

Core Principle 4: Data

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The fourth of the core principles on which the State Board of Education bases its consideration of redesign of the system is: *Curricular and instructional decisions and corresponding policies must be based on standards, data and research.* The following principle and indicators will be addressed in this paper:

Curricular and instructional decisions and corresponding policies must be based on standards, data and research.

- (a) The professional staff regularly studies and utilizes data about student learning to make decisions.
- (b) The professional staff conducts and utilizes research to guide practice.
- (c) Student assessment is tied directly to essential learning and provides instructional feedback.
- (d) The evaluation of the staff and school success is, in part, based on student learning.

Introduction

Knowing that curricular and instructional decisions and corresponding policies must be based on standards, data and research, is something with which practicing educators and educational policy makers can readily agree. Basic premises that form the foundation for this belief includes such factors as policies, curricular and instructional decisions, as well as program evaluations.

The use of standards, data and research in making policy, curricular, instructional, and programmatic decisions is very important because of the following factors:

- The alignment of the written, taught, and tested curriculum is essential if students are to have maximum opportunity to master the learning expected of them.
- Alignment is a proven way of leveling the playing field for disadvantaged students and for closing the achievement gap.
- The abundance of research regarding effective practices allows teachers and administrators to determine which practices have the greatest likelihood of meeting the identified needs of students at the classroom, school, or district levels.
- The use of data to drive instructional decisions makes a difference.
- Financial resources are too limited and too precious to waste on programs and practices if their effectiveness is not documented by data or research.
- Systematic program evaluation provides school district personnel with the information needed to make good decisions about monies spent on programs.

Board of Education policies that direct the operation of a school district should establish clear expectations that the curriculum of a district reflects state standards as well as needs of the particular community; that data of all kinds, and especially student achievement data, will be used in making decisions; and that research will be used to identify best practices in both instructional and curricular decisions.

A school system's curriculum must also be based on the state's content standards and reflect needs unique to a given system. Development of a new curriculum or revision of an existing one within a district must begin with a data-driven needs assessment to determine the status and effectiveness of the current program in meeting performance standards. Knowledge gained from research into national expectations, external assessments (such as the National Assessment of Education Progress, ACT, and SAT), and current best practices in a given content area will also guide the decisions of district staff in designing curriculum.

Additionally, decisions made by classroom teachers—specifically instructional decisions—are at the heart of the teaching-learning process. These decisions must be based on both real-time classroom assessments and less-frequent external assessments. To maximize student learning, a classroom teacher needs to be able to design assessments aligned with the content which students are expected to master, to collect data based on those assessments, to diagnose student needs based on the data, and to plan appropriate interventions to meet those needs.

Finally, program evaluation—the systematic review of programs in place in a district or programs that are being considered for implementation—must collect qualitative and quantitative data related to the effectiveness of programs in place in order to make determinations about adopting, maintaining, eliminating, or modifying them. To be effective, a program must be aligned with student expectations for learning (content standards) and must show evidence of moving students toward meeting those expectations. Evaluation of programs in place will be dependent upon district data; evaluation of programs being considered for adoption and implementation will rely on external evidence of the efficacy of those programs.

Research

From a meta-analysis of effective schools research conducted over the last thirty-five years, Marzano (2003) identified school-level factors that made the greatest impact on student achievement. While he identified these as interventions at the school level, extensions can be made to school systems with multiple campuses. First on Marzano's list of factors is "a guaranteed and viable curriculum." For a curriculum to be guaranteed, all children in a school (or system) must have access to the same curriculum. To be viable, by Marzano's definition, the time needed for children to learn the curricular content must be limited to the instructional time available.

While Marzano focused on the written curriculum and the time needed for instruction, English (2000) emphasized the importance of aligning the written, taught, and tested curriculum. A written curriculum may be viable, but it is not guaranteed unless it is taught by all teachers in a given course at a given grade level. In addition, the written and taught curriculum must encompass—but not be limited to—the content of high-stakes external assessments. Research cited by English and Steffy (2001) includes examples of how attention to curriculum alignment, including resources and assessments, increased overall student achievement while significantly reducing the achievement gap between student subgroups. Schools in these studies addressed staff development for both teachers and administrators and held administrators accountable for monitoring the delivery of the curriculum.

