education analytics

LINKING STUDY BETWEEN SOUTH CAROLINA COLLEGE- AND CAREER-READY ASSESSMENT (SC READY) AND MVPA ASSESSMENT, GRADES 3-8

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CONTENTS

INTRODUCTION

The South Carolina Education Oversight Committee (SC EOC), in collaboration with the South Carolina Department of Education (SCDE), partnered with Education Analytics (EA) to complete a level-linking study between the South Carolina College- and Career-Ready Assessment (SC READY) in Mathematics and English Language Arts (ELA) and Instructure's MVPA interim assessments in Mathematics and ELA, respectively. This report outlines the methodology used by EA and the outcomes of the linking study. The goal of this report is to statistically connect the SC READY and MVPA assessments' scale scores in grades 3-8 to facilitate further comparisons of proficiency status on these two assessments.

METHODS

Data

This linking study used data from the spring 2024 SC READY Mathematics and ELA assessments and the MVPA Mathematics and ELA assessments administered in the fall, winter and spring of the 2023-24 school year. Only students who took both SC READY and at least one MVPA assessment were included in the analysis, forming a matched sample. Students were matched through their state IDs or district IDs. Specifically, the study included students who completed the fall, winter, or spring MVPA along with the spring SC READY assessment.

Fall, Winter & Spring Linking Studies

The MVPA assessment is not horizontally equated, meaning scores within a school year and across school years are not inherently comparable. As a result, EA conducted separate linking studies by grade and subject for fall, winter, and spring of the 2023-24 school year to ensure accurate and meaningful interpretation of linked scores throughout the year. Linking studies will need to be conducted every year due to this feature of the assessment to support interpretation of results over time.

Post-Stratification Weighting

To increase the generalizability of the linking results based on the matched student sample to South Carolina's student population, EA applied post-stratification weights to the calculations. The variables used in the weighting process include gender, race/ethnicity, English learner (EL) status, poverty status, disability status, and whether a student met or exceeded standards on the same subject SC READY assessment. Through post-stratification weighting, the weighted study sample provides a closer match with South Carolina state population on these key demographic and academic performance variables than the original sample.

Raking was used to calculate the post-stratification weights. Raking involves an iterative proportional fitting procedure, which introduces each demographic and academic variable in a sequence so that it ensures the sample accurately represents the population of all variables under consideration. The variables are introduced one at a time, which allows for the incorporation of more variables in the weighting procedure. The raking procedure includes the following steps:

1. Collect marginal distributions of each weighting variable from South Carolina's student population.
2. Calculate marginal distributions of each weighting variable from the matched sample.
3. Calibrate post-stratification weights using the raking procedure.
4. Trim the weight to be within the range of 0.3 and 3. This is done to minimize the impact of outlier cases which may carry extremely large or small weights.
5. Apply the weights to the matched sample before conducting the linking analyses.

Equipercentile Linking

The linking analyses between SC READY and MVPA assessments were conducted using the equipercentile linking method (Kolen & Brennan, 2004). The equipercentile linking function is determined by the cumulative distribution functions of the two assessments. In the linking process, the cumulative distribution function of scores on the MVPA assessment converted to the spring SC READY score scale is aligned to the cumulative distribution function of scores on SC READY. More specifically, this process utilizes percentile ranks, which indicates the percentage of scores in the frequency distribution that fall below a particular score. Equipercentile linking then establishes the relationship between the two sets of test scores by identifying corresponding percentile ranks of the test scores. Thus, we can establish scores on the MVPA assessment that are aligned to the three SC READY achievement level cut scores (i.e., cut score between Does Not Meet Expectations and Approaches Expectations, cut score between Approaches Expectations and Meets Expectations, and cut score between Meets Expectations and Standard Expectations) at grades 3-8. The linking function can be written as:

$$e_Y(x) = G^{-1}[F(x)]$$

where x represent a score on test X (e.g., SC READY ELA), $e_Y(x)$ is its corresponding score on test Y (e.g., MVPA Reading), $F(x)$ is the cumulative distribution function of a given score on SC READY, and G^{-1} is the inverse of the cumulative distribution function for MVPA, which indicates the MVPA scale score corresponding to a given percentile in the distribution.

