Investigating the Relationship Between the Content of Instruction and Student Performance in Tennessee Restructuring Schools

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Appalachia Educational Laboratory (AEL)
at

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Table of Contents

List of Tables

Introduction

Standards-based reform, which began in the early 1990s, calls for establishing challenging standards in academic content areas as a means of improving student achievement. In 1994, Congress passed the Goals 2000: Educate America Act, which enacted the goals into law and provided resources for the development of standards and assessments (U.S. Department of Education, 1994). Subsequently, states across the nation developed content standards that were intended to guide the development of local curricula and ultimately the content of classroom instruction, i.e., concepts, skills, and applications that are to be taught (Porter, 1994).

Like most other states, Tennessee developed curriculum standards for several content areas. These standards (*Guidelines for All Subject/Content*) are posted on the Department's Web site and are also incorporated in the *Blueprint for Learning: A Teacher's Guide to the Tennessee Curriculum* (Tennessee Department of Education, n.d.). In addition, Tennessee developed student assessments that are aligned with the standards. Districts were then expected to develop written curricula that reflected those standards, and teachers are expected to use their district's written, aligned curriculum to determine the content of instruction for their classrooms. As the curriculum changes were implemented across the state, student performance achieved an acceptable level of proficiency in some schools but in others it did not. Tennessee designated the low-performing schools *high priority* for receiving assistance.

With the passage of the No Child Left Behind Act of 2001, states are required to develop and implement a single statewide accountability system to ensure that all districts and schools achieve adequate yearly progress (AYP) and hold accountable those that do not. Among other requirements, schools that do not achieve AYP are to be identified for increasingly rigorous sanctions designed to bring about meaningful change in instruction and performance. Within federal guidelines, states define AYP for each district and school to achieve. States also specify annual objectives to measure progress of schools and districts to ensure that all groups of students—including low-income students, students from major racial and ethnic groups, students with disabilities, and students with limited English proficiency—reach proficiency. Each year, states must publicize and disseminate the results of their review (NCLB, 2002).

In 2003, Tennessee made its existing accountability system more compatible with the new federal NCLB requirements. Under this new accountability system, schools must show each year that a higher percentage of students are reaching standards of academic proficiency in math, reading, and language arts. The goal of NCLB is for all children in every school and district to reach academic proficiency in those subjects by year 2014.

The first year a Tennessee public school does not meet federal AYP standards, it is given a warning, and the Tennessee Department of Education offers technical assistance. There are no sanctions at this point, and the school has another year to demonstrate progress in the low-performing areas. The Tennessee Department of Education designates schools and

districts high priority if they fall short of AYP for more than one year in a row in the same content area. Each year that a school receives a high-priority designation, it is assigned to a new high-priority category. Schools that have been designated high priority for six successive years are assigned to the *restructuring* category.

Schools identified as high priority receive assistance from the state through the assignment of Exemplary Educators (EEs). These highly skilled, experienced educators work with the schools' educational staffs to develop and implement school improvement plans to increase the performance of the schools' students on state assessments of achievement. Exemplary Educators are expected to use their professional judgment to identify and select strategies that they believe are aligned with the school's needs and its capacity to improve. However, there has been little information available to the EEs, or others, about the extent to which the content of classroom instruction was aligned with state standards.

Although Tennessee teachers are expected to use their district's written, aligned curriculum to make their decisions about the content of instruction, teachers tend to have considerable latitude in deciding what content is to be taught and how. Researchers have found that the alignment among the content of instruction, state standards, and assessments is the most important variable for predicting gains in student achievement (Cohen, 1987; Cohen, 1995; Gamoran, Porter, Smithson, & White, 1997; Mitchell, 1998; Porter, 2002; Porter & Smithson, 2001; Wishnick, 1989). Cohen (1987) found that alignment accounts for 50% of the variance in student achievement.

Given the importance of alignment, Appalachia Educational Laboratory at Edvantia, Inc., researchers asked, "Is a school's performance related to the degree to which the content of instruction is aligned with the content standards?" According to Tennessee Department of Education staff, it is important for Tennessee, school districts, and schools as well as EEs to know if that is the case. This study was designed to help answer that question.