The importance of aligning the written, taught, and tested curriculum goes beyond external assessments. Black and William (1998) stated that world-wide research indicates high-stakes external tests dominate teaching and assessment, and learning is driven by what teachers and pupils do in the classroom. These researchers reviewed multiple studies of effective innovations (that is, those with quantitative evidence of learning gains). The studies indicated that school improvement efforts which included strengthening the practice of formative assessment produced significant and often substantial learning gains. Learning gains in these analyses were generally measured by high-stakes external assessments. Typical effect sizes between 0.4 and 0.7 were larger than those for most educational interventions. Rick Stiggins from the Assessment Training Institute, translated these gains into more familiar terms. The effect sizes equated to improved grade equivalent scores of two to three grades at the primary level and three to five grade equivalents in middle school. The improvement in percentile ranks would be fifteen points.

While alignment of the written, taught, and tested curriculum is essential for the accurate measuring and reporting of student learning in terms of content standards, the data obtained from any assessments are of minimal value if they are not analyzed and used to guide decision making. Protheroe (2001) reported the following major findings related to school improvement based on effective use of data:

- The National Educational Goals Panel identified the use of data to guide improvement efforts as a major factor for schools that have been successful in meeting their improvement goals.
- Schools in North Carolina that have made progress toward closing achievement gaps have consistently collected and disaggregated data for the purpose of decision making.
- Schools and districts that use data effectively have developed, over time, a well-organized approach.

Schools included in a study conducted by the Consortium for Policy Research in Education (CPRE) reported that results from external assessments were useful but limited. Administrators in these schools considered school-wide data from assessments administered and analyzed systematically as the most valuable data; however, those same administrators admitted that such data were used less frequently for decision making than external data or data from individual classrooms. Schmoker (1999) provided numerous examples of schools that have made remarkable improvement in achievement as a result of collection and analysis of local assessment data.

The effectiveness of data-driven decision making in the improvement of student learning has been clearly documented, but implementing data-driven decision making is not a simple matter. In a two-year research project in the Milwaukee Public Schools, researchers identified several factors that limited data use in their system and that must be addressed for successful implementation of data-driven decision making (Mason, 2002).

- Using data effectively is a time-consuming practice, and time is a limited commodity. Finding the time to look at data, individually or collectively, requires creativity and shifting of priorities.

- A process of looking at data must be developed. Unfocused data sessions result in frustration.
- School personnel must identify data appropriate for the needs of the school and commit to collection of those data. Decisions must be made about who manages the data, how it will be organized, and how the data flow will be maintained.
- Staff development in analysis of data is crucial. While one person may be the “resident expert,” multiple faculty members should be knowledgeable about analysis and interpretation of data.
- Use of data cannot stop at collection, analysis, and interpretation. Those processes must be used to inform decisions that make sense in the context in which they will be applied.

The challenges for implementation cited by the Milwaukee researchers immediately raise the question, “What does data-based decision making look like in a district?”

Vision

Data-based decision making in a district begins with a plan. The role of district personnel in the decision making process is clearly defined. All stakeholders have a vision of what the results will be when data-based decision making is the norm. Each of these three conditions—plan, role, evidence of results—must be present to ensure its appropriate and effective use.

A Comprehensive Assessment Plan

Data-based decision making in a school system begins with a comprehensive assessment plan. While some classroom teachers plan their assessments after a complete unit of instruction has taken place, a more effective practice is to include assessment as part of the overall unit planning before instruction begins. The same is true for development of an aligned written, taught, and tested curriculum. Consideration of assessment needs that results in a carefully crafted comprehensive assessment plan is a vital part of the curriculum development process.

