Comprehensive Instructional Program
Benchmark Assessment Analysis
Summer 2016

During the 2015-2016 school year, nineteen school divisions in Virginia began implementation of the Comprehensive Instructional Program (CIP). The goal of this organization is to improve student achievement through collaboration and using data to drive instruction. The previous year, teachers and administrators worked together across school division lines in this consortium to create curricular materials which include lesson plans, formative assessments, benchmark assessments, and instructional resources. The most effective teachers of at risk students were specifically pressed into service for these efforts. Data has been collected, analyzed, and reported in an ongoing manner across all divisions in the consortium to help guide divisions' school improvement efforts.

We realize that curriculum alignment to the Standards of Learning is very important to the CIP process, and benchmark alignment is even more crucial. To that end, we must constantly monitor the validity of these assessments by conducting statistical analysis to make sure our benchmarks measure what is tested by the Standards of Learning tests. This is the final report of the alignment between the first year of the CIP benchmarks and the Virginia Standards of Learning (SOL) assessments.

Methodology

SOL and benchmark data was collected from across the CIP consortium from the 2015-2016 school year. The aggregate benchmark results for each student were merged in a data set with that student's SOL score. For a student's scores to be included in this data set, the student must have taken all benchmarks associated with the course as well as the SOL test for that course. A Pearson's R Correlation test was conducted using SPSS to determine if CIP benchmark results were correlated to SOL scaled scores, and if so, to what degree.

Descriptives

In all, the data set used to conduct this analysis represents 14 school divisions, 107 schools, and 18,322 students. Not all divisions in the CIP Consortium implemented the CIP benchmarks. Some divisions that did implement these assessments did not implement all of them. In one division, only one school that happened to be in school improvement implemented these benchmarks.

Results

As demonstrated below, there were significant, strong, and positive correlations across all courses, in each core area, and among each course assessed by the Virginia Standards of Learning test. Among the SOL courses, 35% had a correlation coefficient of between 0.6 and 0.7, 58% between 0.7 and 0.8, and 8% greater than 0.8. Basically, these results demonstrate that the higher the benchmark score, the higher the scaled score a student will realize on the SOL test. This also strongly suggests that a student

who earns a low score on the benchmark will not perform well on the SOL test without effective remediation.

Correlations for All Courses and by Core

Test	Correlation (Coefficient)	Number of Students
All Courses	Strong (.644)	33379
Reading	Strong (.712)	9272
Math	Strong (.702)	11424
Science	Strong (.729)	6284
History	Strong (.629)	6399

Table 1

Correlations by Course

Test	Correlation (Coefficient)	Number of Students
Gr 3 Reading	Strong (.735)	1255
Gr 4 Reading	Strong (.740)	1194
Gr 5 Reading	Strong (.709)	1085
Gr 6 Reading	Strong (.763)	1598
Gr 7 Reading	Strong (.746)	1679
Gr 8 Reading	Strong (.733)	1345
EOC Reading	Strong (.636)	1116
Gr 3 Math	Strong (.737)	1748
Gr 4 Math	Strong (.695)	1499
Gr 5 Math	Strong (.775)	1542
Gr 6 Math	Strong (.766)	1625
Gr 7 Math	Strong (.803)	1143
Gr 8 Math	Strong (.797)	1160
Algebra I	Strong (.732)	683
Algebra II	Strong (.693)	892
Geometry	Strong (.670)	1132
Virginia Studies	Strong (.774)	747
Civics and Economics	Strong (.725)	1991
World History I	Strong (.810)	1028
World Geography	Strong (.668)	1253
Virginia and US History	Strong (.730)	1265
Science 5	Strong (.738)	943
Science 8	Strong (.690)	1682
Earth Science	Strong (.687)	1691
Biology	Strong (.638)	1411
Chemistry	Strong (.621)	672

Table 2

Predictive Value of Benchmarks

During the 2015-2016 school year, we employed a new method to analyze the benchmarks to measure school level progress towards improvement goals. While we knew the CIP benchmarks were closely aligned with the SOL test, the benchmarks do not utilize the same scale as the SOL test, the benchmarks are not equated, and each benchmark only assesses the content taught during that quarter, not the full course. Therefore, benchmark scores and SOL scores are not directly comparable. However, we were able to compare relative benchmark performance to relative SOL performance.

The CIP reports that are provided to divisions for SOL and benchmark results contain relative performance information in the form of percentile ranks. These percentile ranks inform report viewers the relative performance of their organization relative to all others in the CIP consortium. By comparing the benchmark percentile ranks to the SOL percentile ranks, one can determine if the organization is gaining ground among the rest of the field according to the benchmark percentile ranks. If so, then it would be expected for that organization to have a higher percentile rank on the SOL test, and therefore a higher pass rate.

This methodology for monitoring progress has been proven to have great merit. While monitoring schools in improvement, we were able to predict with a great degree of accuracy those schools that would be fully accredited in 2016-2017 and those that would not. We were also able to predict which divisions would realize the greatest positive difference in SOL scores from 2015 to 2016. In addition, the top 6 scoring divisions on the benchmark also appeared in exactly the same order on overall SOL results, with the remainder deviating very little.