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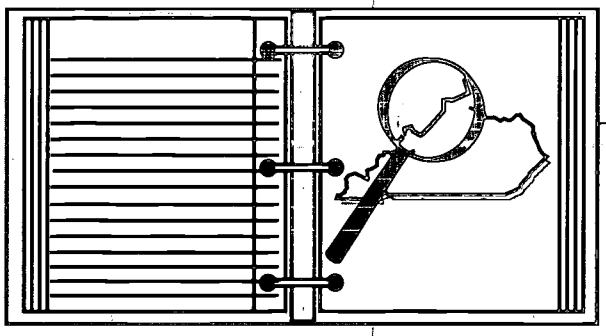
ABSTRACT

Since the 1990-91 school year, an ongoing project has studied the implementation of the Kentucky Education Reform Act (KERA) in four rural Kentucky school districts. Study methods have included over 1,200 interviews with various stakeholders, observation of over 500 classroom instruction hours, and a comprehensive review of key documents. This issue of "Notes from the Field" focuses on KERA's effects on teaching and learning in elementary schools. Three major themes emerged from the research. First, students have benefited from KERA. These benefits include: improved scores on many standardized tests; increased funding to improve school facilities and provide support programs, technology resources, and classroom materials; more diverse instructional practices and greater inclusion of special education students; and increased parental support and satisfaction. Second, several key components of KERA have not yet been fully realized in study schools. These problems include: difficulties in helping all students achieve at high levels; a shortage of principals who can provide instructional leadership; poor integration of the flexible/ungraded primary program with instruction and assessment in grades 4-12; lack of technology integration into the instructional program; and little teaching of higher-order skills. Third, certain aspects of KERA and its implementation warrant further attention, such as the need to link all reform efforts to the "big picture" of KERA, to restructure teacher time, to provide incentives for continuous teacher improvement, and to use school-based decision making more effectively. Each of the findings is linked to KERA goals and mandates. (SV)



NOTES FROM THE FIELD:
Education Reform in Rural Kentucky
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Notes from the Field: KERA in the Classroom

AEL
Charleston, West Virginia

Notes from the Field: KERA in the Classroom

Throughout the 1990s, AEL studied the implementation of the Kentucky Education Reform Act in four rural Kentucky School districts. This issue of "Notes from the Field" focuses on KERA's effects on teaching and learning in elementary schools.

Contents

This synthesis of findings is part of a qualitative study of education reform in rural Kentucky being conducted by AEL to provide feedback to educators and policymakers on the implementation of the Kentucky Education Reform Act (KERA) of 1990. Four researchers are documenting reform efforts in four rural Kentucky districts that have been assigned the pseudonyms of Lamont County, Newtown Independent, Orange County, and Vanderbilt County. For more information about this project, contact Pam Lutz (800-624-9120), Patty Kannapel (502-581-0324), or AEL.

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Overview of Findings & Recommendations

Findings

Students have benefitted from KERA.

- Tests scores for Kentucky students are on the rise on many measures, and stable on most others.
- Funding increases have resulted in benefits for students including improved school facilities, new support programs, technology resources, and classrooms well-stocked with educational materials.
- In the AEL study schools, more diverse instructional practices and greater inclusion of special education students have combined to create a classroom experience that is, overall, more varied.
- A majority of public school parents support some of the core beliefs of KERA, believe student learning has improved in recent years, and report that schools are doing a good job preparing students for adult life.

Key components of the reform have not yet been fully realized in the study schools.

- Many educators are having difficulty helping all students achieve at high levels. Most schools are not tracking individual student progress toward learning goals and expectations and adapting assignments and instructional strategies to ensure the success of *each and every* student.
- Principals who can help schools move toward improved learning for all students are in short supply.
- The primary program has not been well integrated with instruction and assessment in grades 4-12.
- Teachers are not yet fully (1) integrating technology into the instructional program, nor (2) teaching the higher-order skills described in KERA goals five and six.