The foundation of a comprehensive assessment plan is a district philosophy of assessment that provides the rationale for an assessment program and addresses the multiple purposes for assessment: information on students, accountability, and program improvement. Information on students includes reporting progress for accountability purposes but also guides decision making on the part of the teacher about specific students as well as the class as a whole. Accountability applies to individual classrooms and schools, to the district as a whole, and to specific programs. Assessment results related to program improvement address curriculum revisions and modifications, broad-based instructional issues, and program evaluation efforts to determine whether or not programs (including staff development) are accomplishing their intended goals.

Most school systems have a great deal of data at their disposal. Some data are more helpful than others in making decisions that will have the greatest impact on student learning. A comprehensive assessment plan should identify the data that will be used consistently by district personnel, the source of those data, and possible ways to obtain any desired data not readily available. Data needs should be reviewed periodically to ensure that data being used reflect changing conditions within a school or a system.

A district-wide student assessment plan includes both high-stakes external assessment, such as state assessments and college entrance exams, and local summative and formative assessments that test students at regular intervals throughout the year. The use of multiple measures at the local level precludes decisions based on a single measure of student learning. The format and timing of external assessments are issues over which a local district has little control. District and building personnel must, instead, consider how the data will be reported to interested parties; what kind of staff development will be needed to enable staff members to effectively use the data; and, finally, what kind of actions will be taken based on the data. In planning its local assessment system, a school district may choose to include some type of commercial norm-referenced test to provide a national frame of reference for student learning; districts that include this type of assessment generally give the test only at selected grade levels. The alignment between such tests and district content standards will not be as high as the alignment between district content standards and local and state assessments; alignment of commercial assessments is generally stronger for mathematics and reading than for other content areas.

The most important ingredient of a local system, however, is a systematic approach to gathering information about student learning in a timely manner so that immediate instructional decisions can be made to address identified needs and increase student learning—either for individual students or for a class as a whole. Assessments administered by classroom teachers constitute the largest percentage of local assessments, and, as noted in the review of the literature, these assessments have the potential for significant impact on overall student achievement. District-wide criterion-referenced assessments, which can be machine-scored or graded by teachers, provide student and classroom-specific information but also provide data to guide staff development and overall program improvement. The format for local assessments, whether district-wide or classroom specific, can include multiple-choice items, short-answer questions or problems, essay questions that require extended responses, performance assessments, and teacher observations of student work. Some formats will require scoring guidelines and training in using those guidelines if results are to be valid and reliable. If sufficient resources are available, a district may choose to develop a teacher-accessible bank of test items specifically correlated to content standards that can be used to generate short diagnostic assessments of student mastery of the content. The essential ingredient for meaningful assessment—whether it is designed by district, school, or individual classroom personnel—is the ability of the person or persons who design the assessment to match questions and methods with the intended content standard.

An understanding of the fundamentals of assessment design is also necessary for the development of valid and reliable content-area assessments. Elements of assessment design and development may be included in a comprehensive assessment plan, or they may be outlined in an addendum that is referenced in the comprehensive plan. According to Stiggins in his book *Student-Centered Classroom Assessment*, there are some considerations that are critical to sound assessment design. These include the following five considerations and implications:

- Clearly defined expectations for student learning: too often test questions to which students are asked to respond do not match the specified content standards for a course. This occurs especially when tests that accompany commercial materials, used in many states across the country, are used to measure learning related to the content standards in a specific state. A test that provides a benchmark for student achievement across a

district will not be the same as a teacher-made assessment that diagnoses whether or not students—collectively or individually—are ready to move on to the next skill or concept.