Objectives of the Study

The objectives of this study were to

1. determine the topics and cognitive demand specified in Tennessee's intended curriculum
2. determine the extent to which the written curriculum in districts with *restructuring* schools is aligned with Tennessee's content standards
3. determine the extent to which the content of instruction in *restructuring* schools is aligned with Tennessee's content standards
4. determine the relationship between the content of instruction in *restructuring* schools and student performance on state assessments

This project was built on Edvantia's prior experience in developing and using tools to evaluate curriculum alignment with state standards (Ceperley, 2003; Ceperley & Penn, 1996; Ceperley & Squires, 2000; Ceperley, Craig, & Redfield, 2005; Redfield, Craig, & Ceperley,

2004). In addition, the project was built on the long history of research led by Andrew C. Porter, Vanderbilt University (e.g., Porter, 1994; Porter, 2002; Porter & Smithson, 2001). During the past 25 years or more, Porter and associates have developed and validated three types of tools for determining curriculum content and alignment (Porter, 2002; Blank, Porter, & Smithson, 2001). These tools helped to make it possible to achieve the objectives for this project. The tools include

- teacher surveys (Surveys of Enacted Curriculum) for measuring the content of instruction in three content areas (English language arts/reading [ELAR], mathematics, and science)
- a coding system for defining the topics covered and levels of cognitive demand required by state standards and curriculum documents
- alignment indexes for describing the extent to which there is alignment between content of instruction and state standards

James R. Craig, Edvantia's director of research, and Patricia E. Ceperley, director of the Edvantia-IHE CoVenture, co-managed the project, which was conducted in collaboration with several Tennessee institutions of higher education (IHEs) that are members of the CoVenture. Edvantia staff worked with Vanderbilt CoVenture faculty researchers Andrew C. Porter, who served as an advisor to the project and trained the panel of experts, and Thomas Smith, who analyzed the data. Expert content area panelists were recruited from the University of Tennessee–Knoxville, University of Memphis, Tennessee State University, and Vanderbilt.

Purpose of the Report

The purpose of this report is to provide information to Tennessee EEs that may help them make decisions about whether to work with their assigned school to align curriculum and instruction with state standards or choose another strategy for helping the school to improve student academic performance. The report includes a description of the topics and cognitive demand included in the Tennessee Content Standards and locally developed district curricula. The report also presents comparisons of the content standards and locally developed district curricula as well as the comparisons of teacher survey results and state standards.

Audience for the Report

The primary audiences for the findings are the Tennessee Exemplary Educators. In addition, state and local leaders who are responsible for assisting with the improvement of the state's high priority schools may use this information to make decisions about their roles in aligning district- and school-level curricula. The findings may also be of interest and use to IHEs that prepare teachers for Tennessee public schools and provide professional development opportunities for in-service teachers. Local, state, and national level

policymakers as well as the Institute of Education Sciences, which funded the study, may also find value in the report.

Utility

State policymakers whose job it is to help low-performing schools improve are likely to be very interested in having information that will help them do their jobs. Likewise, the Tennessee Exemplary Educators who are assigned to high-priority schools will have more information with which to make decisions about how to help schools improve their performance.

Methodology

This study examined the content of instruction in 24 restructuring schools during the 2004-2005 school year to determine the degree of alignment between the content of instruction and the Tennessee content standards and district curricula. The study was implemented in five phases.

Phase I: Selecting the Sample

Twenty-four restructuring elementary and middle/junior high schools were selected for this study. They were selected because in 2003, they failed to achieve AYP goals for the third consecutive year. Further, they had been designated high priority by the state for six consecutive years. The 24 schools are located in three districts: District A, District B, and District C. High schools were not included in the study because the data collection for this study conflicted with the administration of the Tennessee end-of-course tests.

Phase II: Coding the Content Standards

The second phase of this study was to analyze the content of the Tennessee standards for English language arts/reading (ELAR), mathematics, and science as found in the *Guidelines for All Subject/Content* published by the Tennessee Department of Education. Expert panelists were recruited from Tennessee teacher education IHEs across the state. Panels were composed of four content experts in each of the three content areas of ELAR, mathematics, and science. The panelists were trained to use the systematic set of procedures developed by Porter and Smithson in 2001 and published by the Council of Chief State School Officers (2004) to conduct the analyses. The panelists reviewed the Tennessee standards to determine the unit of analysis. The Tennessee standards documents are organized by content area, and within each content area are standards, learning expectations, student performance indicators, and teacher performance indicators. The panelists selected the learning expectations as the unit of analysis. Following a one-half day training session, panelists spent one and one-half days practicing the process. Panelists assigned a numeric code for each topic represented by each learning expectation and an alpha code to each level of cognitive demand. Following the two days of training and guided practice, the panelists returned to their institutions and continued the coding process on their own.

