

ISSUE BRIEF

www.centerforcsri.org

August 15 | 2009

VERTICAL ALIGNMENT

Ensuring Opportunity to Learn in a Standards-Based System

In response to requirements in the No Child Left Behind Act (NCLB), state policymakers have made concerted efforts to align state standards with state accountability assessments. When strongly aligned and articulated, state standards and assessments can provide a clear and coherent set of expectations for students and educators (Case & Zucker, 2005; Council of Chief State School Officers, 2002, 2006; Kulm, Wilson, & Kitchen, 2005; Resnick, Rothman, Slattery, & Vranek, 2003).

However, state standards and assessments are not a curriculum, and their potential for improving student achievement depends in large part on the degree of alignment with district curricula (Ananda, 2003; La Marca, Redfield, & Winter, 2000; Porter & Smithson, 2001; Wraga, 1999). To this end, the focus has expanded to how districts write or adopt curricula that are aligned with state documents, and how they guarantee that curricula are implemented consistently so that all students have the opportunity to learn (Bergman, Calzada, LaPointe, Lee, & Sullivan, 1998; Blank, 2004).

How do districts ensure that what is taught and tested in classrooms aligns with the state standards and assessment? One approach is through vertical alignment of the district's written curriculum with state standards and assessments. Vertical alignment articulates the

logical, consistent order for teaching the standards-based content in a subject area from one grade level or course to the next (Case & Zucker, 2005).

Curriculum alignment often has been cited as one of the most powerful strategies for improving student achievement (Cawelti & Protheroe, 2003; Center for Comprehensive School Reform and Improvement, 2006; Edvantia, 2005; Kercheval & Newbill, 2001; Marzano, 2003; McGehee & Griffith, 2001; Shannon & Bylsma, 2004; Skrla, Scheurich, & Johnson, 2000; Squires, 2009; Virginia Department of Education, 2000). The current educational climate emphasizes meeting rigorous state standards and passing high-stakes assessments, combined with the use of data-based decision making. It presents new challenges and opportunities for school districts as they seek to align written curriculum with state standards and assessments (Blank, 2004; Clarke, Stow, Ruebling, & Kayona, 2006).

There are different approaches to undertaking vertical curriculum alignment in a district (see, for example, Kallick & Colosimo, 2009; Squires, 2009). Regardless of the approach taken, districts will most likely face similar implementation issues. This brief explores some of the issues that districts may face when implementing vertical

alignment of the written curriculum across grade levels. It is organized as follows:

- Brief overview of vertical curriculum alignment
- Common issues that successful districts have addressed when implementing vertical alignment as part of districtwide curriculum development
- Vignettes that highlight selected aspects of vertical alignment activities

A Brief Overview of Vertical Curriculum Alignment

Following are just a few of the questions that vertical alignment can answer (Porter, 2002):

- Do students experience the same opportunities to learn valued academic content?
- What content is emphasized in a particular course?
- Do teachers know enough about one another's content focus and instruction to ensure that students experience a reasonable progression of content as they advance from grade to grade or course to course?

In a standards-based system, curriculum content is a key variable—perhaps even more so than instruction—in supporting student achievement (Gamoran, Porter, Smithson, & White, 1997). When the content that is taught is not part of a standards-based curriculum, students are not taught what is assessed. This can result in lower achievement scores (Clarke et al., 2006; Squires, 2009). The task is to ensure that the written, taught, and assessed curricula are aligned with one another (Anderson, 2002).

Vertical alignment provides such a mechanism by ensuring that content coverage is cohesive, consistent, and appropriately linked to standards that have been aligned with state assessments. Alignment organizes the curriculum sequentially into focused and manageable content that can be mastered within the time provided. Content gaps and duplication are eliminated during the alignment process (Phelps, 2005). Content is articulated at each grade or course level, which allows teachers to focus on building skills and knowledge while reducing the need for excess review and repetition.