- Purpose for any assessment: The method for assessment is frequently determined by the purpose of the assessment. Determining whether or not students have mastered basic skills or concepts might call for a short-answer or multiple-choice test. A performance task may be a better means of assessing a student's ability to apply a range of cumulative or connected knowledge.
- Assessment methods: Methods include multiple choice or performance, machine scored or teacher graded, short answer or essay, as well as varying forms.
- Sampling of the content: It would be very difficult, if not impossible, to assess—either formally or informally—all the content included in the taught curriculum. Decisions must be made about a representative sample of concepts and skills to be included on any given assessment.
- Elimination of bias: Bias that might distort results does not refer only to ethnicity or gender. Reading difficulty and length of tests are just two areas which, if not carefully considered in assessment design, could distort information gleaned from assessments. Occasionally contextual references are included which have not yet been part of the students' experience socially, intellectually, or geographically.

In addition to the issues outlined above, the following considerations will contribute to the development of sound, district-wide assessments for specific content areas.

- Development of a content-area assessment plan for each grade level at the elementary school or each course at the secondary level. This plan will include the type and number of assessments, how the assessments will be administered, and how they will be scored. The content-area plan should fit under the umbrella of the district's comprehensive assessment plan and be consistent with that plan in all aspects. Because of the need for strong performance levels in reading and mathematics required to make Adequate Yearly Progress, developing district assessments in those content areas is a logical first step. An unintended consequence of NCLB is reducing the time and emphasis given to other content areas, especially social studies and science at the elementary level. District personnel should include assessment for all content areas in a comprehensive system that is developed and implemented over time.
- Determination of the content objectives that will be included on each assessment. Once the objectives are selected, then items that specifically measure those objectives must be selected and/or written.
- Establishment of an established process for reviewing the content of assessments. Having this process pre-established ensures that the assessments are valid and reliable and provides the necessary feedback for needed revisions.

Attention to several areas will assist classroom teachers in creating a variety of formative and summative assessments that will provide usable data to guide instructional and programmatic decisions. These areas include staff development in appropriate use of different kinds of assessment; training in writing test items that match specific content standards from the district's adopted curriculum; and time for teachers to work collaboratively to develop common assessments, review assessment results, and plan appropriate student interventions.

The current high-stakes assessment climate has placed a good deal of pressure on school personnel for the students in their respective schools to perform well on mandated assessments. Almost yearly the media report examples of where a school's results have been invalidated because of unethical administration of tests. Procedures related to district-wide assessment administration which include attention to security of tests, clear and specific instructions for test administration, and adherence to those instructions by individuals administering assessments should be included in a district's comprehensive assessment plan. Unless consistent procedures are developed and followed in the administration of tests, results may lack validity and reliability. When procedures are followed, and when there is confidence that data are valid and reliable, those results provide the basis for meaningful action steps based on data. A year-long assessment calendar that is updated annually should be distributed early in each school year to all staff members involved with district-wide assessments. Clear distinctions should be made between tests that are secure and any tests or test-bank items that can be used by teachers for diagnostic purposes.

A district's instructional management system is a vital component of a comprehensive assessment plan. District personnel with responsibilities for curriculum, assessment, and the instructional management system (IMS) must work collaboratively to determine the needs of the district and the resources available to meet those needs. Those same individuals must then work together to design a management system that will provide the desired data in a timely manner and in a user-friendly format. An important consideration is the ability to report information for disaggregated groups as well as by specific content standard so that appropriate interventions and modifications can be implemented. The feasibility of all curriculum and assessment applications must be discussed with IMS personnel before beginning implementation.

Staff development needs that are part of a comprehensive assessment plan should also be consistent with a district's overall staff development plan. Training should include methods of assessment development, with attention to issues delineated above under Assessment Design and Development; data organization, analysis, and interpretation; and identification of appropriate interventions based on data and research. Plans for training in data interpretation should address the varying needs of all stakeholders who will be analyzing and using data: school board members, administrators, teachers, and parents. The emphasis in training should be on those individuals who are in closest contact with students—the classroom teachers. Understanding and application of assessment vocabulary, meaningful organization and presentation of data, and interpretation of data are key components of training relevant to data use. Appropriate ways to collect, read, and use both trend data pertaining to students over time and “real-time” data relative to the current group of students should be emphasized. Particular attention needs to be given to analysis of disaggregated data in order to determine needs of specific student groups. A systematic, ongoing approach to staff development is needed rather than a one-time overview of data use; this builds the expertise of all teachers while allowing teachers new to a system to “get up to speed” on the use of data. Some districts have implemented a data mentor approach similar to that described by Nichols and Singer (2000).