When the panelists completed their tasks and returned the coding forms to the lab, it became clear that there was little, if any, interrater reliability. So project managers turned to retired Tennessee educators who were familiar with the state standards to assist with the project. This time, two panelists were selected for each content area. This new set of experts observed that the learning expectations were too abstract to be used as the unit of analysis for coding purposes. The experts suggested that the better choice for analyzing the content of the standards would be the student performance indicators. Following a two-day training and

guided practice sessions, the new set of panelists continued to code the standards on their own.

To achieve 100% interrater reliability, panelists who had completed the coding process returned the coding forms to project staff. Results were compared and, when disagreement was found, panelists were notified and asked to discuss the differences, reach agreement, and notify project staff of the agreed-upon outcome. Codes were changed to reflect that agreement.

Phase III: Coding the Districts' Curricula

The third step was to conduct an analysis of the three districts' curricula. Following the procedures outlined by Porter (2002) and presented in the training session, the expert panelists from IHEs individually coded the topics covered and level of cognitive demand for each of the district curriculum documents in mathematics, science, and ELAR. The panelists returned their coding forms to the lab, and project staff reviewed their work. Again, there was little interrater reliability. The new set of panelists (i.e., retired educators) hired to code the content of the state standards was then asked to code the district curricula. Following a two-day training session, the new set of panelists continued to code the curriculum documents on their own.

To achieve 100% reliability, panelists who had completed the coding process returned the coding forms to project staff. Results were compared and, when disagreement was found, panelists were notified and asked to discuss the differences, reach agreement, and notify project staff of the outcome. Codes were changed to reflect that agreement.

Phase IV: Surveying Classroom Teachers

The purpose of the survey was to document what teachers actually taught during the school year. The project plan indicated that at the end of the first semester of the 2004-2005 academic year, teachers would complete the Surveys of Enacted Curriculum (Council of Chief State School Officers, 2003a, b, & c) to gather information on the extent to which the content standards were covered and whether the cognitive demand required by the standards also occurred in instruction during that semester. For the remainder of the year, teachers would be asked to complete weekly content of instruction logs. These would be collected from each teacher for the academic year using procedures developed by Smithson and Porter (1994). Project managers were advised by Porter that the weekly logs would be viewed as a burden to the teachers and, thus, the data would not be valid. Porter recommended that the best evidence of what was taught during the school year could be collected during a single administration of the surveys to teachers at the end of the school year.

The Surveys of Enacted Curriculum (SEC) have been used in several states and school districts—first to test and validate the SEC (Porter, 2002) and then to provide the information needed to increase the alignment between the enacted curriculum and state

standards. Permission to use the instruments for research purposes was obtained from CCSSO, which holds the copyright (2003a, b, & c).

The Web site for the surveys indicates that surveys may be changed to fit the needs of the user. Project staff decided to eliminate the column that asked teachers to estimate the amount of time they spent on each topic because it wasn't a variable of interest to staff. It was hoped that the elimination of that column would lead to an increase in the number of surveys completed.

The use of the SEC and the letter of informed consent were approved by the Edvantia Institutional Review Board (IRB) prior to administration. The surveys were administered by EEs working in the schools selected for this study. Prior to administration of the surveys, the EEs were trained to follow the procedures for administering the surveys and responding to questions that teachers might have. Procedures for administering the surveys were obtained from the SEC Web site—the *overview* and *taking the survey* sections of Surveys of Enacted Curriculum (CCSSO, 2005a & b). EEs were encouraged to follow the procedures (e.g., provide snacks, comfortable setting) to ensure that all teachers completed the survey.

In the elementary schools, teachers were asked to complete two surveys: mathematics and ELAR. The EEs were directed to give half the teachers in each school the mathematics survey first; the other half were to complete the English Language Arts/Reading survey. After the first survey was completed, teachers were asked to complete the second survey.

Three surveys—ELAR, mathematics, and science—were administered to the middle school grades. Each teacher in the middle or junior high schools was asked to complete one survey—the one that represented the content they taught most often.