Prior to the equipercentile linking, the polynomial log-linear pre-smoothing method is applied to reduce irregularities of the test score distributions. This method fits polynomial functions to the log of the sample density to smooth the distributions of the assessments (Holland & Thayer, 1987, 2000; Rosenbaum & Thayer, 1987).

Classification Accuracy

Classification accuracy statistics are used to evaluate the degree to which the equivalent scores on the spring MVPA assessment to the SC READY achievement level cut scores can be used to accurately classify students' proficiency status. In this report, we summarize seven types of commonly used classification accuracy statistics (see Table 1) based on the cut score between Approaches Expectations (i.e., not proficient) and Meets Expectations (i.e., proficient).

To facilitate appropriate interpretations of the linking results, a bootstrap analysis was also conducted whereby each linking analysis was replicated 1000 times through iterative resampling of each study sample with replacement. The bootstrap standard errors help us understand the amount of error associated with the estimates. The bootstrap standard errors associated with the test cut scores are reported in Tables 11-12.

Table 1. Description of Classification Accuracy Summary Statistics

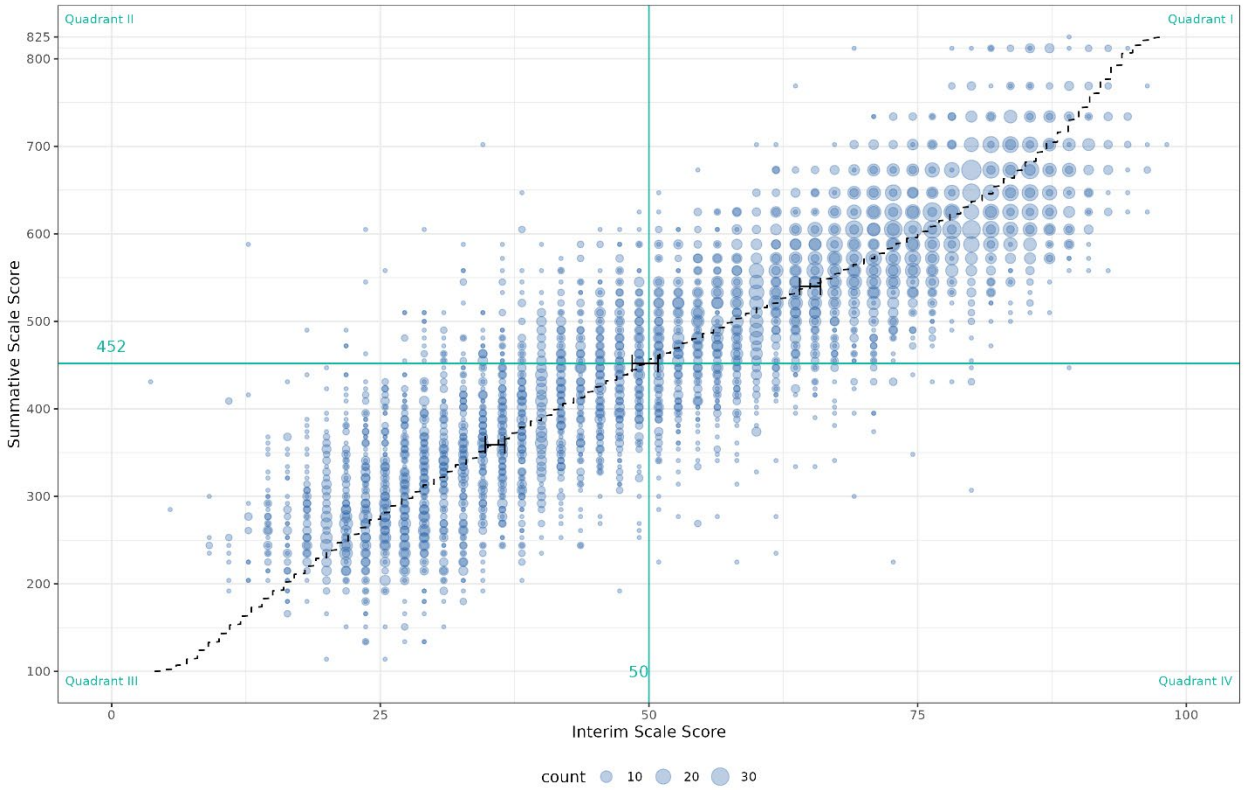
Statistic	Description
Overall Classification Accuracy	Proportion of the study sample with correct proficiency classifications on SC READY based on MVPA cut scores. Calculated as $(TP+TN)/\text{Total Sample Size}$
False Positive (FP) Rate	Proportion of proficient students based on MVPA cut scores among those observed as not proficient on the SC READY test. Calculated as $FP/(FP+TN)$
False Negative (FN) Rate	Proportion of students who were not proficient based on MVPA cut scores among those observed as proficient on the SC READY test. Calculated as $FN/(FN+TP)$
Sensitivity	Proportion of proficient students based on MVPA cut scores among those observed as proficient on the SC READY test. Calculated as $TP/(TP+FN)$
Specificity	Proportion of students who were not proficient based on MVPA cut scores among those observed as not proficient on the SC READY test. Calculated as $TN/(TN+FP)$
Precision	Proportion of observed proficient students on the SC READY test among those classified as proficient based on MVPA cut scores. Calculated as $TP/(TP+FP)$
Area Under the Curve (AUC)	An overall indication of the diagnostic accuracy of a Receiver Operating Characteristic (ROC) curve. AUC tells us how well the MVPA cut score separates the study sample as proficient and not proficient in accordance with the SC READY ELA test cut score. An AUC above 0.80 is considered "convincing evidence" of classification accuracy.