Vertical alignment is conducted as a multistep process that requires substantial time and input from district staff. Although there are many ways to conduct vertical alignment (for example, see Drake & Burns, 2005; English, 1992; March & Peters, 2002; Squires, 1998, 2009; Wise & Alt, 2005), most approaches include some variation of the following activities:

- Review each state standard in relation to the district's written curriculum. This involves developing outcome indicators for each curriculum area and cross-referencing them to the district curriculum.
- Delineate grade-level objectives related to the standards for each curriculum area or course. This involves identifying those content standards that should be taught and reinforced across several grade levels, as well as those that are prerequisites for others. Objectives provide a sequential set of steps from one level to the next.
- Determine what students should know and be able to do as a result of mastering the objectives and develop a corresponding list of performance indicators.
- Prepare a scope and sequence chart that includes standards, objectives, and performance goals for each content area.
- Outline the target knowledge, skills, and concepts across grade levels and courses

- Identify assessment strategies for standards and objectives, as appropriate.
- Pilot, test, and implement the curriculum.

In a standards-based system, vertical alignment provides a structure by which to assess achievement results. When an aligned curriculum also is aligned with performance or benchmark assessments, educators can begin to examine differences in instruction within a single school or across schools in a district (Blank, 2004). Linking such analyses to student achievement results can further assist teachers in identifying reasons for high and low performance.

Common Implementation Issues Associated With Vertical Alignment

Vertical alignment is a complicated task. It involves a districtwide effort that engages instructional staff over time in developing curricula that will be taught and assessed. It assumes involvement across grade levels, subject areas, and departments.

Implementation is a key variable in determining the success of alignment activities (Blank, Porter, & Smithson, 2001). As with other large-scale initiatives, a detailed, comprehensive implementation plan—including information about leadership roles, responsibilities, steps, funding, timelines, outcomes, and monitoring strategies—will help to ensure a successful result. Following are several additional issues related to implementation of vertical curriculum alignment that may need to be addressed.

Providing Leadership

Vertical alignment depends on various levels of leadership to support and sustain the effort (Ewing, 2003). At the classroom level, leadership is needed to help teachers engage

in the curriculum review and development process. Often, lead teachers or others with strong curriculum backgrounds assume roles in which they help guide and coach their peers.

At the building level, principals and department chairs provide ongoing assistance and encouragement. They make sure that the curriculum alignment work is at the forefront of all improvement discussions. They also ensure that resources are provided.

At the district level, the task is to ensure that all personnel groups (e.g., teachers, building administrators, curriculum specialists) are represented. It is helpful to have a core leadership team that is empowered to make key decisions, monitor progress, and suggest changes as necessary. In some cases, this responsibility may be given to an existing body (e.g., curriculum council). In other cases, a new team may be established. For example, a California school district created a team of 50 teachers and administrators who represented each school, along with various curriculum areas and grade levels. Much of the team's work involved making sure that there was ample time to review curriculum at all grade levels to ensure consistency and coherence with the standards. As another example, a school district in Massachusetts formed a small core group of teachers and administrators who coordinated the curriculum work. They reported back to their respective building curriculum committees.

Addressing Resistance

Vertical alignment may meet with resistance from instructional staff. At a basic level, teachers may express frustration when they lack the capacity to do the work. The amount of time and resources needed to initiate and sustain the work also may result in resistance.

Philosophical differences also may underlie some resistance. For example, some educators

have questioned whether alignment will raise the already high stakes attached to assessments and the potential for all that is problematic with tests (Wraga, 1999). There is concern that alignment will result in simply more teaching to the test.

Resistance also can arise if instructional staff members perceive that they will lose their autonomy. This typically occurs when teachers begin reviewing the existing curriculum and find a lack of congruence with the standards, overlaps that must be eliminated, or gaps that must be filled. Frustration may arise if they are asked to abandon or substantially deemphasize programs they consider beneficial to their students (Cawelti & Protheroe, 2003). Similarly, teachers who prefer to teach the textbook from “cover to cover” may find it difficult to shift their approach when the district curriculum identifies knowledge and skills that are not covered in the textbook.