Phase V: Analyzing the Data

The final phase of the project was to use the data analysis procedures developed by Porter and Smithson (2001) to organize and analyze the data collected through the coding procedures and the teacher surveys. Project staff additionally worked with an online process developed by John Smithson at the University of Wisconsin to handle the large volume of data and allow project staff to access the results of the analyses in a timely fashion. Once the data were added to the University of Wisconsin database, project staff was able to query the database to get the reports needed to address the project objectives. As Porter (2002) explains,

> the descriptive results are visually presented in two formats. "Content maps" use surface area mapping to present the data as hills and valleys in a topographic map layout. "Content graphs" use a series of traditional bar charts, arrayed in a matrix layout, to present data for each content "cell." Content maps provide a powerful graphic image of the curricular content being portrayed. (p. 2)

In addition to the topographical contour maps that visually represent the degree of alignment, Porter has developed a more precise, mathematical procedure for calculating the degree of alignment or similarity between any two descriptions employing the same descriptive language to code the content.

Findings

Results of the data analyses are reported below.

Rate of Return

Exemplary Educators collected and maintained all the completed surveys until they were collected by lab staff. The overall rate of return was 84% for ELAR surveys, 83% for math, and 70% for science. The school-by-school rates of return for Districts A, B, and C ranged from a low of 14% to a high of 100%. See Table 1 for school-level data.

Table 1: Rate of Return of Surveys by Content Area

District-School	No. ELAR Surveys Returned	ELAR Rate of return	Math surveys returned	Mathematics Rate of return	Science returned	Science Rate of return
A-1	4	100%	4	100%	3	100%
A-2	16	84%	15	79%		NA*
A-3	4	67%	5	83%	4	100%
B-1	6	38%	7	44%		NA
B-2	12	92%	11	85%		NA
C-1	6	86%	6	86%	7	100%
C-2	9	100%	5	100%	2	50%
C-3	5	63%	3	50%	4	100%
C-4	2	40%	1	33%	2	100%
C-5	8	100%	6	100%	4	80%
C-6	24	100%	17	71%		NA
C-7	1	20%	1	33%	2	100%
C-8	29	97%	29	97%		NA
C-9	12	100%	6	100%	2	67%
C-10	8	100%	7	100%	3	100%
C-11	23	77%	24	80%		NA
C-12	5	83%	3	75%	0	0%
C-13	18	100%	6	100%	0	0%
C-14	10	48%	11	79%	7	70%
C-15	12	86%	12	86%		NA
C-16	49	98%	47	94%		NA
C-17	10	100%	6	100%	3	100%
C-18	1	14%	1	14%	1	14%
C-19	19	100%	19	100%	0	NA
	293	84%	**252**	83%	**44**	70%

*NA indicates that surveys were not administered at that school.

Degree of Alignment between Content of Districts' Curricula and Tennessee Content Standards

Panels of content experts analyzed the topics covered and level of cognitive demand of the Tennessee Content Standards and local district curricula for ELAR, mathematics, and science. The coding data from the two documents were then compared to determine their degree of alignment. If every topic and level of cognitive demand from one document exactly matched the other, the alignment measure would be 1, reflecting perfect agreement. A number less than 1 indicates less than perfect alignment. The lower the number, the lower the degree of alignment. The results of the various analyses are reported below.

English Language Arts/Reading (ELAR) Curricula Alignment to State Standards

Districts' ELAR curricula were compared to state ELAR standards grade by grade, Kindergarten (K) through Grade 8. Tables 2 and 3 show the results of those comparisons.

Elementary ELAR curricula. Overall, it appears that the degree of alignment of the three districts' ELAR elementary curricula was consistently low. As Table 2 indicates, the average alignment measure for District A Grades K through 5 is .49 with a standard deviation of .09. The average for District B is .47 (*SD*=.09), and for District C is .49 (*SD*=.09). The least alignment across the districts is found at the kindergarten level.

Table 2: Measures of Alignment Between Tennessee English Language Arts/Reading Standards and Districts' Curricula for Kindergarten through Grade 5

Grade Level	District A Curriculum	District B Curriculum	District C Curriculum
K	0.31	0.34	0.36
1	0.55	0.54	0.53
2	0.49	0.56	0.44
3	0.41	0.44	0.48
4	0.56	0.36	0.48
5	0.60	0.58	0.64
Mean	0.49	0.47	0.49
SD	0.09	0.09	0.08

Middle school ELAR curricula. Overall, it appears that the three districts' ELAR middle school curricula also had very similar alignment results. These results indicate a low level of alignment. As Table 3 indicates, the average alignment measure for District A Grades 6 through 8 was .57 with a standard deviation of .08. The average for District B is .54 (*SD*=.07), and for District C is .54 (*SD*=.09). While these averages are somewhat higher than those for the elementary schools, they still indicate poor alignment with state standards.