Note: TP = true positive; TN = true negative; FP = false positive; FN = false negative.

Figure 1 is a scatterplot of the SC READY and MVPA ELA scores from grade 3 in Spring 2024. The best-fitting curve (i.e., the black dashed line) shows the MVPA Mathematics scores that correspond to the SC READY Mathematics scores through the linking estimation. For example, the SC READY Mathematics score of 452 is the cut score for "Meets Expectations" at grade 3. This score corresponds to the MVPA ELA score of 50 with a standard error of 0.60 in the linking results. The narrow black bands plotted around the dashed curve show the 95% confidence interval. The small standard errors provide evidence of the accuracy of the linking model. However, the SC READY ELA score of 452 and the MVPA ELA score of 50 should not be used interchangeably. As shown in Figure 1, not all students who scored 50 and above on the MVPA ELA test also scored 452 or higher on the SC READY ELA test in Spring 2024. Specifically, students in Quadrant IV scored lower than 452. Similarly, students who met or exceeded

expectations (i.e., scored 452 or above) on the SC READY ELA test, had a wide range of scores on the MVPA ELA test, some of which were below 50 (i.e., students in Quadrant II). We recommend users examine the scatterplot of observed test scores and bootstrap standard errors to gain a more complete understanding of the linking results and associated limitations.

Figure 1. Scatterplot of the SC READY and MVPA ELA, Grade 3, Spring 2024



RESULTS

Study Sample

The linking study sample described in tables 2 through 7 includes students who took both the SC READY and MVPA Mathematics and ELA assessments in Spring 2024 from three school districts in South Carolina. Tables 2 and 3 summarize the sample characteristics, including student demographic subgroups (i.e., gender, race/ethnicity, poverty, EL, and disability status) and percent of students who met or exceeded standards on the SC READY Mathematics and ELA assessments at each grade in the original sample before post-stratification weighting.