Certain aspects of KERA—and their implementation—warrant further attention.

- the need to link all reform efforts to "the big picture" of KERA
- the need to restructure teacher time
- the need to build incentives for continuous teacher improvement into the accountability program
- the need to use school-based decision making more effectively

Recommendations

Education agencies at every level:

- Explore how to incorporate the "big picture" of helping all students achieve KERA goals into every reform-related activity.

State and local policymakers:

- Assist teachers in developing strategies for helping diverse learners achieve, and develop models of manageable systems to track individual student progress. Provide professional development and technical assistance to encourage the implementation of such systems in all schools.
- Continue efforts to develop instructional leadership, including creating strategies to identify, recruit, and assist skilled local educators in obtaining principal certification (especially in rural areas).
- Develop and implement professional development and technical assistance opportunities focused on
  1. implementing the primary program in ways that move students toward reaching KERA goals
  2. integrating technology into the instructional program
  3. teaching the higher-order skills defined in KERA goals five and six
- Study and develop ways to give teachers the time they need to learn about and implement the KERA instructional reforms.

State policymakers:

- Continue to develop the accountability system in ways that provide positive incentives for change.
- Provide school-based decision-making (SBDM) councils with various models for how they can move their schools toward improved curriculum, instruction, and student learning.

Background

In the late 1980s, a lawsuit was filed by 66 of Kentucky's poorest school districts, most of them rural. The suit challenged the state's finance formula for public schools, claiming it unfairly placed too much emphasis on local resources. In June 1989, as a result of this challenge, the Kentucky Supreme Court declared the state's system of schools unconstitutional. Recognizing the disparity in how the state's schools were funded—as well as disparity in student outcomes—the court mandated that the Kentucky General Assembly fulfill its constitutional responsibility to establish and maintain "an efficient system of common schools." The General Assembly responded promptly, adopting the Kentucky Education Reform Act of 1990 (KERA) just nine months after the court decision. On April 11, 1990, Governor Wallace Wilkinson signed KERA into law.

Not only did this sweeping legislation set out to reconstruct the state's system of schools, it directly addressed the specific outcomes, or capacities, that an efficient system of education must provide every child. In essence, the intent of KERA was to shift the focus of school accountability from *what teachers do in the classroom* to *what students learn.*

KERA: A Recap

The primary goal of the reform legislation was to ensure that *all* students achieve learning goals in six areas: (1) basic communications and math skills; (2) the core concepts in mathematics, the sciences, arts, humanities, social studies, and practical living; (3) self-sufficiency; (4) responsible group membership; (5) thinking and problem- solving; and (6) integration and application of knowledge from all subject areas. (The 1994 General Assembly, in response to concerns that the state was teaching and testing values, passed legislation that prohibited the state from testing students on goals 3 and 4. The goals themselves, however, are still in effect.)

Through school-based decision-making councils, schools were given the autonomy to determine how to help students achieve the goals. A testing system that was partially performance based was put in place to drive instruction, measure progress toward the goals, and hold schools accountable. In addition, a nongraded primary program was mandated to give students a positive start in school and to mirror the kinds of practices that would help students achieve KERA goals. Finally, a number of support programs were instituted that schools could employ to help students overcome barriers to learning, including preschool programs for at-risk and handicapped children; extended school services for students who need additional time to meet the goals; integrated services centers to help students overcome social, emotional, and physical barriers to learning; and technology in the classroom.

