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The Relationship between Quarterly and End-of-Grade Reading Assessments 2007-08

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ABSTRACT

Elementary and middle schools in the Wake County Public School System (WCPSS) are given the opportunity to use periodic assessments throughout the year as a tool to determine how well their students are learning the curriculum. The students then take the required End-of-Grade (EOG) test at the end of the year. An analysis was conducted to determine the relationship between those two means of assessment. This study showed high correlations between the two types of assessments, emphasizing the value of using assessments year-long in order to identify students in need of extra help.

BACKGROUND

Wake County Public Schools (WCPSS) are given the opportunity to use periodic assessments for reading and mathematics to assess student progress throughout the year. Those assessments are developed under a collaboration of the WCPSS Department of Curriculum and Instruction and teachers. They are administered and scored using a software program called Blue Diamond. In January 2009 a study was conducted to explore the relationship between the quarterly results on those periodic assessments and EOG reading scores for a sample of schools in the district. Students' 2007-08 quarterly assessment scores were matched with their 2007-08 EOG scores for three middle and six elementary schools. The schools were purposely selected to be representative of the district as a whole in terms of their student populations, and because they had been implementing the assessments school-wide at regular intervals during the school year. A similar study was conducted by the Compass Consulting Group at the request of WCPSS, comparing periodic assessments results and EOG mathematics scores in June 2008 (McMillen, 2008).

The purpose of these studies was to address two basic questions: 1) to what extent do periodic assessments correlate with EOG scores? and 2) what score does a student need to get on the assessments in order to stand a reasonable chance of scoring at or above Achievement Level III on the EOG test?

RESULTS

Grades 3-5

The periodic reading assessments can be given quarterly or at shorter intervals; they are then aggregated by computing quarterly and yearly percentages of items answered correctly¹. The correlations between these quarterly percentages and EOG reading scores ranged from .60 to .67 (Table 1). The correlation of two variables ranges from -1 to 1. Values approaching -1 are interpreted as a strong negative relationship, 0 as no relationship, and values approaching 1.0 as a strong positive relationship. The correlation between the total percent correct across all quarters and EOG reading scores was .76.

Table 1
Correlations between Grades 3-5 Quarterly Assessments and EOG Reading Scores

	Q1	Q2	Q3	Q4	Total
EOG	0.63	0.67	0.65	0.60	0.76
Q1		0.60	0.58	0.46	0.79
Q2			0.67	0.60	0.88
Q3				0.60	0.87
Q4					0.77

Note: Ns range from 1,738 and 1,964

Interpretation example: The correlation between EOG scores and the 4th quarter's assessments was .60, which means that a higher score on the quarterly assessment is associated with a higher score on the EOG.

Grades 6-8

The correlations between the quarterly assessments and EOG reading scores at the middle school level were relatively high, ranging from .63 to .68 (Table 2). The correlation between the total percent correct across all quarters and EOG reading scores was .74.

Table 2
Correlations between Grades 6-8 Quarterly Assessments and EOG Reading Scores

	Q1	Q2	Q3	Q4	Total
EOG	0.68	0.63	0.68	0.63	0.74
Q1		0.70	0.64	0.61	0.88
Q2			0.63	0.60	0.86
Q3				0.62	0.84
Q4					0.84

Note: Ns range from 1,188 to 1,624.

¹ We chose to use those quarterly aggregates in our analyses.

For elementary schools and even more so for middle schools, the first quarter results correlated almost as highly with EOG reading scores as did the total percent correct across all assessments over the course of the year, implying that a student’s EOG reading score could be predicted nearly as accurately at the end of the first quarter as it could from the full year’s worth of assessment results.

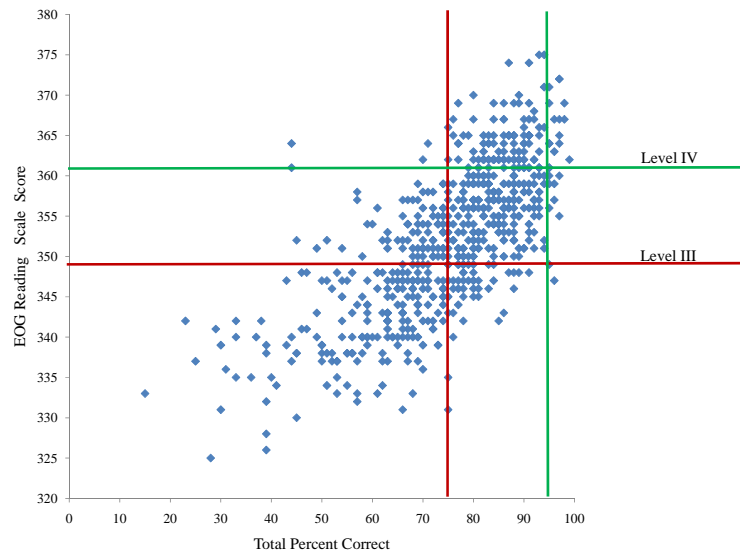
To address the second question of interest, a regression analysis was conducted to estimate the approximate scores on quarterly assessments that corresponded to a Level III (or a Level IV) score on the EOG for each grade level. Based on this analysis, it was possible to estimate the percentage of quarterly assessment items a student should be answering correctly in order to stand a good chance (50% or greater) of scoring at or above Achievement Level III (or IV) on the EOG reading test at the end of the year (Table 3).

Table 3
Approximate Quarterly Assessment Score Ranges
to Predict Reading EOG Levels III and IV

Grade	Quarterly Assessments (Total)	
	Level III	Level IV
3	70-75%	85-90%
4	70-75%	85-90%
5	75-80%	90-95%
6	65-70%	80-85%
7	70-75%	85-90%
8	70-75%	90-95%

The distribution of scores for 5th grade is displayed in Figure 1 to provide a sample visual for the performance ranges specified in Table 3. As the figure demonstrates, students who answered more than 75-80% of quarterly assessment items correctly (represented by the dots to the right of the red vertical line) generally scored at or above Level III on the EOG 5th Grade reading test at the end of the year (represented by the dots above the red line). While it is true that a few students who were above 75% on the assessments still scored below Level III on the EOG, the vast majority of students above that 75% threshold scored above Level III. Similarly, students who answered more than 90-95% of quarterly assessments items correctly generally scored at or above Level IV on the EOG 5th grade reading test at the end of the year as is illustrated by the green lines on Figure 1.

Figure 1
Scatter Plot of 5th Grade Reading EOG Scores and the
Proportion of Quarterly Assessment Items Answered Correctly



Summary

It appears that EOG reading achievement levels can be predicted with reasonable accuracy from the percentage of items students answer correctly on the quarterly reading assessments.

Generally, students who score at or above 75% correct on quarterly reading assessments have about a 50% chance or better of scoring at or above Achievement Level III on the EOG reading test. Schools are encouraged to use the results of this study to identify students who may be in need of additional assistance early in the year.

REFERENCES

McMillen, B. (2008). *The Relationship Between Blue Diamond and End-of-Grade Mathematics Assessments WCPSS Elementary and Middle Schools, 2007-08*. Raleigh, NC: Wake County Public School System.