Table 3: Measures of Alignment Between Tennessee English Language Arts/Reading Standards and Districts' Curricula for Grades 6 through 8

Grade Level	District A Curriculum	District B Curriculum	District C Curriculum
6	0.63	0.45	0.62
7	0.62	0.61	0.57
8	0.46	0.57	0.42
Mean	0.57	0.54	0.54
SD	0.08	0.07	0.09

Mathematics Curricula Alignment to State Standards

Districts' mathematics curricula were compared to state mathematics standards grade by grade, Kindergarten (K) through Grade 8. Tables 4 and 5 show the results of those comparisons. Across all three districts, the results show low measures of alignment.

Elementary mathematics curricula. The comparisons of districts' mathematics curricula to state content standards for K through Grade 5 also show a low degree of alignment between (see Table 4). District A has the highest degree of alignment, .62 (*SD*=.18). The district does not have a written curriculum for Grade 2, however. The average measure of alignment for District B is .55 (*SD*=.06) and for District C is .48 (*SD*=.06).

Table 4: Measures of Alignment Between Tennessee Mathematics Standards and Districts' Curricula for Kindergarten through Grade 5

Grade Level	District A Curriculum	District B Curriculum	District C Curriculum
K	0.98	0.67	0.37
1	0.42	0.50	0.44
2	NA	0.50	0.46
3	0.48	0.54	0.46
4	0.57	0.50	0.55
5	0.67	0.60	0.58
Mean	0.62	0.55	0.48
SD	0.18	0.06	0.06

Middle school mathematics curricula. Overall, the results for mathematics Grades 6 through 8 show a low degree of alignment between the curricula and the standards (see Table 5). District A has the highest degree of alignment, .58 (*SD*=.11). The average for District B is .47 (*SD*=.08) and for District C is .56 (*SD*=.06).

Table 5: Measures of Alignment Between Tennessee Mathematics Standards and Districts' Curricula for Grade 6 through 8

Grade Level	District A Curriculum	District B Curriculum	District C Curriculum
6	0.68	0.56	0.62
7	0.64	0.37	0.58
8	0.42	0.48	0.48
Mean	0.58	0.47	0.56
SD	0.11	0.08	0.06

Science Curricula Alignment to State Standards

Districts' science curricula were compared to state mathematics standards grade by grade, Kindergarten (K) through Grade 8. Tables 6 and 7 show the results of those comparisons. Across all three districts, the results show low measures of alignment between districts' curricula and state standards.

Elementary science curricula. Overall, the results show greater variability across districts than do ELAR and mathematics. Although considerably higher than the other two districts, District A data indicated a low degree of alignment between the curriculum and the standards (*M*=.66; *SD*=.29). District B and District C data show a low degree of alignment. The average measure for District B is .27 (*SD*=.08), and District C is .23 (*SD*=.06).

Table 6: Measures of Alignment Between Tennessee Science Standards and Districts' Science Curricula for Kindergarten through Grade 5

Grade Level	District A Curriculum	District B Curriculum	District C Curriculum
K	0.76	0.13	0.30
1	0.89	0.21	0.14
2	0.85	0.36	0.28
3	0.39	0.25	0.15
4	0.98	0.30	0.25
5	0.11	0.39	0.24
Mean	0.66	0.27	0.23
SD	0.29	0.08	0.06

Middle school science curricula. For middle school science curricula, the results across districts were similar to ELAR and mathematics. District A data indicate a low degree of alignment between the curriculum and the standards (*M* = .53; *SD* =.27), although it is

somewhat higher than the other two districts. Further, District A's Grades 6 and 7 show a much higher degree of alignment than does Grade 8. District B and District C data show a low degree of alignment. The average measure for District B is .45 (*SD*=.02), and District C is .22 (*SD*=.06).