To lend clarity to the learning goals, the State Board for Elementary and Secondary Education (now called the Kentucky Board of Education) adopted "academic expectations" that help to define each goal. The legislation also mandated that the state department of education design a model curriculum framework to address KERA goals, expectations, and assessment strategies. That model framework, Transformations, was disseminated to districts in the summer of 1993. Further curriculum guidance was also offered through the Core Content for Assessment (1996) and the *Program of Studies for Kentucky Schools* (1998).[1]

The mandated statewide assessment program focuses on school performance (rather than individual performance). Judgments about school performance are based on a combination of student information. The heaviest weight is given to student performance on the state assessment, but nonacademic factors—such as attendance, dropout and retention rates, and students' successful transition from school to work or postsecondary education—are also incorporated. From 1991 through 1998, the assessment program was known as the Kentucky Instructional Results Information System (KIRIS). Schools were expected to demonstrate a specified level of improvement on KIRIS from one biennium to the next in order to receive monetary rewards. Conversely, the state could impose sanctions on schools that were chronically unsuccessful; those sanctions included the option to fire or transfer teaching staff and the option for students to transfer to "successful" schools. (These sanctions were in effect

only during the 1996-98 biennium.) In 1998, in response to concerns about KIRIS–including questions about its validity and reliability—the General Assembly ordered its reworking, naming it the Commonwealth Accountability Testing System (CATS). The new system addresses some of the issues that were troublesome in KIRIS. For instance, CATS includes a nationally normed test as part of the accountability system, gives more weight to the nonacademic factors, and streamlines the writing portfolio to make it less burdensome for teachers.

The reform legislation also required all schools to move to school-based decision making—unless a school has met state goals for student improvement on the state test or is the only school in the district. Each school-based decision-making (SBDM) council consists of the principal, who usually acts as chair, as well as elected teacher and parent representatives. The council's main charge is to set policy that helps students achieve KERA goals and expectations. Toward this end, the council has the authority to (1) hire a principal when a vacancy occurs; (2) consult with the principal in filling staff vacancies; (3) determine the number of persons to be employed in each job classification; (4) set policy in the areas of curriculum, assignment of staff time, assignment of students to classes and programs, school schedules, use of school space, instructional practices, discipline, and extracurricular programs; and set procedures for determining alignment with state standards, technology utilization, and program appraisal; and (5) within local board policy, make decisions in key areas including school budget, individual student assessment, school improvement plans, professional development, and parent participation.

Overview of AEL's KERA Study

Since the 1990-91 school year, AEL has studied the implementation of KERA in selected rural Kentucky school districts. Because many of the reform measures implemented in Kentucky have also been debated and discussed in numerous states around the nation, this study provides information and insights for both state and federal lawmakers and educators.

AEL's research began with a four-month baseline study of six rural and small districts during the fall of 1990. It was followed by a longitudinal study of reform implementation—in 20 schools in four rural districts—through 1995. Since the fall of 1996, the study has focused on the experience of the class of 2006 in six elementary schools in the four study districts.

In this report, AEL study findings are linked to those of other KERA research only in instances where the other research is especially relevant to the point being made. Some of the AEL findings, however, appear to add new information to the ever-growing body of data on reform implementation in Kentucky. It should be remembered in interpreting those findings based exclusively on AEL data that the findings are drawn from analysis of school and classroom data at the elementary level in four rural school districts.

The four districts studied are located in three major geographic regions of Kentucky—western, central and eastern. These districts, kept confidential by the use of pseudonyms and rounded figures, are described below.

"Lamont County" in western Kentucky—An average daily attendance of 1,500, an economy based primarily on agriculture and service industries, and 40 percent of students receiving free or reduced-price lunches.

"Newtown Independent District" in eastern Kentucky—A small town district with an average daily attendance of 750, an economy based primarily on the retail and service industries, and 35 percent of students receiving free or reduced-price lunches.

"Orange County" in eastern Kentucky—An average daily attendance of 3,500; an economy formerly based on mining, but currently based primarily on the service industry; a number of residents on public assistance; and 70 percent of students receiving free or reduced-price lunches.

"Vanderbilt County" in central Kentucky—An average daily attendance of 1,600, an economy based primarily on agriculture, the service and commuter industries, and 45 percent of students receiving free or reduced-price lunches.