Table 2. Unweighted Linking Study Sample Characteristics: Mathematics (Spring)

Subgroup	Percent of Students by Grade					
	3	4	5	6	7	8
Female	49.8	49.5	49.4	49.1	49.9	49.0
Male	50.2	50.5	50.6	50.9	50.1	51.0
Black	30.4	31.5	31.9	33.9	33.4	39.5
Hispanic	19.4	19.0	17.9	18.1	18.3	21.2
White	41.7	41.1	41.9	39.9	39.9	32.8
Other	8.4	8.4	8.3	8.2	8.3	6.4
Pupil in Poverty	58.0	58.5	58.1	57.8	57.4	64.9
English Learner	16.7	12.6	11.8	12.2	13.0	16.8
Student with Disabilities	14.5	14.6	14.2	13.1	12.9	17.6
SC READY: Meets Expectations or Exceeds Expectations	63.6	59.4	55.6	43.7	37.3	22.3
SC READY: Does Not Meet Expectations or Approaches Expectations	36.4	40.6	44.4	56.3	62.7	77.7

Table 3. Unweighted Linking Study Sample Characteristics: ELA (Spring)

Subgroup	Percent of Students by Grade					
	3	4	5	6	7	8
Female	49.9	49.5	49.4	49.2	49.6	49.5
Male	50.1	50.5	50.6	50.8	50.4	50.5
Black	30.5	31.5	32.0	33.8	33.2	34.2
Hispanic	19.4	19.0	17.9	18.0	18.2	19.0
White	41.7	41.2	41.9	40.0	40.2	39.8
Other	8.4	8.3	8.3	8.2	8.3	6.9
Pupil in Poverty	42.0	41.5	41.8	42.4	43.6	43.2
English Learner	58.0	58.5	58.2	57.6	56.4	56.8
Student with Disabilities	16.7	12.6	11.8	12.1	12.7	14.7
SC READY: Meets Expectations or Exceeds Expectations	14.4	14.7	14.2	13.3	12.6	13.7
SC READY: Does Not Meet Expectations or Approaches Expectations	60.2	62.8	62.3	56.1	53.7	54.1

Distributions of the weighting variables in the South Carolina student population are listed in Table 4. After adjusting for post-stratification weights, the sample characteristics were recalculated. They are shown in Tables 5 and 6 at each grade level for mathematics and ELA, respectively. After weighting, the sample distributions are almost identical to the population distributions.

Table 4. South Carolina Student Population Characteristics

Subgroup	Percent of Students by Grade					
	3	4	5	6	7	8
Female	49.5	48.8	49.0	49.1	48.9	49.2
Male	50.5	51.2	51.0	50.9	51.1	50.8
Black	29.8	29.8	30.2	31.0	31.0	31.4
Hispanic	14.1	13.5	13.5	13.7	13.8	14.0
White	47.0	47.9	47.6	47.0	47.1	46.8
Others	9.0	8.8	8.8	8.3	8.1	7.8
Pupil in Poverty	63.4	62.6	63.0	62.4	61.8	61.5
English Learner	13.0	9.8	9.6	9.8	9.9	10.4
Student with Disabilities	16.7	16.4	15.5	14.0	13.9	13.5
SC READY Math: Meets Expectations or Exceeds Expectations	54.6	51.0	45.7	38.4	33.7	30.3
SC READY Math: Does Not Meet Expectations or Approaches Expectations	45.4	49.0	54.3	61.6	66.3	69.7
SC READY ELA: Meets Expectations or Exceeds Expectations	53.8	57.2	55.6	53.7	50.3	50.3
SC READY ELA: Does Not Meet Expectations or Approaches Expectations	46.2	42.8	44.4	46.3	49.7	49.7

Sources: https://ed.sc.gov/data/test-scores/state-assessments/sc-ready/2024/state-scores-by-grade-level-and-demographic/?districtCode=9999&schoolCode=1001

Note: Information in this table is based on students who took the 2024 SC READY Mathematics and ELA statewide tests. In the few cases where students' race/ethnicity and poverty status differ by 0.1%, numbers shown are the average of percentages from mathematics and ELA.

