

Measuring the Predictability of Istation's Indicators of Progress Scores on Students' Virginia Standards of Learning (SOL) Scores

The following report has been prepared for Istation. The report is a predictability study of the *Istation's Indicators of Progress Early* (ISIP-ER) and *Advanced Reading* (ISIP-AR) scores to students' Virginia Reading Standards of Learning (SOL) scores. Included in this report are charts, tables, and figures demonstrating the predictability of the ISIP-ER *and* ISIP-AR scores on SOL scores with a sample of student data (N = 4,033). The data in this report does not identify individual districts, schools, or students.

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Abstract

The study provides evidence that *Istation's Indicators of Progress* (ISIP) Reading cut scores can predict the *Virginia Standards of Learning* (SOL) examination scores for all achievement levels among 3rd- to 8th-grade students. The study examined the ISIP Overall Reading and Comprehension scores and the Reading SOL scores for 3rd through 8th grade students. All data came from one county in the Commonwealth of Virginia and was collected during the 2018-2019 school year. A simple linear regression analysis was conducted to determine the correlation of the Reading SOL Scaled Scores and the ISIP-ER and ISIP-AR Overall Reading scores, between $R^2 = .219$ and .561 (between 21.9% and 56.1% of the variance explained), and comprehension scores between $R^2 = .251$ and $R^2 = .523$ (between 25.1% and 52.3% of the variance explained). Therefore, the ISIP-ER and ISIP-AR scaled scores had a strong positive correlation to the SOL scores. Predictability "bands" were computed to identify the ISIP-ER and ISIP-AR cut scores that predict Reading SOL scores for all achievement levels.

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Introduction

The purpose of this study is to determine (a) the predictability of Istation's Indicators of Progress Early Reading (ISIP-ER) and Advanced Reading (ISIP-AR) Overall scaled scores and Reading Comprehension subtest scores related to the Virginia Standards of Learning Assessments (SOL) reading scores; and (b) the cut scores of the ISIP-ER and ISIP-AR and the SOL based on students' achievement level. Obtaining the predictability of a curriculum-based measure like ISIP-ER and ISIP-AR scores on a high-stakes assessment like the SOL can provide early awareness of students' yearly progress towards reaching expected state standards (Miller, Bell, & McCallum, 2015). Further, ISIP-ER and ISIP-AR can provide evidence of how students are meeting formative benchmarks, and the resulting data can provide a pathway to personalized instructional decision-making (Campbell, Lambie, & Planinz, 2016; Sutter, Campbell, & Lambie, 2019).

The predictability of ISIP-ER and ISIP-AR scores may inform students, families, and educators of the need for remediation to support students in earning a passing score of their SOL assessment. The following report provides evidence of predictability and subsequent cut scores for the ISIP-ER and ISIP- AR in relationship to SOL. The following two research questions guided this study:

Research Question 1. To what level does 3rd- through 8th-grade students' ISIP-ER and ISIP-AR scores (Overall Reading and Comprehension scores) predict their SOL scores? **Research Question 2.** What are the cut scores of 3rd- through 8th-grade students' ISIP-ER and ISIP-AR in relationship to their SOL levels of achievement?

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Review of Related Literature

Istation's Indicators of Progress Early Reading (ISIP-ER) – Kindergarten through Grade 3

Continuous progress monitoring in reading can be accomplished by frequent formative assessment. Through the use of ISIP-ER, Kindergarten through 3rd-grade students can be rapidly assessed, providing educators information about their students' reading abilities. Students who take the computer-adaptive, Internet-delivered, curriculum-based measure earn an Overall Reading scaled score and subsequent subtest scores. For example, overall scores for students in 3rd grade are generated from the following subtests: (a) Reading Comprehension, (b) Spelling, and (c) Vocabulary (Mathes, Torgeson, & Herron, 2011; 2016). Prior research indicates that the ISIP-ER is predictive of national and state high-stakes assessment scores (Campbell, Sutter, & Lambie, 2019; Gaughin, 2011; Hoelzle, 2012; Luo, Lee, & Molina, 2017; Patarapichayatham, 2016; 2017).