Table 7: Measures of Alignment Between Tennessee Science Standards and Districts' Curricula for Grades 6 through 8

Grade Level	District A Curriculum	District B Curriculum	District C Curriculum
6	0.76	0.45	0.30
7	0.68	0.48	0.21
8	0.16	0.42	0.16
Mean	0.53	0.45	0.22
SD	0.27	0.02	0.06

Summary

The results of the comparisons of degree of alignment between the Tennessee Standards and the ELAR, mathematics, and science curricula of the three districts indicate that overall, district curricula have a low degree of alignment with the state standards. The lack of alignment suggests that students may not have the opportunity to learn the content on which they will be tested each year.

Degree of Alignment Between the Surveys of Enacted Curriculum and Tennessee Content Standards

To determine the degree of alignment between the Surveys of Enacted Curriculum (SEC) and the Tennessee Content Standards (*Guidelines for All Subject/Content,* Tennessee Department of Education) for this study, ELAR and mathematics surveys were administered to teachers in the sample of 24 schools. Surveys for science were administered only at the middle schools. Responses on the surveys define the enacted curriculum, which includes the topics taught and the level of cognitive demand of those topics.

Results Across the Three Districts

The SEC have been tested extensively and shown to provide valid and reliable information about what teachers actually teach in the classroom throughout the school year (Porter, 2002). Teachers' responses on the surveys were compared to state standards. Tables 8 and 9 show the overall results of the alignment surveys by content area and grade level. The findings are described for each content area.

English Language Arts/Reading (ELAR). Of the 293 ELAR surveys returned, 282 were sufficiently complete to calculate alignment of the teacher SEC responses to state standards. As shown in Tables 8 and 9, the measures of alignment for both elementary and middle school grades show a low degree of alignment. ELAR teacher SEC responses indicate the lowest level of alignment among the three content areas. For Grades K through 5, the average alignment measure is .28 (*SD*=.12) and for Grades 6 through 8, the measure is .27 (*SD*=.10).

Mathematics. Of the 252 surveys returned, 231 included sufficient data to permit researchers to calculate the alignment of SEC responses to state standards. Across grade levels K through 5, the measures of alignment were consistently low (see Tables 8 and 9). The average measure of alignment for K through Grade 5 is .40 (*SD*=.03) and for Grades 6 through 8, the measure is .40 (*SD*=.04).

Science. Science Surveys of Enacted Curriculum were administered only to teachers of Grades 6 through 8. Of the 44 science surveys returned, 40 were sufficiently complete to allow researchers to calculate the measure of alignment of SEC responses to state standards. Across the three grade levels, the measures of alignment were consistently low (see Table 5). The average measure of alignment for Grades 6 through 8 is .25 (*SD*=.03).

Table 8: Extent to Which Teacher SEC Responses Across Three Districts Were Aligned with Tennessee Content Standards by Content Area and Grade Level for Kindergarten through Grade 5

	ELAR		Mathematics	
Grade Level	Measure of Alignment	*n*	Measure of Alignment	*n*
K	0.09	29	0.39	21
1	0.28	30	0.38	26
2	0.24	33	0.36	33
3	0.46	30	0.37	26
4	0.38	27	0.45	25
5	0.20	22	0.42	19
Mean	0.28	171	0.40	150
SD	0.12		0.03	

Table 9: Extent to Which Teacher Survey Responses Across Three Districts Were Aligned with Tennessee Content Standards by Content Area and Grade Level for Grades 6 through 8

	ELAR		Mathematics		Science	
Grade Level	Measure of Alignment	*n*	Measure of Alignment	*n*	Measure of Alignment	*n*
6	0.25	50	0.45	36	0.23	11
7	0.21	34	0.43	23	0.23	13
8	0.30	27	0.35	22	0.29	16
Mean	0.27	111	0.40	81	0.25	40
SD	0.10		0.04		0.03	

Summary

The measures of alignment between Tennessee Standards and teachers' responses on the ELAR, mathematics, and science SEC indicate that overall, the degree of alignment was minimal. Additionally, the measure of alignment of teachers' SEC responses to state standards tended to be lower than the measure of alignment of curricula to state standards. This finding is further evidence that students do not appear to have the opportunity to learn the content on which they will be tested.

Relationship Between Alignment of the Enacted Curriculum and Student Achievement

To investigate whether the degree of alignment is related to school performance, the teacher responses on the surveys were organized into two groups. One group included responses of teachers at schools that achieved AYP requirements and the other group included responses of teachers at schools that did not. Measures of alignment were calculated by grade level. The means and standards deviations were then calculated. The results show negligible differences between the two groups of schools for all three content areas (see Tables 10, 11, and 12). For ELAR, the mean measure of alignment was .28 (*SD*=.10) for schools making AYP and .26 (*SD*=.10) for schools not making AYP. Mathematics and science show similar results. It should be noted that, if fewer than three teachers responded to surveys, the alignment measure is not reported.