Table 5. Weighted Linking Study Sample Characteristics: Mathematics (Spring)

Subgroup	Percent of Students by Grade					
	3	4	5	6	7	8
Female	49.5	48.8	49.0	49.1	48.9	49.2
Male	50.5	51.2	51.0	50.9	51.1	50.8
Black	29.9	29.9	30.2	31.0	31.0	31.5
Hispanic	14.1	13.5	13.4	13.7	13.8	13.9
White	47.1	47.9	47.6	47.0	47.2	46.8
Other	9.0	8.8	8.8	8.3	8.1	7.8
Pupil in Poverty	63.3	62.6	63.0	62.4	61.7	61.5
English Learner	13.0	9.8	9.6	9.8	9.9	10.4
Student with Disabilities	16.7	16.4	15.5	14.0	13.9	13.5
SC READY: Meets Expectations or Exceeds Expectations	54.6	49.0	45.7	38.4	33.7	30.3
SC READY: Does Not Meet Expectations or Approaches Expectations	45.4	51.0	54.3	61.6	66.3	69.7

Table 6. Weighted Linking Study Sample Characteristics: ELA (Spring)

Subgroup	Percent of Students by Grade					
	3	4	5	6	7	8
Female	49.5	48.8	49.0	49.1	49.0	49.2
Male	50.5	51.2	51.0	50.9	51.0	50.8
Black	29.9	29.9	30.2	31.0	31.0	31.5
Hispanic	14.1	13.5	13.4	13.7	13.8	13.9
White	47.1	47.9	47.6	47.0	47.2	46.9
Other	9.0	8.8	8.8	8.3	8.1	7.8
Pupil in Poverty	63.3	62.7	63.0	62.4	61.7	61.5
English Learner	13.0	9.8	9.6	9.8	9.9	10.4
Student with Disabilities	16.7	16.5	15.5	14.0	13.9	13.5
SC READY: Meets Expectations or Exceeds Expectations	53.8	57.2	55.6	53.7	50.3	50.3
SC READY: Does Not Meet Expectations or Approaches Expectations	46.2	42.8	44.4	46.3	49.7	49.7

Descriptive Statistics of Test Scores

Table 7 presents summary statistics of the SC READY and MVPA Mathematics and ELA scores using the unweighted linking sample, which include the sample size, mean and standard deviation, and correlation (*r*) between the tests at each grade level. The correlations range from 0.81 (grade 8, Mathematics) to 0.89 (grades 4, 5, and 6, Mathematics, grade 3, ELA) which indicate moderate to strong associations between the two tests. This provides a good foundation for conducting a linking study between the SC Ready and MVPA Mathematics and ELA/Reading tests.

Table 7. Descriptive Statistics of SC READY and MVPA Mathematics and ELA/Reading Scores (Spring)

		Grade					
		3	**4**	**5**	**6**	**7**	**8**
		Mathematics					
	N	7549	7443	7427	7354	7011	5572
	r	0.84	0.89	0.89	0.89	0.86	0.81
SC READY	Mean	493.4	518.1	566.3	538.8	553.1	555.8
	S.D.	129.5	119.9	120.9	115.2	106.9	91.8
	Min.	100	232	277	261	301	354
	Max.	825	850	875	900	925	950
MVPA	Mean	59.4	60.4	58.8	51.5	43.2	37.2
	S.D.	20.2	22.2	22.0	21.9	19.5	16.2
	Min.	5.0	2.5	5.0	5.0	5.0	2.5
	Max.	100.0	100.0	100.0	100.0	98.3	97.5
		ELA					
	N	7541	7438	7430	7340	7122	7197
	r	0.89	0.88	0.88	0.87	0.82	0.84
SC READY	Mean	479.7	546.1	596.4	594.9	631.1	652.9
	S.D.	137.4	131.9	130.1	140.8	138.7	128.7
	Min.	114	223	251	186	310	358
	Max.	825	850	875	900	925	950
MVPA	Mean	54.9	54.8	60.3	52.7	43.4	52.3
	S.D.	20.8	21.0	20.2	19.1	17.3	19.7
	Min.	3.6	5.4	10.9	3.6	5.4	7.3
	Max.	98.2	100.0	100.0	94.6	96.4	98.2