Istation's Indicators of Progress Advanced Reading (ISIP-AR) - Grade 4 through Grade 8

ISIP-AR is an assessment designed for students in 4th through 8th grade. The ISIP-AR is a computer-adaptive assessment that is typically taken at the beginning of each month or the first time a student uses the program for that month. Teachers can assign students to take the entire assessment or a portion thereof on-demand as needed. Delivery of the assessment is web-based and can only be taken when using a school-designated Internet Protocol (IP) address. While Istation advises teachers to allot 30 minutes for the assessment, most students complete the assessment in 20 minutes or less (see the Fidelity report). In this study, the ISIP-AR Overall Reading score includes four subscale measures: (a) Word Analysis, (b) Text Fluency,

(c) Vocabulary, and (d) Reading Comprehension. The resulting scores guide the subsequent instructional path the student will follow before the next assessment. Likewise, the resulting reports provide instructors information for planning face-to-face instruction. Concurrent validity for Istation assessment scores includes the *Gray Oral Reading Test-4* (GORT – 4), *Woodcock-Johnson-3* (WJ-III), *Wechsler Individual Achievement Test-II* (WIAT-II; spelling, decoding, and word recognition), and the *Peabody Picture Vocabulary Test-IV* (PPVT-IV; Mathes, 2012; 2014).

Virginia's Standards of Learning (SOL)

The SOL measures minimum expectations for learning and achievement for students living in the Commonwealth of Virginia (VDOE Policy and Communication, 2015). For this study, students' Istation Overall Reading and Comprehension scores were compared to the Reading SOL scores. Scaled scores determine students' levels of proficiency and performance. There are four performance levels for reading in Grade 3 through Grade 8, including: (a) *Pass/Advanced*, (b) *Pass/Proficient*, (c) *Fail/Basic*, and (d) *Fail/Below Basic* (see Table 1). The delivery format for the assessment was computer based and the test itself is computer adaptive.

Grade		Fail		Pass		
		Level 4 Below Basic	Level 3 <i>Basic</i>	Level 2 Proficient	Level 1 Advanced	
Grade 3	SOL Scores	0-309	310-399	400-499	500-600	
Grade 4	SOL Scores	0-302	303-399	400-499	500-600	
Grade 5	SOL Scores	0-294	295-399	400-499	500-600	
Grade 6	SOL Scores	0-316	317-399	400-499	500-600	
Grade 7	SOL Scores	0-314	315-399	400-499	500-600	
Grade 8	SOL Scores	0-316	317-399	400-499	500-600	

Reading SOL Test Interpretation

*Scores for each performance level were derived from the current sample.

Methods

Participants

The sample (N = 4,033) was comprised of students from one county in the Commonwealth of Virginia who have scores on both the October ISIP Overall Reading and ISIP Reading Comprehension subtest as well as the SOL, regardless of curriculum usage. The students were enrolled in the following grade levels: (a) 3rd, n = 955; (b) 4th, n = 978; (c) 5th, n= 998; (d) 6th, n = 629; (e) 7th, n = 262; and (f) 8th, n = 211. The distribution of students' academic tier levels by grade is documented in Table 2.

Grade	N	Academic 1	Гier 1	Academic Tier 2		Academic Tier 3	
		N	%	N	%	N	%
Grade 3	955	631	66.1	168	17.6	156	16.3
Grade 4	978	618	63.2	195	19.9	165	16.9
Grade 5	998	856	85.8	79	7.9	63	6.3
Grade 6	629	406	64.5	99	15.7	124	19.7
Grade 7	262	126	48.1	56	21.4	80	30.5
Grade 8	211	87	41.2	44	20.9	80	37.9
Total	4,033	2,724	67.5	641	15.9	668	16.6

Analysis

The purpose of this study was to determine (a) the predictability of ISIP-ER and ISIP-AR Overall Reading and Comprehension scores on students' SOL scaled scores and (b) the predictive scoring bands and cut scores relative to the SOL achievement levels for Grade 3 through Grade 8. The descriptive statistics of both ISIP scores (Overall Reading and Reading Comprehension) as well as the scaled Reading SOL scores are presented in Table 3.

