Indiana Linking Study

A Study of the Alignment of the NWEA RIT Scale with Indiana's Reading Evaluation and Determination (iREAD)

December 2012

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Recently, NWEA completed a project to connect the scale of Indiana's Reading Evaluation And Determination (iREAD) used for Indiana's reading assessments with NWEA's RIT scale. Information from the state assessments was used in a study to establish performance-level scores on the RIT scale that would indicate a good chance of success on this test.

To perform the analysis, we linked together iREAD test scores and NWEA test results for a sample of 1,418 grade three Indiana students who completed both reading exams in the spring of 2012; the iREAD is administered in the spring. For the spring season (labeled "current season"), an Equipercentile method was used to estimate the RIT score equivalent to each state performance level. For fall (labeled "prior season"), we determined the percentage of the population within the selected study group that performed at each level on the iREAD test and found the equivalent percentile ranges within the NWEA dataset to estimate the cut scores. For example, if 40% of the study group population in grade 3 reading performed below the proficient level on the state test, we would find the RIT score that would be equivalent to the 40th percentile for the study population (this would not be the same as the 40th percentile in the NWEA norms). This RIT score would be the estimated point on the NWEA RIT scale that would be equivalent to the minimum score for proficiency on the state test. Documentation about this method can be found on our website.

Table Sets 1 and 2 show the best estimate of the minimum RIT equivalent to each state performance level for same-season (spring) and prior-season (fall) RIT scores. These tables can be used to identify students who may need additional help to perform well on these tests.

Table Sets 3 and 4 show the estimated probability of a student receiving a proficient score on the state assessment, based on that student's RIT score. These tables can be used to assist in identifying students who are not likely to pass these assessments, thereby increasing the probability that intervention strategies will be planned and implemented. These tables can also be useful for identifying target RIT- score objectives likely to correspond to successful or "proficient" performance on the state test.

Table 5 shows the correlation coefficients between MAP and the state test in each grade. These statistics show the degree to which MAP and the state test are linearly related, with values at or near 1.0 suggesting a perfect linear relationship, and values near 0.0 indicating no linear relationship. Table 6 shows the percentages of students at each grade and within each subject whose status on the state test (i.e., whether or not the student "met standards") was accurately predicted by their MAP performance and using the estimated cut scores within the current study. This table can be used to understand the predictive validity of MAP with respect to the iREAD.

TABLE SET 1 – MINIMUM ESTIMATED SAME-SEASON (SPRING) RIT CUT SCORES CORRESPONDING TO STATE PERFORMANCE LEVELS

iREAD - Current Season			
Cut Scores and %tiles for each State Performance Level			
Grade	Did Not Pass	Pass	
	Cut Score	Cut Score	%tile
3	<189	189	24

TABLE SET 2 – MINIMUM ESTIMATED PRIOR-SEASON (FALL) RIT CUT SCORES CORRESPONDING TO STATE PERFORMANCE LEVELS

iREAD - Prior Season			
Cut Scores and %tiles for each State Performance Level			
Grade	Did Not Pass	Pass	
	Cut Score	Cut Score	%tile
3	<179	179	23

*Note: the cut scores shown in these tables are the minimum estimated scores. Meeting the minimum MAP cut score corresponds to a 50% probability of achieving that performance level. Use the probabilities in Table Set 4 to determine the appropriate 'target' scores for a desired level of certainty. Italics represent extrapolated data.

TABLE 3 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE TEST IN SAME SEASON (SPRING), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP

ASSESSMENT

iREAD - Current Season	
Estimated Probability of Passing State Test Based on Observed MAP Score	
RIT Range	3
120	0%
125	0%
130	0%
135	0%
140	1%
145	1%
150	2%
155	3%
160	5%
165	8%
170	13%
175	20%
180	29%
185	40%
190	52%
195	65%
200	75%
205	83%
210	89%
215	93%
220	96%
225	97%
230	98%
235	99%
240	99%
245	100%
250	100%
255	100%
260	100%
265	100%
270	100%
275	100%
280	100%
285	100%
290	100%
295	100%
300	100%

*Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that same (spring) season. Example: third grade student who scored 200 on a MAP test taken during the spring season, her/his estimated probability of passing the state test is 75%.

TABLE SET 4 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE TEST IN PRIOR SEASON (FALL), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP

iREAD - Prior Season	
Estimated Probability of Passing State Test Based on Observed MAP Score	
RIT Range	3
120	0%
125	0%
130	1%
135	1%
140	2%
145	3%
150	5%
155	8%
160	13%
165	20%
170	29%
175	40%
180	52%
185	65%
190	75%
195	83%
200	89%
205	93%
210	96%
215	97%
220	98%
225	99%
230	99%
235	100%
240	100%
245	100%
250	100%
255	100%
260	100%
265	100%
270	100%
275	100%
280	100%
285	100%
290	100%
295	100%
300	100%

*Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during the prior (fall) season. Example: A third grade student who scored 200 on a MAP test taken during the fall season, her/his estimated probability of passing the state test is 89%.

TABLE 5 – CORRELATION COEFFICIENTS BETWEEN MAP AND STATE TEST FOR EACH GRADE AND TEST SUBJECT

Grade	Reading Correlation Pearson's r
3	0.720

* Note: Correlations range from 0 (indicating no correlation between the state test score and the NWEA test score) to 1 (indicating complete correlation between the state test score and the NWEA test score).

TABLE 6 – PERCENTAGE OF STUDENTS WHOSE PASS STATUS WAS ACCURATELY PREDICTED BY THEIR MAP PERFORMANCE USING REPORTED CUT SCORES

Grade	Sample Size	MAP Accurately Predicted State Performance	MAP Underestimated State Performance	MAP Overestimated State Performance
Reading				
3	1418	92.30%	4.00%	3.70%

*Note: The third column of this table shows the percentage of students whose Pass/NotPass status was predicted accurately when their state test score was linked to their MAP score based on this linking study. The fourth column shows the percentage of students whose MAP score predicted they would not pass the state benchmark but they did pass. The last column shows the percentage of students whose MAP score predicted they would pass the state benchmark but they did not pass. Due to rounding, percentages may not add to 100%.

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