SC READY and MVPA Cut-Score Equivalents

The section below summarizes the linking results by subject, grade level, and term. Table 8 summarizes the SC READY cut score equivalents for the "Meets Expectations" proficiency level on MVPA. Tables 9 and 10 present the linking results between SC READY summative assessment and MVPA fall, winter, and spring tests for mathematics and ELA, respectively. The top panel shows the ranges of SC READY scale scores at each proficiency level and each grade in 2023-24. The bottom panel shows the corresponding MVPA scores.

Table 8. MVPA "Meets Expectations" Cut Score Equivalents Summary

Grade	Mathematics			ELA		
	Fall	Winter	Spring	Fall	Winter	Spring
3	56	52	52	44	47	50
4	53	55	55	54	48	47
5	61	55	55	59	55	55
6	54	59	56	54	47	50
7	54	48	48	45	48	38
8	54	54	46	58	54	49

Table 9. SC READY and MVPA Cut Score Equivalents: Mathematics

	Grade	SC READY			
		Does Not Meet Expectations	**Approaches Expectations**	**Meets Expectations**	**Exceeds Expectations**
	3	100–359	360-437	438-542	543-825
	4	100-400	401-480	481-562	563-850
	5	100-447	448-534	535-621	622-875
	6	100-452	453-542	543-626	627-900
	7	100-487	488-576	577-648	649-925
	8	100-526	527-614	615-682	683-950
Season	**Grade**	**Instructure MVPA**			
		Does Not Meet Expectations	**Approaches Expectations**	**Meets Expectations**	**Exceeds Expectations**
Fall	3	0 - 38	39 - 55	56 - 76	77 - 100
	4	0 - 34	35 - 52	53 - 67	68 - 100
	5	0 - 33	34 - 60	61 - 79	80 - 100
	6	0 - 31	32 - 53	54 - 68	69 - 100
	7	0 - 33	34 - 53	54 - 68	69 - 100
	8	0 - 33	34 - 53	54 - 68	69 - 100
Winter	3	0 - 36	37 - 51	52 - 70	71 - 100
	4	0 - 36	37 - 54	55 - 70	71 - 100
	5	0 - 34	35 - 54	55 - 71	72 - 100
	6	0 - 39	40 - 58	59 - 71	72 - 100
	7	0 - 30	31 - 47	48 - 60	61 - 100
	8	0 - 32	33 - 53	54 - 70	71 - 100
Spring	3	0 - 37	38 - 51	52 - 69	70 - 100
	4	0 - 36	37 - 54	55 - 72	73 - 100
	5	0 - 34	35 - 54	55 - 73	74 - 100
	6	0 - 33	34 - 55	56 - 71	72 - 100
	7	0 - 30	31 - 47	48 - 62	63 - 100
	8	0 - 30	31 - 45	46 - 59	60 - 100