Grade	N	ISIP Overal	I Reading	Reading ISIP Comprehension		eading ISIP Comprehension SOL		
		М	SD	М	SD	М	SD	
Grade 3	955	245.32	19.11	250.00	25.32	423.28	77.50	
Grade 4	978	1901.19	170.50	2024.87	240.73	424.99	72.56	
Grade 5	998	2024.46	178.38	2150.66	256.41	435.09	74.24	
Grade 6	629	2069.48	210.72	2171.78	288.17	424.68	78.17	
Grade 7	262	2117.88	244.52	2174.32	325.24	423.32	79.89	
Grade 8	211	2147.72	248.40	2216.79	327.66	425.47	82.96	

Descriptive Statistics of the Assessment Scores

To determine the correlation between the ISIP-ER and ISIP-AR Overall Reading scores and the SOL scores, a Pearson's *r* was conducted for 3rd through 8th grade. The ISIP-ER Overall Reading score and SOL scores for Grade 3 correlated (r = .749, p < .001 Table 4). The effect size for the identified correlation was large, explaining 56.1% of the variance (Cohen, 1988; 1992). The ISIP-AR Overall Reading scores and SOL scores for Grade 4 (r = .728, p < .001) and Grade 5 (r= .689, p < .001) correlated. The effect size for the identified correlations were large, explaining 53.1% of the variance for Grade 4 and 47.5% for Grade 5 (Cohen, 1988; 1992). The ISIP-AR and SOL scores for the middle school grades correlated for Grade 6 (r = .665, p < .001), Grade 7 (r =.781, p < ..001), and Grade 8 (r = .468, p < .001). The effect size for the identified correlation was large for 6th and 7th grade, explaining 44.2% of the variance for Grade 6 and 61.0% of the variance for Grade 7 (Cohen, 1988; 1992). For Grade 8, the explained variance was 21.9%. In conclusion, for Grades 3-8, the ISIP-ER and ISIP-AR Overall Reading scores had a strong correlation with the Reading SOL scores (see Table 4).

The ISIP-ER Reading Comprehension subscale scores for Grade 3 correlated with the SOL scores (r = .714, p < .001), explaining 51% of the variance. For the upper elementary school grades, the ISIP-AR Reading Comprehension subscales correlated with the SOL scores for Grade 4 (r = .723, p < .001), explaining 52.3% of the variance, and Grade 5 (r = .686, p < .001), explaining 47.1% of the variance. For middle school, the ISIP-AR Comprehension subscales correlated with the SOL scores for Grade 6 (r = .661, p < .001), explaining 43.7% of the variance, Grade 7 (r = .717, p < .001), explaining 51.4% of the variance and Grade 8 (r = .501, p < .001), explaining 25.1% of the variance. Therefore, both the ISIP-ER and ISIP-AR Overall Reading scale score and Reading Comprehension subscale score had a strong correlation with the Reading SOL scores.

Table 4

		ISIP Overall Reading	r ²	ISIP Reading Comprehension	r ²
Grade 3		.749	.561	.714	.510
Grade 4	SOL Scaled Score	.728	.531	.723	.523
Grade 5		.689	.474	.686	.470
Grade 6		.665	.442	.661	.437
Grade 7		.781	.610	.717	.515
Grade 8		.468	.219	.501	.251

Pearson Product-Moment Correlation Coefficients and Effect Size

A simple linear regression analysis was conducted using SPSS software version 24 to determine the predictability of ISIP-ER and ISIP-AR scores to the students' SOL scores. For the Overall Reading predictability, the ISIP Overall Reading score was the predictor variable, and the Reading SOL score was the outcome variable. Likewise, for the Reading Comprehension predictability, the ISIP-AR Reading Comprehension score was the predictor variable, and the Reading SOL score was the outcome variable. Likewise, for the Reading Comprehension predictability, the ISIP-ER and ISIP-AR Reading Comprehension score was the predictor variable, and the Reading SOL score was the outcome variable. The y[^] for 3rd through 8th grade data was computed. For the regression analyses, the October ISIP Overall Reading and Reading Comprehension scores were centered to the mean.

Research Question 1: Simple Linear Regression Analysis

To what level does 3rd- through 8th-grade students' ISIP-ER and ISIP-AR scores (Overall Reading and Comprehension scores) predict their SOL scores?

