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Evaluating the Sensitivity of a Reading Comprehension Benchmark Assessment as a Predictor of Performance on a High Stakes Academic Assessment For Middle School Students

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EVALUATING THE SENSITIVITY OF A READING COMPREHENSION BENCHMARK

ASSESSMENT AS A PREDICTOR OF PERFORMANCE ON A HIGH STAKES

ACADEMIC ASSESSMENT FOR MIDDLE SCHOOL STUDENTS

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Education

René Fetchkan

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December 2014

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Title: Evaluating the Sensitivity of a Reading Comprehension
       Benchmark Assessment as a Predictor of Performance on a
       High Stakes Academic Assessment for Middle School Students

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    This study examined the predictive validity and diagnostic

accuracy of STAR Reading, a computer-adaptive benchmark assessment

tool, with the Pennsylvania System of School Assessment (PSSA),

the state summative test. Student data for 320 students in grades

7 and 8 over two years of assessment were examined. Indices of

correlation and predictions were analyzed. Multiple and

hierarchical regression analyses examined the relationships of

fall and winter administrations of STAR Reading for patterns of

relationships of proximity of administration to the summative

test. Logistic regression and ROC Curve analyses provided indices

of classification accuracy for prediction of proficient

performance and local cut scores for fall and winter

administrations of STAR Reading. These local cut scores were

compared to the published national benchmark cut points for STAR

Reading. An attempt was made to cross-validate the prediction of

proficient performance from the first year of the study to the

second year.

Results showed moderate to strong correlations among STAR

Reading and PSSA Reading scores. Despite significant prediction

indices for combined fall and winter STAR Reading scores in both

grades, predictive values were weaker in grade 8 data. No clear

evidence of a stronger relationship of prediction as a function of

proximity to the completion of the state test was found, but

hierarchical regression showed that the winter score added

predictive value in three of four analyses conducted. Logistic

regression indicated good classification accuracy and prediction

of proficient performance on PSSA Reading for grade 7 students,

but produced inconsistent statistical results for grade 8. ROC

curve analyses showed adequate area under the curve (AUC) indices

for three of four analyses. Inconsistencies were demonstrated

frequently in grade 8 data; the attempt at cross-validation of

probability of prediction was not able to be completed for grade 8

due to a slope intercept of .000 for one of the groups of eighth

grade data. While evidence was provided that the overall models

of prediction of STAR Reading to PSSA Reading was statistically

significant, the lower effect size for grade 8 provided

limitations to the mathematical utility of prediction to PSSA

Reading scores.