Table 10. SC READY and MVPA Cut Score Equivalents: ELA

	Grade	SC READY			
		Does Not Meet Expectations	**Approaches Expectations**	**Meets Expectations**	**Exceeds Expectations**
	3	100-358	359-451	452-539	540-825
	4	100-418	419-508	509-591	592-850
	5	100-448	449-556	557-652	653-875
	6	100-454	455-574	575-666	667-900
	7	100-511	512-614	615-703	704-925
	8	100-536	537-641	642-736	737-950
Season	**Grade**	**Instructure MVPA**			
		Does Not Meet Expectations	**Approaches Expectations**	**Meets Expectations**	**Exceeds Expectations**
Fall	3	0 - 31	32 - 43	44 - 57	58 - 100
	4	0 - 36	37 - 53	54 - 69	70 - 100
	5	0 - 39	40 - 58	59 - 72	73 - 100
	6	0 - 38	39 - 53	54 - 64	65 - 100
	7	0 - 30	31 - 44	45 - 57	58 - 100
	8	0 - 37	38 - 57	58 - 72	73 - 100
Winter	3	0 - 33	34 - 46	47 - 61	62 - 100
	4	0 - 35	36 - 47	48 - 60	61 - 100
	5	0 - 34	35 - 54	55 - 69	70 - 100
	6	0 - 31	32 - 46	47 - 57	58 - 100
	7	0 - 32	33 - 47	48 - 61	62 - 100
	8	0 - 33	34 - 53	54 - 70	71 - 100
Spring	3	0 - 35	36 - 49	50 - 64	65 - 100
	4	0 - 33	34 - 46	47 - 61	62 - 100
	5	0 - 36	37 - 54	55 - 70	71 - 100
	6	0 - 32	33 - 49	50 - 62	63 - 100
	7	0 - 28	29 - 37	38 - 49	50 - 100
	8	0 - 33	34 - 48	49 - 66	67 - 100

The bootstrap standard errors of each equivalent MVPA cut scores are listed in Tables 11 and 12 for Mathematics and ELA, respectively. They are relatively small across all linking studies conducted across grades 3-8, test subjects, and performance levels. This gives us evidence supporting the accuracy of the linking results. However, it is also important to keep in mind that linking is a statistical procedure to estimate the equivalence between two sets of test scores and, therefore, linking results contain estimation error.

Table 11. Equivalent MVPA Cut Score Bootstrap Standard Errors: Mathematics

Season	Grade	Instructure MVPA Scores Reaching Performance Level...					
		Approaches Expectations		Meets Expectations		Exceeds Expectations	
		Cut Score	S.E.	Cut Score	S.E.	Cut Score	S.E.
Fall	3	39	0.50	56	0.57	77	0.50
	4	35	0.42	53	0.56	68	0.51
	5	34	0.46	61	0.70	80	0.48
	6	32	0.43	54	0.55	69	0.55
	7	34	0.39	54	0.62	69	0.69
	8	34	0.45	54	0.68	69	0.74
Winter	3	37	0.41	52	0.54	71	0.49
	4	37	0.44	55	0.57	71	0.53
	5	35	0.38	55	0.56	72	0.53
	6	40	0.41	59	0.45	72	0.49
	7	31	0.32	48	0.53	61	0.59
	8	33	0.42	54	0.64	71	0.73
Spring	3	38	0.43	52	0.53	70	0.46
	4	37	0.40	55	0.60	73	0.58
	5	35	0.39	55	0.54	74	0.58
	6	34	0.39	56	0.60	72	0.58
	7	31	0.28	48	0.59	63	0.62
	8	31	0.31	46	0.48	60	0.67

Table 12. Equivalent MVPA Cut Score Bootstrap Standard Errors: ELA

Season	Grade	Instructure MVPA Scores Reaching Performance Level...					
		Approaches Expectations		Meets Expectations		Exceeds Expectations	
		Cut Score	S.E.	Cut Score	S.E.	Cut Score	S.E.
Fall	3	32	0.38	44	0.48	58	0.50
	4	37	0.57	54	0.63	70	0.57
	5	40	0.51	59	0.51	73	0.40
	6	39	0.42	54	0.42	65	0.39
	7	31	0.40	45	0.49	58	0.51
	8	38	0.55	58	0.52	73	0.38
Winter	3	34	0.41	47	0.57	62	0.60
	4	36	0.41	48	0.52	61	0.43
	5	35	0.54	55	0.57	70	0.40
	6	32	0.35	47	0.44	58	0.39
	7	33	0.40	48	0.59	62	0.46
	8	34	0.51	54	0.59	71	0.38
Spring	3	36	0.46	50	0.60	65	0.51
	4	34	0.37	47	0.56	62	0.56
	5	37	0.47	55	0.52	71	0.43
	6	33	0.36	50	0.55	63	0.46
	7	29	0.23	38	0.36	50	0.56
	8	34	0.33	49	0.53	67	0.45