The AEL research team's study methods over the past decade included (1) more than 1,200 interviews with state policymakers, school administrators, teachers, school board members, parents, students, and community members, (2) observation of more than 500 classroom instruction hours in the study schools (as well as related meetings and parent events), and (3) a comprehensive review of key documents, including assessment results, school improvement plans, school board and school council minutes, primary program action plans, lesson plan books, and local newspapers. The study design also includes an evaluation by a four-member external advisory panel, which has met annually since the fall of 1991.

In the fall of 1999, AEL's research team held two briefings for state policymakers to report findings and answer questions. Issues of particular interest to policymakers were noted; they are among those addressed in the observations that follow.

Research Observations

The AEL research team has noted key observations for policymakers. These observations fall under three themes that emerged from the research: (1) students have benefitted from Kentucky's educational reform; (2) key components of the reform have not yet been realized in the study schools; and (3) certain aspects of KERA—and their implementation—warrant further attention.

Finding #1: Students have benefitted from KERA.

Improvements seen:

- **test scores**
- **facilities**
- **resources**
- **varied instruction**
- **inclusion**
- **parent satisfaction**

Tests scores for Kentucky students are on the rise on many measures, and stable on most others.

Statewide (and in AEL's study schools), student test scores have increased on many of the measures available, and remained stable on most others. Scores from KIRIS, CTBS, and NAEP offer what is arguably the best evidence of the reform effort's benefits to students; significant statewide results are reported below.

On the Kentucky Instructional Results Information System (KIRIS):

- Elementary students improved in all academic areas, nearly doubling their scores in reading (from 32 to 58 on the academic index), mathematics (from 22 to 44), and science (from 18 to 37) from 1993 to 1998.
- Middle school students doubled their math scores (from 23 to 51), and saw slight increases (less than 10 points on the academic index) in other subject areas except writing, where scores remained flat at 28.
- High school students improved in all areas, doubling their scores in reading (from 20 to 51), social studies (from 23 to 49), and mathematics (from 22 to 47).[2]

On the National Assessment of Educational Progress (NAEP):

- Kentucky fourth-graders improved their reading scores from 213 to 218 between 1992 and 1998—one of the largest increases reported by NAEP—to exceed the national average (215) for the first time.
- Eighth-graders exceeded the national average in reading (261) by one point in 1998, the first year that eighth-grade NAEP reading scores were published by state.
- Fourth-graders improved faster in mathematics than most states, to come within two points of the national average (222)—compared to a four-point gap in 1992.[3]

On the Comprehensive Test of Basic Skills (CTBS):

- Kentucky's third-grade students have increased by two percentile points since 1997 in (1) reading, (2) language, and (3) math, to reach or surpass the 50th percentile.
- Sixth-grade student scores have been stable in all areas since 1997, hovering around the 50th percentile.
- Ninth-grade scores decreased by 1-2 percentile points in reading and language since 1997, but increased by two points in math.

Linking the findings to KERA. Overall, the results indicate progress toward the ultimate goal of the reform: improving student learning.

Funding increases have resulted in benefits for students including improved school facilities, new support programs, technology resources, and classrooms well stocked with educational materials.

Facilities. A Kentucky Department of Education finance official reported to AEL researchers that nearly $300 million was initially spent on new school construction after the passage of KERA, compared to roughly $50 million before the reform law was passed. Over the decade of the AEL study, the research team observed great improvement in school buildings as the study districts increased funding and bonding capacity. The three county districts have each opened at least one new school building since 1990 and have upgraded nearly all of their facilities. In addition, school buildings in all four districts now have upgraded air-conditioning and heating systems.