Table 10: Comparison of Measures of Alignment for ELAR in Tennessee Restructuring Schools That Achieved AYP in 2005 and Schools That Did Not

Grade Level	Achieved AYP	*n*	Did Not Achieve AYP	*n*
K	0.09	18	0.09	11
1	0.28	20	0.27	10
2	0.24	22	0.24	11
3	0.46	20	0.46	10
4	0.38	15	0.36	12
5	0.20	16	0.21	6
6	0.26	20	0.25	31
7	0.26	7	0.20	27
8	0.35	3	0.29	24
Mean	0.28	141	0.26	142
SD	0.10		0.10	

Table 11: Comparison of Measures of Alignment for Mathematics in Tennessee Restructuring Schools That Achieved AYP in 2005 and Schools That Did Not

Grade Level	Achieved AYP	*n*	Did Not Achieve AYP	*n*
K	0.40	15	0.36	6
1	0.36	17	0.40	9
2	0.37	23	0.36	10
3	0.35	16	0.39	10
4	0.43	15	0.47	10
5	0.40	10	0.43	9
6	0.46	15	0.44	21
7	0.43	3	0.43	20
8	0.33	4	0.36	18
Mean	0.39	118	0.40	113
SD	0.04		0.04	

Table 12: Comparison of Measures of Alignment for Science in Tennessee Restructuring Schools That Achieved AYP in 2005 and Schools That Did Not

Grade Level	Achieved AYP	*n*	Did Not Achieve AYP	*n*
6	0.19	3	0.24	8
7	<3	1	0.23	12
8	0.30	3	0.29	13
Mean	0.25	7	0.25	33
SD	0.05		0.02	

Summary

Both groups of schools consistently show low measures of alignment across all content areas. Minimal or no difference was found between the measures of alignment for schools that achieved AYP and those that did not.

Conclusions and Recommendations

Scientifically based research has shown that an enacted curriculum that is aligned with the content that students are expected to learn will result in higher student performance. The purpose of this study was to determine the alignment between the state content standards and the written and enacted curricula. Any lack of alignment might explain the low levels of performance of students in the study schools. The findings clearly led the researchers to draw three conclusions:

1. There is little alignment between the state standards and the written curricula in each of the three districts for all three content areas. A written curriculum should provide teachers with a clear guide for making decisions about what to teach. If it is not aligned with the state content standards, teachers are left to make uninformed decisions about what content is most important to teach.
2. There is a low degree of alignment between teachers' responses on the Surveys of Enacted Curriculum and the state standards. This is not surprising given that the written curriculum is minimally aligned. Nor is it surprising given the low-level performance of the students on state-mandated, standards-based tests. These findings suggest that students may not be performing well on state assessments because they have not had the opportunity to learn the content on which they are tested.
3. The low measures of alignment do not appear to be associated with whether or not schools achieved AYP standards. It is possible that the pervasiveness of low measures of alignment across all restructuring schools makes it difficult to detect any differences. Researchers would benefit from having similar data from high-performing schools to use for comparison.

Given these conclusions, the researchers offer the following recommendations:

1. District curriculum and instruction staff in the districts where the Tennessee Restructuring Schools are located should individually or collectively review and revise their curricula to ensure their alignment with state standards.
2. Given the state's responsibility to ensure progress in schools that have failed to make AYP, the state's department of education curriculum and instruction staff may want to consider developing an aligned curriculum guide for all schools in the state.
3. Staff in the Tennessee Restructuring Schools and the EEs serving them should focus their school improvement efforts on ensuring that the enacted curriculum is aligned with state standards. Activities may include frequent meetings of grade-level teams (school- or districtwide) to map the content that should be taught and develop a scope and sequence for teaching that content. Systems for monitoring student progress continuously throughout the school year need to be developed and put in place, and school leaders need to be trained to monitor the teaching of the content as well as student mastery of content.

4. Finally, in the future, a similar study should be conducted that includes data collection across a broader sample of schools—one that includes high-performing as well as low-performing schools. In addition, if at all possible, assessment data should be obtained to use for determining the relationship between curriculum alignment and student performance in Tennessee schools.

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