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RESEARCH BRIEF

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PREDICTING 10TH GRADE FCAT SUCCESS

Results in a Nutshell

Reading: If the 9th Grade FCAT SSS score is higher than 295, then predict passing score on the 10th Grade FCAT SSS.

Mathematics: If the 9th Grade FCAT SSS score is higher than 265, then predict passing score on the 10th Grade FCAT SSS.

Expected Prediction Success Rate:
Reading : 82%
Mathematics: 84%

Introduction

Florida law requires that students achieve a passing score on the Grade 10 FCAT to qualify for a standard high school diploma (Section 1008.22(3)(c)5, Florida Statutes). Students who were administered the Grade 10 FCAT for the first time during the 2002 administrations or later must earn a developmental score of 1926 (SSS passing score of 300) or higher in reading and 1889 (300) or higher for mathematics. Among students taking the 10th Grade FCAT for the first time in 2004, 53% did not achieve passing scores in reading, and 29% did not achieve passing scores in mathematics. Although students are granted many opportunities to retake the tests, any early identification of students in jeopardy of not passing the 10th Grade tests would be a welcome contribution to providing targeted academic remediation to the students most in need.

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The Prediction Model

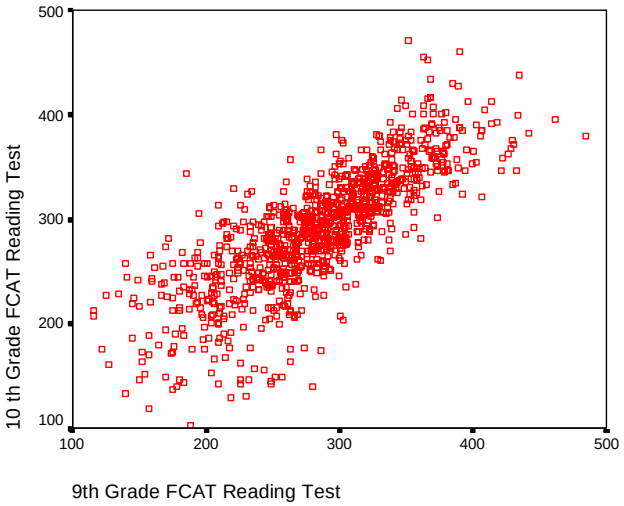
This study addresses an approach to the early identification of students who may be at risk of scoring below the passing score of 300 on their 10th grade FCAT Reading and Mathematics Tests. The two prediction equations in this study each utilize a single predictor: the student's score on the 9th grade FCAT Reading and Mathematics Tests, respectively. The fact that the 9th grade FCAT test data are the most recent, similar type of data makes it a credible choice for a predictor of 10th grade performance. Although other academic and demographic factors could be added to the prediction model, the ease of communicating and applying a simple prediction rule make the single-variable model most desirable.

The Data

Scores on the 2004 FCAT SSS Reading and Mathematics Tests for all 10th graders were matched by student identification with corresponding scores from the 2003 9th grade FCAT tests. The analysis sample included 21,144 students for the Reading Test and 21, 152 students for the Mathematics Test. A similar sample from the previous year's matched students was used to verify the prediction rule and validate the estimation of prediction success.

Establishing the Association

The graph depicts the relationship between the 10 grade and the 9th grade FCAT Reading scores for a 5 percent random subsample of the students. The correlations for Reading and Mathematics are .80 and .79, respectively, and are sufficiently strong for meaningful prediction.



Calculating the Cutoff

A simple linear regression analysis was performed for each of the Reading and Mathematics Tests. The resulting prediction equation for Reading was:

*68.1 + .785 * (9th Grade Score) =*
(Estimated 10th Grade Score)

The "passing" score for 10th Grade Reading is 300. Solving for this value in the above equation establishes a 9th Grade prediction cutoff score at 295. Thus, the general prediction rule for Reading becomes: **if the 9th Grade Reading score is greater than 295, predict passing the 10th Grade Reading Test.**

A similar process was applied to Mathematics, with a resultant prediction rule: **if the 9th Grade Mathematics score is greater than 265, predict passing the 10th Grade Mathematics Test.**

Evaluating Prediction Success

The tables present the results of applying the prediction rules for the students in the sample. For Reading, the overall accuracy rate for predicting success or failure of the 10th grade test was 82%. For Mathematics, the prediction success rate was 84%. When the same rules were applied to the verification sample, similar success rates were observed.

Reading

		Predicted	
		Not-Pass	Pass
Actual	Not-Pass	42%	11%
	Pass	7%	40%

Mathematics

		Predicted	
		Not-Pass	Pass
Actual	Not-Pass	22%	7%
	Pass	9%	62%

Graduated Probabilities

A simple cutoff rule, while easy to apply, may not be the most practical advice for the classroom teacher. Often, the teacher's task is to identify a subgroup of the class that is most likely to benefit from special attention. In this regard, it may be beneficial to assess the relative potential benefits at different levels of student performance.

The probabilities of passing the 10th grade tests increase as the scores on the 9th grade tests increase. This relationship is depicted in the graph below. For 10 score ranges of approximately equal frequency on the 9th grade tests, the probabilities of passing the 10th grade tests are shown on the graph. Since a greater proportion of the students pass the mathematics test, the probabilities of success at each score range level are slightly higher for Mathematics. Teachers may wish to take these probabilities into consideration when trying to assess the relative necessity for remediation.