Classification Accuracy

Table 13 summarizes results from the classification accuracy statistics described in Table 1 for the spring linking studies. These are diagnostics used to evaluate the accuracy of using the Instructure MVPA test scores to classify students as proficient (Meets Expectations and Exceeds Expectations) or not proficient (Does Not Meet Expectations and Approaches Expectations) on the SC READY Mathematics and ELA summative assessments. The overall classification accuracy statistics range from 0.84 to 0.89, and the AUC statistics are above 0.90 at all grade levels. These diagnostics provide convincing evidence of good classification accuracy for using the linked MVPA scores to estimate students' proficiency status on the SC READY assessments at grades 3-8.

Table 13. Classification Accuracy Results (Spring)

Grade	Overall Classification Accuracy	False Positive Rate	False Negative Rate	Sensitivity	Specificity	Precision	AUC
Mathematics							
3	0.86	0.20	0.10	0.90	0.80	0.89	0.93
4	0.89	0.13	0.09	0.91	0.87	0.91	0.96
5	0.88	0.14	0.10	0.90	0.86	0.89	0.95
6	0.89	0.08	0.15	0.85	0.92	0.89	0.96
7	0.88	0.09	0.17	0.83	0.91	0.85	0.94
8	0.87	0.10	0.24	0.76	0.90	0.68	0.90
ELA							
3	0.89	0.12	0.10	0.90	0.88	0.92	0.95
4	0.89	0.13	0.10	0.90	0.87	0.92	0.95
5	0.89	0.14	0.10	0.90	0.86	0.91	0.95
6	0.88	0.13	0.12	0.88	0.87	0.90	0.95
7	0.84	0.18	0.14	0.86	0.82	0.85	0.91
8	0.85	0.17	0.13	0.87	0.83	0.86	0.92

CONCLUSIONS

It is important to note that equipercentile linking is a statistical procedure used to facilitate interpretation of scores on the SC READY Mathematics and ELA assessments and the Instructure MVPA Mathematics and ELA assessments. Despite good classification accuracy results from this study, there are still important notes of caution to keep in mind when interpreting and using the linked scores.

First, the two tests are constructed differently with regard to test content specifications, test design, and test purpose. SC READY is designed to measure student mastery of grade-level standards with a fixed blueprint and rigorous alignment to South Carolina academic content standards. In contrast, MVPA is a formative assessment tool intended to provide periodic insight into student progress, and differs in design and content emphasis. The statistical adjustments in linking do not adjust for differences in content. Therefore, scores on the SC READY and Instructure MVPA assessments should not be used interchangeably. The linked scores facilitate comparisons of proficiency status between two assessments, but do not imply equivalence.

Second, while there is a high level of confidence associated with the models, the linked scores are based on a 50% likelihood estimation. This means that not all students who reach a proficiency cut score on MVPA will necessarily reach the associated score on SC READY. For

example, as we saw in Figure 1 above, while the SC READY 452 cut score for “Meets Expectations” in grade 3 corresponds to the MVPA ELA score of 50 on average, there is a wide range of MVPA scores among students who reached a 452 on SC READY. The interpretation of the estimated 50 MVPA Mathematics score is that 3rd grade students with this MVPA score have a 50% probability of scoring 452 or higher (i.e., reaching “Meets Expectations”) on the SC READY ELA test. The results are more accurate for students on average than as associated with individual students.

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