7 | 30th | Winter | .68 | .67 | .69 |
| 7 | 30th | Spring | .70 | .67 | .72 |
| 8 | 30th | Winter | .69 | .62 | .76 |
| 8 | 30th | Spring | .70 | .70 | .70 |

Conclusion and Limitations

This study evaluated the relationship between the ISIP Reading assessment and the NJSLA-ELA. The goal of this study is to provide information to teachers and administrators to help them prepare their students for the NJSLA-ELA assessments in the spring. Results showed that students in this sample had to attain high scores on ISIP in order to attain a medium likelihood of achieving level 4 (*Met Expectations*) or level 5 (*Exceeded Expectations*) on NJSLA-ELA. Cut points at the 30th to 35th percentiles showed good classification accuracy for predicting students who would pass the state assessment, although the results varied by grade.

This study has some limitations. First, these results are based on data from two school districts in New Jersey. Their demographic characteristics and performance may differ from other districts in the state. While the results are promising for identifying students who may not pass the state assessment, complete certainty of performance on the state assessment is unknown. Other factors may affect students' NJSLA-ELA scores besides their reading ability as measured by the ISIP assessment.

References

- Campbell, L.O., Sutter, C. C., & Lambie, G. W. (2019). Predictability of Istation's Indicators of Progress scores on students' Virginia Standard of Learning scores: Grades 3 through 8. University of Central Florida. www.istation.com
- Campbell, L.O., Sutter, C. C., Lambie G. W., & Tinstman Jones, J. (2019). Measuring the predictability of Istation's Indicators of Progress Early Reading (ISIP ER) scores on Renaissance STAR Reading® scores. University of Central Florida. www.istation.com
- Cook, M., & Ross, S. (2020). PARCC predictability study – 3rd grade. Johns Hopkins University. www.istation.com/studies
- LePlante, J. (2019). Predictability study of Istation ISIP (Math and Reading) and Ohio AIR (Math and English Language Arts) Tests for 3rd–8th grade students in the Youngstown City School District. Youngstown City Schools. www.istation.com/studies
- Mathes, P. (2016). Technical manual: Istation's Indicators of Progress, Advanced Reading: Computer adaptive testing system for continuous progress monitoring of reading growth for students grade 4 through grade 8.
- Mathes, P., Torgesen, J., & Herron, J. (2015). Technical manual: Istation's Indicators of Progress, Early Reading: Computer adaptive testing system for continuous progress monitoring of reading growth for students pre–K to grade 3.
- Mathes, P., Torgesen, J., & Herron, J.. (2022). Technical manual: Istation's Indicators of Progress (ISIP) Reading: Computer adaptive testing system for continuous progress monitoring of reading growth for students prekindergarten through grade 8.
- Patarapichayatham, C., Fahle, W., & Roden, T. R. (2013). ISIP Reading versus STAAR Reading: The predictability study. Dallas, TX: Istation.
- Patarapichayatham, C. (2019). Linking the Colorado Measures of Academic Success English Language Arts (CMAS ELA) assessments to ISIP Reading assessments grades 3 through 5. Southern Methodist University. www.istation.com/studies
- Wolfe, E., & Ross, S. (2020). Linking Istation ISIP Early Reading with the Idaho ISAT. Johns Hopkins University. www.istation.com/studies