The ability to read and interpret data is a foundational skill for being able to read and interpret research results. In addition, district personnel must be able to differentiate between scientifically-based research as prescribed in NCLB legislation, research that has been conducted

without specific controls (including action research), and current trends and best practices in various areas. Because so much information is available for teachers and administrators, some guidance in accessing that information would be helpful in a comprehensive assessment plan. For example, the U. S. Department of Education has established the “What Works Clearinghouse on Education Research” at www.w-w-c.org. A regularly updated synthesis of research entitled *Handbook of Research on Improving Student Achievement* (Cawelti, 2004) is among one of the many resources provided by Educational Research Service. The websites of most content-area professional associations (such as the National Council of Teachers of Mathematics or the International Reading Association) provide information about research, current trends, and best practices in their respective content areas. The best location for links to these resources may be on the local district’s website.

The requirement that data be communicated regularly to a variety of constituents is an essential ingredient of a comprehensive assessment plan. The format and frequency for that communication needs to be tailored to the group to which it is addressed—board members, administrators, teachers, or parents and community members. All communications should be as free as possible of educational jargon and psychometric language. The length of any communication will have an impact on how thoroughly it is read; clarity and brevity increase the likelihood that a document will be read and understood. Providing timely information in separate documents about various assessment results ensures closer reading and better comprehension of the information than including all assessment results in a single, once-a-year report. Timely communication of results is also a prerequisite for meaningful interventions for students.

The list of programs in place in almost any school system is a lengthy one. A typical list includes curriculum for core content areas and electives, extra- and co-curricular programs, commercial programs related to both content and personal skills, motivational programs, discipline programs...the list could go on and on. District personnel develop curriculum and adopt programs that are intended to support student learning. The truth is that some programs work while others do not. Some programs need to be discarded, but others have a powerful influence and support district goals for student learning. It is through program evaluation that the value of programs can be determined. The evaluation process must collect qualitative and quantitative data related to the effectiveness of programs already in place or under consideration in order to make determinations about adopting, maintaining, eliminating, or modifying those programs. A formal process for conducting program evaluation should be included in a district’s comprehensive assessment plan, and Board policy should require systematic evaluation of all programs. Components of a formal program evaluation process, as outlined by Sanders (2000), include:

- Purpose of the evaluation: What are the goals of the program? What led to the decision to evaluate the program? What questions will be answered as a result of the evaluation?
- Parameters: What is the scope of the evaluation? Is it for the district, a building, a grade-level? What time frame will the evaluation cover? What components of the program will be evaluated (i.e., student achievement, personnel, staff development, curriculum scope-and-sequence, instructional materials)?

- Management plan: What personnel will be required and what will be their designated responsibilities? What data will be collected, and what will be the baseline for those data? What criteria will be used to evaluate success or effectiveness of the program? What fiscal resources will be needed? What are the timelines for the evaluation process? What are the plans for communicating results and recommendations?
- Follow-up: What kind of follow-up will be expected, and how will the follow-up be monitored and reported?

Clearly Defined Roles for District Personnel

The expectation that data-based decision making will be the operational mode for a school system begins with the policies set by the Board of Education. Beyond that, any district employee involved with instruction, curriculum development, and assessment will have some responsibility for assessment administration and use of data. Employees in areas of operations and management within the district should also be expected to base decisions on data, but discussion of those decisions is beyond the purview of this paper. Specific roles for those individuals with responsibility for student learning include the following:

- Policy Makers (i.e. Board of Education): These individuals establish policies that set expectations for use of data at all levels in decision making. They model those expectations by using data to make decisions related to all aspects of school management, but with specific focus on student achievement data. In order to understand the data, they hold board workshops on analysis of student achievement results. Board members should also require that job descriptions for all personnel with connections to curriculum and instruction clearly state requirements for teaching content standards, matching assessments to those standards, and using data to make instructional decisions that fit the needs of students.
- District-level Personnel: Administrators at the district level are responsible for development, in conjunction with site administrators, of the district's comprehensive assessment plan. The individual with designated assessment responsibilities at the district level will plan staff development for teachers and other personnel responsible for the creation of local assessments and will oversee the development of local, district-wide assessments. District-level personnel will provide security and directions for administration of external or district-wide assessments in a timely manner, and will communicate the results of those assessments in a timely manner, with appropriate staff development in analysis and interpretation of data. District administrators also oversee evaluation of district-wide programs through an established program evaluation plan and communicate results clearly and promptly when an evaluation has been completed.
- Building Administrators: Principals and assistant principals, in collaboration with other building staff, are responsible for collection of building-specific data; interpretation and analysis of the data; and identification of building-wide needs based on those data. Building administrators support classroom teachers in analyzing data and making instructional modifications in their classrooms based on that information. Building principals communicate assessment results to various constituents in an appropriate and timely manner, such as through school newsletters and personal communications with parents. Principals provide time through staff meetings for analysis and implications of data.

- **Classroom Teachers:** Classroom teachers have the biggest responsibility in relation to assessment and data-based decision making; they are also the individuals who can have the greatest impact on the achievement of students with whom they interact daily. Classroom teachers assess students by a variety of methods (paper/pencil, observation, performance assessments) to determine students' mastery of content standards. In order to do this, teachers must take advantage of staff development related to the creation of sound assessments. Teachers must collect classroom-specific data; interpret and analyze the data; then modify classroom practices based on the data, for the class as a whole or for individual students. For this to occur, teachers must have and apply knowledge of best practices that can guide modifications to meet specific needs.
- **Parents and Community Members:** While roles for elected Board of Education members and school district employees can be clearly stated with the expectation those roles be fulfilled, involvement of parents and community members can be encouraged but not required. Parents and community members should be actively encouraged to stay informed about local assessment results—both at the district and local campus levels. They have the right to ask for specific information about what the results mean and to expect clear and concise explanations, both orally and in writing. Community members should hold elected officials responsible for establishing a culture in which data-based decision making is the norm.

Evidence of Data-based Decision Making

Based on the premise that curricular and instructional decisions and corresponding policies must be based on standards, data and research, development and implementation of a viable curriculum and a district assessment plan provide a sound foundation for instructional efforts in a district. However, district personnel and individuals in the community want evidence that these efforts are achieving the desired results. All of this leads to a final question: How will we know it is working? Answers to this question are outlined in four major categories.

1. Improved student achievement will be evident across all groups of students. The education of students is the reason why schools exist. The mission of every school district across the country, including those in Kansas, is to provide the best possible education to the students served by the district. Student achievement as measured by the various assessment instruments used by personnel within a district, with data from these assessments that show growth over time, is the number one indicator that school improvement efforts are achieving the desired results. These data should indicate improved performance for various subgroups of students as well as larger groups of classes, schools, or the system as a whole. The data should indicate that students are moving from lower levels of proficiency to higher levels of proficiency, as defined by performance standards. Multiple measures, rather than a single measure, should be used to measure improved performance. While the state assessment is a required measure under the No Child Left Behind legislation, other measures that have been mentioned earlier in this paper could include norm-referenced tests, district-wide criterion-referenced tests, and college entrance exams such as ACT and SAT.
2. Board of Education policies and procedures will be in place that establish the expectation that data will be used by the Board of Education and all district personnel to make sound educational and programmatic decisions. A review of Board policies will give evidence

of whether or not such policy has been adopted. Likewise, review of the most current job descriptions of district employees will indicate whether or not these documents have been updated to reflect expectations congruent with policy. Minutes of Board of Education meetings will provide insight into the Board's use of data in making decisions. Regular reports to the Board by various district personnel regarding assessment results and student progress should be evident in meeting agendas and minutes across each year.