Support programs. Through grants funded under KERA, Kentucky schools in which 20 percent or more of the student body is eligible for free or reduced-price lunch may receive funding to establish family resource centers (in elementary schools) or youth services centers (in middle and high schools) to serve students and their families who are experiencing problems that may impede learning. The state Office of Education Accountability reported in 1999 that 638 centers had been established serving 1,010 schools, with 124 Family Resource and Youth Service Centers remaining to be funded in eligible schools. All of the districts in the AEL study have established at least one; three districts have had the centers in place for some time. The long-established centers have been well-received in their districts, often serving as the school or district's community outreach arm. The grandparent of a student in the class of 2006 spoke of how her school's family resource center had helped the child do better in school:

> They have a family resource center here. [Child] has been to see the nurse. She has practically lived in there because of allergies and kidney infections. There were times when they would...give her clothes.... We had a hard time keeping her concentration in class at first. We don't have that problem now. I think what makes the difference is the school cares; they take the time.

In addition, the extended school services program established by the reform law—for students who need extra time to achieve KERA goals and expectations—has enabled all schools statewide to provide extra instruction to students who need it.

Technology. According to the Office of Education Accountability, between 1990 and 1999, Kentucky spent $314.6 million in state and local funding (matching funds and direct funding) for technology to enhance teaching and learning.[4]

By 1999, all 176 district offices were connected electronically and 86 percent of schools had high-speed Internet access. Statewide, the average computer-to-student ratio is now 1:8; the computer-teacher ratio is just under 1:2. While the quantity and quality of technology use varied in the AEL study districts, computer labs are now commonplace in the schools, and each classroom has at least one computer, and sometimes as many as five or six. The researchers observed that technology was used by teachers in some schools for e-mail and management purposes, and in many classrooms for word processing and skills reinforcement, such as reviewing math facts or assessing reading comprehension.

Educational materials. A recent report by the national newspaper *Education Week* placed Kentucky first in the nation in the amount of increase in inflation-adjusted education spending per pupil from 1988 to 1998.[5] Similarly, a special report to the Kentucky Board of Education in August 1999 stated that per-pupil state and local revenue increased by about 73 percent statewide between the 1989-90 school year (the last before KERA was passed) and 1997- 98, far surpassing the rate of inflation of about 29 percent.[6] Increased general funding has enabled the AEL study schools to develop well-stocked classrooms that include not only the standard paper, pencils and textbooks—but also classroom libraries, math manipulatives, and science lab materials. This was especially true in the two study districts that had the highest percentage of students in poverty and the lowest assessed property values. In a 1992 interview with researchers, a principal from one of these districts made the following observation:

> Everything they've [teachers] requested...is going to be purchased.... There is not a reason for any teacher in a classroom not to have everything they've requested [for instruction].

Linking the findings to KERA. Access to (1) school buildings that are in a good state of repair and have adequate heating and cooling systems, (2) new support programs, (3) computers in labs and classrooms, and (4) essential educational materials has resulted in improved learning conditions for students, which contributes to the overall goal of helping students achieve at higher levels.

In the AEL study schools, more diverse instructional practices and greater inclusion of special education students have combined to create a classroom experience that is, overall, more varied.

With regard to instructional practices, AEL researchers observed that while teacher-centered delivery of basic information (as opposed to student-centered, inquiry-based instruction) is still the norm, reform implementation appears to have increased the prevalence of

- variety in instructional practices, especially at the primary level
- interactivity in classrooms

- inclusion of special education students

Researchers observed that, in the primary program, students are generally free to move around the classroom to get supplies or ask for help. Seating is arranged for interaction, and students are permitted—and sometimes encouraged—to help one another. Across grade levels, the researchers observed that it is not unusual for teachers to use children's literature to teach reading or to supplement the basic reading program. Writing is often integrated into various subject areas. Hands-on science experiments or activities are in evidence, and some teachers help students use technology to conduct research.

A 5th/6th-grade science teacher offered researchers the following observation in 1999 about positive changes in the classroom experience:

> [I used] mostly lecture and textbook at first.... [I did] very few hands-on projects. I went to all hands-on [after the reform law passed], but saw that it wasn't working, so I balanced it out.... Activities are the key. The more activities you provide for them, the more the children learn.... Every day before I start class, we have a journal entry—basic questions that kids have all the time. [For instance,] "What is the difference between an alligator and a crocodile?" I give them four minutes to write a hypothesis—their guess. Then we come back together and talk about the right answer. Once they are finished in my classroom, they are never allowed to sit. There are times when someone has 10–15 minutes left over and they must be doing something in science. They get on the Internet, do Versa-tiles, Geosafari, big floor puzzles, microscopes.... The biggest thing is we do science every day and they are held accountable. It can be exciting and fun, but it depends on how the teacher approaches it.