Primary Grade 3

For 3rd grade, 56.1% of the variance in Reading SOL scores was predicted by the ISIP-ER Overall Reading scores ($R^2 = .560$). The equation for predicting the Reading SOL score is: SOL = 423.289 + 3.037 (ISIP-ER Overall Reading score) + e. The intercept was 423.289. The Reading SOL score was 423.289 as the ISIP-ER Overall Reading score was zero. The slope for ISIP-ER Overall Reading was 3.037, indicating that the Reading SOL score was 426.326 (423.289 + 3.037) as the ISIP-ER Overall Reading score increases 1 unit (See Appendix A).

For 3rd grade, 51.0% of the variance in Reading SOL scores was predicted from ISIP-ER Reading Comprehension scores (R^2 = .510). The equation for predicting the Reading SOL score is: SOL = 423.275 + 2.186 (ISIP-ER Reading Comprehension score) + e. The intercept was 423.275. The Reading SOL score was 423.275 as ISIP-ER Reading Comprehension score was zero. The slope for ISIP-ER Reading Comprehension was 2.186, indicating that the Reading SOL score was 425.461 (423.275 + 2.186) as the ISIP-ER Reading Comprehension score increases 1 unit.

Upper Elementary Grades 4 and 5

For 4th grade, 53.1% of the variance in Reading SOL scores was predicted by the ISIP-AR Overall Reading scores ($R^2 = .531$). The equation for predicting the Reading SOL score is: SOL = 424.987 + .310 (ISIP-AR Overall Reading score) + e. The intercept was 424.987. The Reading SOL score was 424.987 as ISIP-AR Overall Reading score was zero. The slope for ISIP-AR Overall Reading was .310, indicating that the Reading SOL score was 425.297 (424.987 + .310) as the ISIP-ER Overall Reading score increases 1 unit (See Appendix A).

For 4th grade, 52.3% of the variance in Reading SOL scores was predicted from ISIP-AR Reading Comprehension scores ($R^2 = .523$). The equation for predicting the Reading SOL score is: SOL = 424.985 + .218 (ISIP-AR Reading Comprehension score) + e. The intercept was 424.985. The Reading SOL score was 424.985 as ISIP-AR Reading Comprehension score was zero. The slope for ISIP-AR Reading Comprehension was .218, indicating that the Reading SOL score was 425.203 (424.985 + .218) as the ISIP-AR Reading Comprehension score increases 1 unit.

For 5th grade, 47.4% of the variance in Reading SOL scores was predicted by the ISIP-AR Overall Reading scores ($R^2 = .474$). The equation for predicting the Reading SOL score is: SOL = 435.084 + .287 (ISIP-AR Overall Reading score) + e. The intercept was 435.084. The Reading SOL score was 435.084 as ISIP-AR Overall Reading score was zero. The slope for ISIP-AR Overall Reading was .287, indicating that the Reading SOL score was 435.371 (435.084 + .287) as the ISIP-AR Overall Reading score increases 1 unit. For 5th grade, 47.0% of the variance in Reading SOL scores was predicted from ISIP-AR Reading Comprehension scores (R^2 = .470). The equation for predicting the Reading SOL score is: SOL = 435.085 + .199 (ISIP-AR Reading Comprehension score) + e. The intercept was 435.085. The Reading SOL score was 435.085 as ISIP-AR Reading Comprehension score was zero. The slope for ISIP-AR Reading Comprehension was .199, indicating that the Reading SOL score was 435.279 (435.08 + .199) as the ISIP-AR Reading Comprehension score increases 1 unit.

Middle School Grades 6, 7 and 8

For 6th grade, 44.2% of the variance in Reading SOL scores was predicted by the ISIP-AR Overall Reading scores ($R^2 = .442$). The equation for predicting the Reading SOL score is: SOL = 424.675 + .247 (ISIP-AR Overall Reading score) + e. The intercept was 424.675. The Reading SOL score was 424.675 as ISIP-AR Overall Reading score was zero. The slope for ISIP-AR Overall Reading was .247, indicating that the Reading SOL score was 424.922 (424.675 + .247) as the ISIP-AR Overall Reading score increases 1 unit.

For 6th grade, 43.7% of the variance in Reading SOL scores was predicted from ISIP-AR Reading Comprehension scores (R^2 = .437). The equation for predicting the Reading SOL score is: SOL = 424.675 + .179 (ISIP-AR Reading Comprehension score) + e. The intercept was 424.675. The Reading SOL score was 424.675 as ISIP-AR Reading Comprehension score was zero. The slope for ISIP-AR Reading Comprehension was .179, indicating that the Reading SOL score was 424.854 (424.675 + .179) as the ISIP-AR Comprehension score increases 1 unit.