3. A comprehensive assessment management plan will be written and implemented. Many of the steps described in this paper can be taken without committing to paper a comprehensive plan. The work will be greatly enhanced by the creation of such a plan, reducing chances of duplicating some efforts while omitting others. Evidence of the plan is a document. As with policies, evidence of implementation is another issue. Specific evidence of implementation would include, but not necessarily be limited to, the following:
 - a district-wide criterion-referenced assessment system for identified grades and courses;
 - staff development records that indicate training has been provided relative to data analysis and assessment development;
 - communication documents aimed at a variety of stakeholders: board of education, administrators, teachers, and parents and community members; and
 - conversations with certified employees, especially classroom teachers that indicate their knowledge of available data and ways to use those data to make instructional decisions.
4. There will be evidence of better use of resources through implementation of a systematic plan for program evaluation. The written process to be followed in program evaluation may be contained in the comprehensive assessment plan, or it may be a separate document that has been referenced in the overall plan. In either case, evidence of implementation is the important issue. A schedule for conducting specific evaluations, copies of completed evaluations, and recommendations based on those evaluations will be indicators that the plans for program evaluation are working. Board minutes should contain references to evaluation reports and decisions that have been made based on those reports. Written follow-up plans for programs that are being maintained but for which modifications have been recommended should be available. It is a given that curriculum programs in core content areas are an integral part of the offerings in a school system, and program evaluation will be a vehicle for strengthening those programs. Many programs, however, are add-ons that may or may not serve the best interest of students. Decisions about maintaining these programs should be based on evidence that they support the district's goals for student learning and development. Such evidence should be considered in the budget-building process, when expenditures of financial resources are being considered.

Recommendations for the Kansas State Board of Education to Consider

While the needs of a specific district always shape plans and procedures, there are several actions that the State Board of Education should consider which would support district actions described in this paper. Providing some of the suggested support would make better use of resources and spare districts the work of “reinventing the wheel.” The suggested actions that follow are not in any sequential order. Implementation of some could occur simultaneously, and implementation of any of them would depend upon human and fiscal resources available.

- Develop an easy-to-use bank of assessment items for the core content areas, with all items correlated with specific state content standards. Items should reflect the format and specificity of state assessments. Classroom teachers across the state should be able to access these items to create diagnostic assessments of their own.
- Provide links on the KSDE website to research and best practice. The list of links included should be short enough to not overwhelm but complete enough to provide sufficient information. One way to do this could be to organize topically, both by content area and by categories such as English Language Learners or Differentiated Instruction.
- Plan and implement statewide staff development to provide training in several areas: creation of sound local assessments; collection, organization, and interpretation of assessment data; and ways to choose or create appropriate interventions based on data. These staff development efforts should be consistent with the direction recommended in Core Principle #5, professional development. Regional service centers would probably be major players in planning and implementing such a statewide effort, but consistency of effort and constancy of purpose is essential. Training efforts should not be “one-shot” but should provide ongoing support and materials that could also be used in a trainer-of-trainers model.
- Provide a program evaluation model with examples of completed evaluations to provide direction for districts across the state. The author of this paper has participated in numerous curriculum management audits, conducted through the auspices of Phi Delta Kappa. Knowledge gained from those audits has not been included in the literature review because it is anecdotal; however, the author has not found a single example of systematic program evaluation in any of the audits, in districts which range from coast to coast and Mexican to Canadian borders. There are probably two reasons for this. First, district personnel may not recognize how important such a process is to sound operation of the district. Second, and probably the bigger reason, is that those same district administrators do not have a picture of what systematic program evaluation looks like. A model, with samples to illustrate, would enable districts to more easily embark on their own program evaluation process.