In addition, the researchers observed that special education students were often integrated into regular classrooms for all or part of the day—although the level of inclusion fell off in some schools after the first few years of reform implementation. The parent of a child with severe physical challenges noted in 1997 (when her son was in fourth grade) that the reform had benefitted special education students:

> I am real pleased with the KERA concept. I'm pleased with the hands-on learning—and [my child] learns much better that way, because he can't do some of the structured stuff. I've been real pleased with that method.... I have no idea what they would have done with [my child] prior to KERA—probably just put him in a resource room. I would not have agreed to something like that, but luckily we had KERA.

One special education teacher reported that because all students, including special education students, are included in the testing program, she now challenges these students to a greater degree:

> KERA has really changed the complexion of special education.... Now I have to do portfolios with students. It is a lot of work for me, but I have seen how these students can really write, much more than in the past. I have had to raise my expectations of students, and I have learned that they can do a great deal more than I thought.

Linking the findings to KERA. Because each student learns differently, more varied instructional approaches afford more students the opportunity to learn—as well as the opportunity to develop a deeper understanding of skills and concepts. Creating a classroom experience that is more varied speaks directly to the standard established by the Kentucky Supreme Court in its mandate to the General Assembly: "Each child, every child, in this Commonwealth must be provided with an equal opportunity to have an adequate education."

A majority of public school parents support some of the core beliefs of KERA, believe student learning has improved in recent years, and report that schools are doing a good job preparing students for adult life.

A 1999 statewide survey conducted for the Kentucky Institute for Education Research found that a majority of randomly sampled public school parents agreed with the basic KERA tenet that all children can achieve and most at high levels, that high standards should be set for all children, and that children should be taught to apply knowledge.[7] A majority of parents surveyed also reported that student learning over the past five years has improved in the areas of computer skills, writing, thinking and problem solving, reading, knowledge of basic subject matter, and mathematics computation. Further, a majority of parents believed schools were doing a good job preparing students for college, work, self-sufficiency, basic skills, and citizenship.

Parents in the AEL study schools also agreed with many KERA beliefs and reported positive views of local schools. In 1999 interviews, researchers asked the parents of 29 randomly selected students what they thought of the methods of classroom instruction promoted by the reform legislation, compared to traditional approaches (e.g., higher-order vs. basic skills, continuous progress vs. age/ability grouping). More than two thirds of those interviewed said they believed that all children can learn and should be challenged at high levels. At least that many also voiced strong support for allowing children to make continuous progress and teaching higher-order thinking skills.

More than three fourths of the 29 parents in the AEL study also reported that their children are learning more—and at a faster rate—than they would have expected. One parent of a fourth- grader offered the following comment, which contrasts her daughter's elementary experience with that of an older son, now in high school, whose early school years were prior to KERA.

> They did not have all of this when [the brother] was in elementary school. The things she learns and writes, it is a lot more than what he ever did. A couple of weeks ago, they wrote a brochure like going on vacation. She really enjoyed that. And they have been studying China and doing portfolios. She really enjoys that. I don't remember him getting into depth like they do now. They touched on things, but not like she has. She does a lot more reading than he ever did. They pick out things that are fun for them to read. Basically, I am happy with her education.

Linking the findings to KERA. Parents' support of KERA goals and expectations is critical to successful school reform in terms of (1) the messages they convey to their children, (2) their support of teachers' efforts to improve the overall classroom experience, and (3) the direction of school policies developed, in part, by parents.

Finding #2: Key components of the reform have not yet been fully realized in the study schools.