For 7th grade, 61.0% of the variance in Reading SOL scores was predicted by the ISIP-AR Overall Reading scores ($R^2 = .610$). The equation for predicting the Reading SOL score is: SOL = 423.373 + .255 (ISIP-AR Overall Reading score) + e. The intercept was 423.373. The Reading SOL score was 423.373 as ISIP-AR Overall Reading score was zero. The slope for ISIP-AR Overall Reading was .255, indicating that the Reading SOL score was 423.628 (423.373 + .255) as the ISIP-AR Overall Reading score increases 1 unit.

For 7th grade, 51.5% of the variance in Reading SOL scores was predicted from ISIP-AR Reading Comprehension scores ($R^2 = .515$). The equation for predicting the Reading SOL score is: SOL = 423.374 + .176 (ISIP-AR Reading Comprehension score) + e. The intercept was 423.374. The Reading SOL score was 423.374 as ISIP-AR Reading Comprehension score was zero. The slope for ISIP-AR Reading Comprehension was .176, indicating that the Reading SOL score was 423.55 (423.374 + .176) as the ISIP-AR Reading Comprehension score increases 1 unit.

For 8th grade, 21.9% of the variance in Reading SOL scores was predicted by the ISIP-AR Overall Reading scores (R^2 = .219). The equation for predicting the Reading SOL score is: SOL = 425.474 + .156 (ISIP-AR Overall Reading score) + e. The intercept was 425.474. The Reading SOL score was 425.474 as ISIP-AR Overall Reading score was zero. The slope for ISIP-AR Overall Reading was .156, indicating that the Reading SOL score was 425.63 (425.474 + .156) as the ISIP-AR Overall Reading score increases 1 unit.

For 8th grade, 25.1% of the variance in Reading SOL scores was predicted from ISIP-AR Reading Comprehension scores (R^2 = .251). The equation for predicting the Reading SOL score is: SOL = 525.473 + .127 (ISIP-AR Reading Comprehension score) + e. The intercept was 525.473. The Reading SOL score was 525.473 as ISIP-AR Reading Comprehension score was zero. The slope for ISIP-AR Reading Comprehension was .127, indicating that the Reading SOL score was 526.6 (525.473 + .127) as the ISIP-AR Comprehension score increases 1 unit.

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Research Question 2: Confidence Intervals

What are the cut scores of 3rd- through 8th-grade students' ISIP-ER and ISIP-AR in relationship to their SOL levels of achievement?

Confidence score bands were computed to determine the estimate of confidence of the observed scores in the sample being predictive of the SOL. The upper and lower bound of the confidence interval were applied to obtain the prediction band. The confidence score bands were calculated at 95%, meaning that 95% of the population of the sample that scored in these predictive score bands were situated within the predictive range. The lower bound of the confidence score band of the predictor assessment (i.e., ISIP-ER and ISIP-AR Overall Reading scale score and Reading Comprehension subscale score) provided the cut scores between each SOL proficiency level from simple linear regression results. Performance levels were provided by the SOL (See Table 1) and are: (a) *Pass/Advanced*, (b) *Pass/Proficient*, (c) *Fail/Basic*, and (d) *Fail/Below Basic*. Student performance is graded on a scale of 0 - 600 with 400 representing the minimum level of acceptable proficiency. Hence, if a student scores below 400 (Performance Levels 3 and 4), he or she will fail the assessment (See Tables 5-7). Within our data, sample scores were more nuanced by grade, indicating variability for inclusion within a certain performance level.

For example, for 3rd-grade students, the prediction band for Performance Level 2 (*Pass/Proficient*) was 249 - 251 (see Table 5). The ISIP-ER Overall Reading score at 249 is the lower bound cut score. It is 95% certain that students who have an ISIP-ER Overall Reading score between 249 - 251 will score within 400 - 499 on the SOL and that their SOL Performance Level 2 cut score will be in the 400 - 499 range. In other words, 3rd-grade students who score

equal to or above 249 on the ISIP-ER Overall Reading will almost certainly score at Reading SOL performance Level 2 and pass the SOL. For each performance level, the prediction bands are indicated with 95% certainty. Likewise, the same pattern can be followed to determine the prediction bands for the ISIP-ER Reading Comprehension subtest.