Bibliography for Data

- Black, P., & William, D. (October, 1998) "Inside the Black Box: Raising Standards through Classroom Assessment." Phi Delta Kappan. Vol. 80, No. 2.
- Cawelti, G., Editor. (2004) Handbook of Research on Improving Student Achievement, Third edition. Arlington, VA: Educational Research Service.
- Choppin, J. "Data Use in Practice: Examples from the School Level."
http://www.wcer.wisc.edu/mps/AERA2002/data_use_in_practice.htm
- Downey, C., et al. (2002) 50 Ways to Raise Students' Test Scores. Standards for High Performing Schools: Creating a Level Playing Field for Learners. Johnston, IA: Curriculum Management Systems, Inc.
- English, F. (2000) Deciding What to Teach and Test: Developing, Aligning, and Auditing the Curriculum. Thousand Oaks, CA: Corwin Press.
- English, F., and Steffy, B. (2001) Deep Curriculum Alignment: Creating a Level Playing Field for All Children on High-Stakes Tests of Educational Accountability. Lanham, MD: Scarecrow Press.
- Mason, S. (2002) "Turning Data into Knowledge: Lessons from Six Milwaukee Public Schools." A paper presented at the annual conference of the American Education Research Association, New Orleans, April 2002.
- Marzano, R. (2003) What Works in Schools: Translating Research into Action. Alexandria, VA: Association for Supervision and Curriculum Development.
- Nichols, B., and Singer, K. (February 2000). "Developing Data Mentors." Educational Leadership, Vol. 57, No. 5.
- Protheroe, N. (Summer 2001). "Improving Teaching and Learning with Data-Based Decisions: Asking the Right Questions and Acting on the Answers." ERS Spectrum, Vol. 19, No. 3.
- Sanders, J. (2000) Evaluating School Programs: An Educator's Guide, Second edition. Thousands Oaks, CA: Corwin Press, Inc.
- Schmoker, M. (1999) The Key to Continuous School Improvement, Second edition. Alexandria, VA: Association for Supervision and Curriculum Development.
- Stiggins, R. Student-Centered Classroom Assessment, Second edition. Upper Saddle River, NJ: Prentice Hall, 1997.
- Supovitz, J., & Klein, V. (November 2003). "Mapping a Course for Improved Student Learning: How Innovative Schools Systematically Use Student Performance Data to Guide Improvement.": University of Pennsylvania: Consortium for Policy Research in Education.

APPENDIX

Core principle 4 states that curricular and instructional decisions and corresponding policies must be based on standards, data and research. The statement is one with which practicing educators and educational policy makers can readily agree, but those same individuals might not be in agreement on the definition of the terms “standards, data and research.” Parents and community members might ask for definitions of those terms before deciding whether or not they agree with the statement. As a way to provide consistency of thought in discussing this core principle, the following informal definitions and/or descriptions are included.

Standards: Content standards are statements about what students are expected to know and be able to do. Student performance standards indicate the level of performance that is expected at both the individual student level and for the school as a whole.

Assessment: Assessment is the way in which educators determine whether or not students have mastered content standards. Methods for assessment include (but are not limited to) standardized multiple choice tests, formal classroom assessments that can be multiple choice or constructed response, performance assessments, and teacher questioning and observations. Summative assessment measures student knowledge at a give point in time and is generally used for reporting purposes; formative assessment, while evaluating student knowledge at a given time, has the greater purpose of assisting teachers in diagnosing student needs and supporting student learning. Tests that have been designed to specifically match curriculum objectives are called criterion-referenced tests.

Data: Data represents sources of information that are both quantitative (numeric) and qualitative (descriptive). Frequently used quantitative data include test scores, grades, and attendance. Less-frequently used information includes student portfolios, surveys of various stakeholders, interviews and statistics related to course consumption. Data-based decision making is the process of analyzing sources of information to identify needs of a school or system and creating action plans based on that analysis.

Research: The No Child Left Behind legislation states that “scientifically-based research” which establishes the effectiveness of a given program or strategy should be used in making decisions about use of specific interventions. The NCLB definition for scientifically-based research is research that uses random samples of the population and involves a control group as well as an experiment group.