Ensuring that all staff members understand the purpose and process of curriculum alignment may reduce some of these tensions. Preparing an adequate implementation plan that includes professional development and resources also can enhance buy-in and reduce frustration.

Emphasizing Teacher Collaboration

Curriculum alignment work is based on the assumption that instructional staff will have ongoing professional conversations about the work (Bergman, Calzada, LaPointe, Lee, & Sullivan, 1998). They will consider curriculum content and objectives across grades and subjects, eventually developing and articulating curriculum and reaching consensus on it.

Vertical alignment work is strengthened when teachers collaborate within their grade level as well as across grades. Such collaboration can result in better understanding of grade-by-grade expectations for students and the

role of teachers in helping them meet those expectations.

Collaborative assessment reviews also can lead to conversations that deepen teacher knowledge. Examples of questions that encourage inquiry include the following:

- What is the big idea of the standard?
- Does the question address the big idea of the standard?
- How was this taught last year?
- Why are students performing well or poorly?

In some cases, school districts have created special teams to ensure that teachers and principals take ownership of the process. For example, a school district in Iowa established elementary school teams to begin its work. Representatives from these teams formed new teams with middle school teachers. In other cases, districts have integrated the work into existing teams such as professional learning communities.

Making the Work Manageable

Alignment work can be cumbersome (Phelps, 2005). Because teacher involvement in the alignment process enhances classroom practice, there is a strong sense of urgency to ensure that the process is teacher directed, teacher friendly, and realistic (Glatthorn, 1999; Jacobs, 1997; Johnson, n.d.; McGehee & Griffith, 2001).

There are various strategies—some more involved than others—for engaging teachers at various stages in the alignment process. For example, taxonomies—types of knowledge—may be a helpful tool for sorting content (e.g., number of times taught, frequency of review or reteaching) by grade level for a particular standard (Anderson, 2002; Glatthorn, 1999). In a large urban district in Texas and a rural district in New Mexico, content is organized

by *power standards* (those standards that everyone must master because they are enduring, they are prerequisites for further work in the subject area, and they are beneficial to learning across subject areas) and *enrichment standards* (those that are valued but not essential).

Curriculum mapping is a strategy that has proven useful for helping teachers engage in the alignment process (Kallick & Colosimo, 2009). Mapping provides authentic data that can be used for reviewing, revising, and renewing the written curriculum. A diary map is an example. It is developed by an individual teacher after instruction, usually on a monthly basis (Jacobs, 1997). Diary maps can be shared among other teachers and compared with the district's written curriculum.

Making Resources Available

The availability of ongoing scheduled time for curriculum development and review has been cited repeatedly as one of the major

challenges to this work (Phelps, 2005; Rice-Crenshaw & Howard, 2003). Districts generally look at a minimum of a year, and usually longer, to initiate the work.

Lack of adequate professional development is another obstacle to vertical alignment work (Liebling, 1997; McGehee & Griffith, 2001; Phelps, 2005; Rice-Crenshaw & Howard, 2003). Instructional staff benefit from ongoing professional development that builds their capacity to do alignment work and improve their teaching and student learning.

Curriculum mapping software that allows districts to prepare and revise their curriculum electronically is a resource that can greatly enhance alignment work (Ewing, 2003; Kallick & Colosimo, 2009; Phelps, 2005). The advantages are numerous, including allowing content to be organized and managed efficiently (e.g., no more thick vinyl binders to wade through); allowing instructional staff to access the curriculum as

Enhancing Curriculum Work With Technology

When reviewing possible technology to support curriculum alignment activities, at the very least make sure that it is user friendly—that is, easy to learn, easy to use, and easy to access—and mirrors how instructional staff think about their work. Bena Kallick, Vice President of Performance Pathways International (personal communication, February 8, 2009), suggests looking for additional features to enhance its usability. Examples include:

- Does the software integrate curriculum, instruction, and assessment? Are users able to analyze data in the context of continually viewing the relationship and interdependence of what is taught, how it is taught, and what is learned?
- Are the data focused? That is, is there a relational database and reporting system that helps users focus on what is important?
- Is the visual representation of data clear and easy to analyze? Do the graphics reveal a story of patterns and trends over time?
- Does the software lend itself to collaboration among users? Are there features that encourage communication across user groups?



it is developed; and providing a streamlined approach to identifying gaps and overlaps. When the software is linked to the district's data warehouse, educators can diagnose curriculum problems. For example, they can use the data to see if students are mastering the content at the anticipated time. (See the text box, "Enhancing Curriculum Work With Technology," for suggestions to consider when selecting software.)

Vertical alignment can require a great deal of both human and fiscal resources. Districts have looked to general funds, the business community, and state grants to help support the effort.

For smaller districts, a practical approach to funding may be to share work with other districts. For example, the Berks County Intermediate Unit (BCIU) in Pennsylvania is engaged in a multidistrict initiative to support vertical alignment with state standards and assessments. Together with business partners, BCIU has purchased mapping software and is providing professional development support to other districts on such topics as curriculum mapping, using curriculum and performance data for decision making, and developing balanced assessment plans.

Implementing Vertical Alignment: Views from the Field

The following vignettes illustrate how two districts are supporting implementation.

Using Curriculum Mapping as an Entry Point

Decatur School District (Indiana)—located in an urban area that borders Indianapolis—serves 6,500 students. There is a high transient rate among students, and more than 50 percent

receive a free or reduced-price lunch. Dr. Debbie Sullivan, assistant superintendent, reports that what began as a curriculum mapping initiative for teachers has grown into a districtwide activity that is anchored in their 21st Century Schools redesign effort.

"Teachers had been doing diary maps for a number of years and we wanted to take that work to the next step. We now are creating district consensus maps that are vertically aligned in each subject area and with the state's core standards. Through the process, we are intent on creating a culture in which all staff members are involved in improving student achievement K–12," she says.

To implement the initiative, a curriculum council—composed of 40 teachers and administrators from throughout the district—was developed. The first charge to the council was to study the state standards and identify power standards. For each power standard, council members articulated the essential learnings and measurable skills at each grade level. This information was shared with district teachers.

"We used this step to initiate conversations about curriculum alignment throughout the district," Dr. Sullivan explains. "Teachers—oftentimes as part of their professional learning communities—compared the district draft consensus map with their own classroom diary maps and grade-level maps, and provided the council with feedback as well as embellishments."

According to Dr. Sullivan, several implementation issues had to be addressed. The most pressing of these were how to engage teachers who did not see the value of mapping, how to find sufficient time for working discussions, and how to ensure that conversations were meaningful. A variety of

supports were provided to address these challenges, including the following:

- Making the consensus map process a district priority.
- Having curriculum council members serve as facilitators in their respective schools to encourage and sustain participation.
- Providing professional development to ensure that everyone understood the purpose of the consensus map and how it would help the district reach its goal of improving student achievement.
- Developing protocols to assist teachers in initiating and deepening their conversations.
- Purchasing curriculum mapping software that allowed teachers to see where there were content gaps and repetition (e.g., too much emphasis on the Civil War to the exclusion of other historical time periods, or where in the scope and sequence mathematical problem solving was taught). It also provided them with student performance data linked to curriculum standards, which enabled them to solve problems more effectively. This helped to emphasize the purpose of the work and provided a strong focus for conversations.
- Devoting ongoing weekly meetings, professional development times, and professional learning communities work to curriculum mapping.