Table 5

ISIP-ER Overall Score Prediction Bands and Cut Scores for the Reading SOL Test - Grade 3

		Fail Pass				
Grade		Level 4 Below Basic	Level 3 Basic	Level 2 Proficient	Level 1 Advanced	
Grade 3	ISIP-ER Overall Reading	212-219	231-234	249-251	263-268	
	Lower Bound Cut Score	212	231	249	263	
	SOL Cut Off Scores	0-309	310-399	400-499	500-600	
	ISIP-ER Reading Comprehension	215-222	231-236	252-256	275-282	
	Lower Bound Cut Score	215	231	252	275	

The cut scores for upper elementary grades are presented in Table 6. For example, for 4th-grade students, the prediction band for Performance Level 2 (*Pass/Proficient*) was 1925 - 1945. The ISIP-AR Overall Reading score at 1925 is the lower bound cut score. It is 95% certain that students who have an ISIP-AR Overall Reading score between 1925 - 1945 will score within 400 - 499 on the SOL and that their SOL Performance Level 2 cut score will be in the 400 - 499 range. In other words, 4th-grade students who score equal to or above 1925 on the ISIP-AR Overall Reading score at Reading SOL performance Level 2 and pass the SOL.

		Fail	il Pass		
Grade		Level 4 Below Basic	Level 3 Basic	Level 2 Proficient	Level 1 Advanced
Grade 4	ISIP-AR Overall	1607-1693	1751-1784	1925-1945	2077-2118
	Lower Bound Cut Score	1607	1751	1925	2077
	SOL Cut Off Scores	0-302	303-399	400-499	500-600
	ISIP-AR Comprehension	1714-1788	1807-1845	2046-2077	2303-2366
	Lower Bound Cut Score	1714	1807	2046	2303
Grade 5	ISIP-AR Overall	1703-1789	1855-1889	2038-2060	2179-2219
	Lower Bound Cut Score	1703	1855	2038	2179
	SOL Cut Off Scores	0-294	295-399	400-499	500-600
	ISIP-AR Comprehension	1763-1853	1901-1945	2164-2198	2390-2441
	Lower Bound Cut Score	1763	1901	2164	2390

ISIP-AR Overall Score Prediction Bands for the Reading SOL Test - Upper Elementary

The cut scores for middle school grades are presented in Table 7. For example, for 6thgrade students, the prediction band for Performance Level 2 (*Pass/Proficient*) was 2119 - 2151. The ISIP-AR Overall Reading score at 2119 is the lower bound cut score. It is 95% certain that students who have an ISIP-AR Overall Reading score between 2119 and 2151 will score within 400 - 499 on the SOL, meaning the Performance Level 2 cut score will be in the 400 - 499 range. In other words, 6th-grade students who score equal to or above 2219 on ISIP-AR Overall Reading will almost certainly score at Reading SOL performance Level 2 and pass the SOL.

ISIP-AR Prediction Bands and Cut Scores for the Reading SOL Test - Middle School Grades 6-8

		Fail		Pass	
Grade		Level 4 Below Basic	Level 3 Basic	Level 2 Proficient	Level 1 Advanced
Grade 6	ISIP-AR Overall	1689-1793	1894-1943	2119-2151	2290-2344
	Lower Bound Cut Score	1689	1894	2119	2290
	SOL Cut Off Scores	0-316	317-399	400-499	500-600
	ISIP-AR comprehension	1749-1831	1908-1966	2238-2288	2462-2543
	Lower Bound Cut Score	1749	1908	2238	2462
Grade 7	ISIP-AR Overall	1611-1819	1896-1982	2156-2223	2378-2470
	Lower Bound Cut Score	1611	1896	2156	2378
	SOL Cut Off Scores	0-314	315-399	400-499	500-600
	ISIP-AR Comprehension	1701-1866	1841-1978	2233-2322	2457-2632
	Lower Bound Cut Score	1701	1841	2233	2457
Grade 8	ISIP-AR Overall	1593-1780	1907-2104	2162-2240	2347-2477
	Lower Bound Cut Score	1593	1907	2162	2347
	SOL Cut Off Scores	0-316	317-399	400-499	500-600
	ISIP-AR Comprehension	1593-1865	1883-2016	2214-2319	2583-2746
	Lower Bound Cut Score	1593	1883	2214	2583

Conclusions

Overall, the study's results indicate evidence of predictive validity for 3rd- through 8thgrade students' ISIP-ER and ISIP-AR Overall Reading and Reading Comprehension scores (October)to their SOL scores. Based on this sample of 3rd- through 8th-grade students (*N* = 4,033), educators can rely on the ISIP-ER and ISIP-AR Overall Reading and Reading Comprehension scores to be a strong predictive estimate of SOL scores. The ISIP-ER and ISIP-AR cut scores are useful for educators to predict students' performance on the end-of-the-year SOL tests and to guide instruction prior to the high-stakes achievement testing of the Virginia SOL.

The ISIP-ER and ISIP-AR is designed to be administered monthly. Students are prompted to take the assessment the first time they use the program at school each month. In the participating school district, especially in middle school (see the Fidelity report), not all students utilized the program monthly, rather they may have only use it at the designated benchmarking times. During this year, it was noted that the most compliance to completing the benchmarking assessment occurred during October. For students in need, taking more frequent assessments may aid instructional planning. Teachers, reading coaches, school counselors, and administrators can view the students' data to determine students' progress towards a satisfactory achievement level on the Reading SOL. For example, the ISIP-ER Overall Reading cut score (October) for 3rd grade to pass SOL Achievement Level 2 is 249 - 251. If a 3rd-grade student scores 239 during the October monthly assessment, the student is at risk for not passing the SOL testing in May. Thus, by reviewing the ISIP October monthly assessment educators have time to act and intervene to help the students potentially reach greater achievement.

This study's results provide evidence of the ISIP-ER and ISIP-AR Overall Reading and Reading Comprehension cut scores and predictive score bands in relationship to the Reading SOL for students in 3rd through 8th grade. These predictive score bands provide educators a means to determine students who may be at risk of not passing the SOL and in need of additional interventions. The predictive score bands and resulting cut scores are presented with 95% certainty. Environmental, physical, and psychological factors may impact students' SOL scores.

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Appendix A

Table A1

Simple Linear Regression Analysis Differentiated by Grade: ISIP Overall Reading - Model

Summary

Model Summary										
		Change Statistics								
Grade	R	R ²	Adjusted R ²	Std. Error of the Estimate	R ² Change	F Change	df1	df2	Sig. <i>F</i> Change	
3	.749ª	.561	.560	51.381	.561	1217.222	1	953	.000	
4	.728ª	.531	.530	49.734	.531	1103.665	1	976	.000	
5	.689ª	.474	.474	53.860	.474	898.297	1	996	.000	
6	.665ª	.442	.441	58.434	.442	496.805	1	627	.000	
7	.781ª	.610	.609	49.976	.610	407.041	1	260	.000	
8	.468ª	.219	.216	73.471	.219	58.760	1	209	.000	

a. Predictors: (Constant), October Overall Reading Score

ANOVAª						
Grade		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	3213457.453	1	3213457.453	1217.222	.000 ^b
	Residual	2515914.212	953	2639.994	Î	
	Total	5729371.665	954			
4	Regression	2729856.455	1	2729856.455	1103.665	.000b
	Residual	2414083.345	976	2473.446		
	Total	5143939.800	977			
5	Regression	2605828.194	1	2605828.194	898.297	.000 ^b
	Residual	2889251.567	996	2900.855		
	Total	5495079.761	997			
6	Regression	1696369.635	1	1696369.635	496.805	.000 ^b
	Residual	2140930.203	627	3414.562		
	Total	3837299.838	628			
7	Regression	1016631.628	1	1016631.628	407.041	.000 ^b
	Residual	649379.716	260	2497.614		
	Total	1666011.344	261			
8	Regression	317187.277	1	317187.277	58.760	.000 ^b
	Residual	1128187.330	209	5398.026		
	Total	1445374.607	210			