Initial results are promising. Dr. Sullivan reports that the district is experiencing some gains in areas that could be related to strong curricula. For example, scores on the state tests have increased, including a 90 percent pass rate on the fourth-grade mathematics assessment in one school. Attendance has improved at the high school. Discipline incidents are down in both the middle schools and the high school.

Implementing Vertical Alignment as Part of a Systems Approach to School Improvement

Boyertown Area School District spans 99 square miles and covers two counties and 10 municipalities northeast of Philadelphia. During the past few years, the district has slowly begun shifting from predominately rural/agriculture to suburban. Boyertown serves approximately 7,000 students. Title I services are offered in four buildings and approximately 15 percent of students are English language learners.

Several years ago, Superintendent Dr. Harry Morgan launched an initiative focused on becoming a high-performing district (for information on the framework used, see National Center for Educational Achievement, n.d.). Vertical alignment of the district curriculum with state standards and assessments was an integral part of this work.

“At the district level our goal is to articulate and provide clear, prioritized academic objectives by grade and subject area that all students are expected to master,” Dr. Morgan explains. “At the classroom level, implementation is focused on ensuring that the curriculum is taught and mastered by all students.”

According to Dr. Karen Beerer, assistant superintendent, along with Ms. Susan Linney, who heads professional development in the district, to make this work, teachers must have a major role in writing the curriculum. “The process must be ongoing and allow teachers to engage in meaningful conversations about what they are teaching and how students are progressing,” Dr. Beerer says. “Teachers also need to see that this is not an add-on passing fad, but part of a larger improvement effort that is backed by strong leadership.”



The district has provided a number of strategies to support teachers in vertically aligning the district's curriculum, including:

- Making curriculum work ongoing. The district has provided a variety of support strategies that encourage teachers to view curriculum work as long term and core to improving student achievement. Examples include building curriculum development days into the school calendar, scheduling monthly meetings of the districtwide curriculum council, providing release time for teachers to write curriculum during the year and in the summer, and devoting inservice days to curriculum development. During the school year, teachers are given time to review and discuss curriculum alignment issues in their professional learning communities.
- Assigning lead teachers charged with curriculum work in each of the core academic areas. In addition to overseeing vertical alignment work, lead teachers provide a variety of supports such as assisting teachers, providing professional development, interfacing with the district curriculum council, and raising issues related to implementation.
- Adopting and using a consistent framework to anchor curriculum discussions. The framework provides a common vocabulary to talk about curriculum across grades and subject areas. It also serves as a focus for discussing curriculum gaps and topics that have received more coverage than necessary.
- Allowing for flexibility in the alignment process. Although the district has adopted a consistent framework for alignment, leadership is afforded flexibility in implementing it. For example, backward mapping—starting at the 12th grade and

moving backward—did not work when a grade level became stuck on a concept or when the concept was treated differently at various grade levels. Flexibility in the process has enabled teachers to move forward.

- Using data to inform curriculum discussions. The district has invested in a data warehouse tool that allows staff to post student performance results in relation to curriculum. Data enable teachers to see firsthand if something is not working well, or where gaps exist. For example, teachers can access information on how well students did in a previous year on skills that are prerequisite for a new unit they are planning. Or, they might look at whether students are not being challenged sufficiently in a particular curriculum area.

Initial results of this systemic effort are promising. Last year the district ranked first out of 18 county districts because it had the highest percentage of students receiving proficient or higher scores on their state reading and mathematics assessments.

Conclusion

For years, district educators have emphasized aligning written, taught, and tested curricula to ensure that students are taught to high standards (Glatthorn, 1999). Vertical alignment of local curriculum is part of a larger, standards-based context that involves state standards and assessments, district curriculum, classroom teaching, performance standards, and instructional materials. The current emphasis on accountability combined with the practical applications of technology has created a context in which educators can ensure that curriculum is standards based and used to improve practice.

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Administered by Learning Point Associates in partnership with the Southwest Educational Development Laboratory (SEDL), under contract with the Office of Elementary and Secondary Education of the U.S. Department of Education.

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