Simple Linear Regression Analysis Differentiated by Grade: ISIP Overall Reading - ANOVA

a. Dependent Variable: SOL Scaled Score

b. Predictors: (Constant), October Overall Reading Score

Simple Linear Regression Analysis Differentiated by Grade: ISIP Overall Reading - Coefficients

Coefficients ^a							
		Unstandardized Coefficients		Standardized Coefficients			
Grade		В	Std. Error	Beta	t	Sig.	
3	(Constant)	423.289	1.663		254.588	.000	
	October Overall Score	3.037	.087	.749	34.889	.000	
4	(Constant)	424.987	1.590	Ì	267.235	.000	
	October Overall Score	.310	.009	.728	33.221	.000	
5	(Constant)	435.084	1.705		255.197	.000	
	October Overall Score	.287	.010	.689	29.972	.000	
6	(Constant)	424.675	2.330		182.270	.000	
	October Overall Score	.247	.011	.665	22.289	.000	
7	(Constant)	423.373	3.088		137.123	.000	
	October Overall Score	.255	.013	.781	20.175	.000	
8	(Constant)	425.474	5.058		84.119	.000	
	October Overall Score	.156	.020	.468	7.665	.000	

a. Dependent Variable: SOL Scaled Score

Simple Linear Regression Analysis Differentiated by Grade: ISIP Reading Comprehension - Model

Summary

Model	Model Summary								
Grade	R	R ²	Adjusted <i>R</i> ²	Std. Error of the Estimate	Change Statistics				
					<i>R</i> ² Change	F Change	df1	df2	Sig. <i>F</i> Change
3	.714ª	.510	.510	54.267	.510	992.542	1	953	.000
4	.723ª	.523	.522	50.158	.523	1068.616	1	976	.000
5	.686ª	.470	.470	54.058	.470	884.431	1	996	.000
6	.661ª	.437	.437	58.674	.437	487.628	1	627	.000
7	.717ª	.515	.513	55.769	.515	275.655	1	260	.000
8	.501ª	.251	.247	71.994	.251	69.863	1	209	.000

a. Predictors: (Constant), October Reading Comprehension Score

Simple Linear Regression Analysis Differentiated by Grade: ISIP Reading Comprehension -

ANOVA

ANOVA®						
Grade		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	2922908.493	1	2922908.493	992.542	.000 ^b
	Residual	2806463.172	953	2944.872		
	Total	5729371.665	954			
4	Regression	2688474.001	1	2688474.001	1068.616	.000 ^b
	Residual	2455465.799	976	2515.846		
	Total	5143939.800	977			
5	Regression	2584523.499	1	2584523.499	884.431	.000b
	Residual	2910556.261	996	2922.245		
	Total	5495079.761	997			
6	Regression	1678742.937	1	1678742.937	487.628	.000b
	Residual	2158556.901	627	3442.674		
	Total	3837299.838	628			
7	Regression	857351.422	1	857351.422	275.655	.000 ^b
	Residual	808659.921	260	3110.230		
	Total	1666011.344	261			
8	Regression	362105.064	1	362105.064	69.863	.000 ^b
	Residual	1083269.543	209	5183.108		
	Total	1445374.607	210			

a. Dependent Variable: SOL Scaled Score

b. Predictors: (Constant), October Reading Comprehension Score

Simple Linear Regression Analysis Differentiated by Grade: ISIP Comprehension Reading Ability -

Coefficients

Coefficie	ents ^a					
		Unstandardize	ed Coefficients	Standardized Coefficients	T	Sig.
Grade		В	Std. Error	Beta		
3	(Constant)	423.275	1.756		241.041	.000
	October Comprehension Score	2.186	.069	.714	31.505	.000
4	(Constant)	424.985	1.604		264.972	.000
	October Comprehension Score	.218	.007	.723	32.690	.000
5	(Constant)	435.085	1.711		254.262	.000
	October Comprehension Score	.199	.007	.686	29.739	.000
6	(Constant)	424.675	2.339		181.524	.000
	October Comprehension Score	.179	.008	.661	22.082	.000
7	(Constant)	423.374	3.445		122.879	.000
	October Comprehension Score	.176	.011	.717	16.603	.000
8	(Constant)	425.473	4.956		85.846	.000
	October Comprehension Score	.127	.015	.501	8.358	.000

a. Dependent Variable: SOL Scaled Score