Key components not fully realized:

- achievement of all students
- principal leadership
- primary program
- technology integration
- teaching of higher-order skills

Many educators are having difficulty helping all students achieve at high levels. Most schools are not tracking individual student progress toward learning goals and expectations and adapting assignments and instructional strategies to ensure the success of each and every student.

Increasingly, schools are faced with student populations of diverse backgrounds, abilities, and special needs. For instance, over the ten years of the AEL study, two of the study schools experienced significant increases in the proportion of low-income students they served.

Teachers were sometimes skeptical about these students' abilities, and were unaccustomed to adapting their way of teaching to meet different student needs and learning styles. The principal of one of these schools commented on the class of 2006:

> There are more new kids in this class—they're not all old-time [area] residents. But we're seeing more of that in all grades, anyway. Some are students with [difficult] backgrounds. . . . The older faculty are having trouble adjusting to the new type of student we are serving.

In addition to teacher beliefs about student capabilities, the researchers observed a consistent and strong classroom focus on covering the core content and analyzing schoolwide test data, but little corresponding emphasis (except in one school) on analyzing the progress of *each* student and adjusting assignments and instructional strategies to ensure greater success. When AEL researchers suggested that KERA was designed to change the focus from what teachers teach to what students learn, and to looking at whether each child was progressing toward KERA goals, one principal responded:

> We do KERA—we document teaching to expectations and the core content, and we teach portfolios. We do all of that. Do you know how long it would take to...look at every individual child and determine how to assess and track every child on all of those learning expectations? My teachers are paperworked to death. I just don't think that is practical on every concept.

Linking the findings to KERA. Ensuring the learning of *each and every* student is a necessary step to realizing the reform vision of high levels of achievement for *all* students.

Principals who can help schools move toward improved learning for all students are in short supply.

In the AEL study school that demonstrated the greatest success with school reform and student learning, the principal acted not only as an administrator but also as an instructional leader and motivator. This principal's leadership was essential to the school's efforts to uphold the basic reform tenet that schools must ensure that all of their students achieve challenging standards. In an interview with researchers, a teacher from this principal's school offered the following observation:

> I truly believe that this school is successful because of [our principal]. She wants us to be up to date and have anything new. I don't care what I ask her for, she will find a way to get it for me. Our motto is "children first" and she really believes that. If we want to do something, she asks if it is for the good of the children and if it is, fine.

During a group interview, teachers shared specifics on how this principal took an interest in each child's learning:

Teacher 1: Something else, talking about the leadership of the principal. This blew my mind!.... She sees every child's grades in the school.

Teacher 2: And she will question you on them.

Teacher 3: You go down to her office two days later and you see them laying on her desk and she's got a highlighter pen (marking particular students). Then she discusses student progress with the teacher. It might be a student whose grades have shown improvement or one with a decreased grade average.

Finding and keeping high-caliber principals, however, has been difficult, especially in rural areas with few resources and attractions. For instance, over the ten years of this research, one of the study districts has had four superintendents, five principals at one elementary school, four principals at the high school and a second elementary school, and three principals at the remaining elementary school. A middle school that opened four years ago has had two principals.

Linking the findings to KERA. Because the changes initiated by KERA reach beyond mandates and incorporate an overall philosophical shift—embracing the notion that all students can learn at high levels—school leaders play an integral role in reinforcing that philosophy. For successful reform implementation, it is critical to have the long-term leadership of principals who—in addition to their duties as administrators—act as instructional leaders, upholding and modeling the belief that all of the school's students can achieve challenging standards.

The primary program has not been well integrated with instruction and assessment in grades 4-12.

From the inception of the reform, teachers in the study schools expressed the view that the primary program was out of synch with what happens in grades 4-12. The primary program focuses on creating a classroom environment that addresses students' social, emotional, physical, and aesthetic needs as well as cognitive needs while allowing them to progress according to their own unique learning rate. By grade four, however, students are expected to be ready for the rig-

ors of the testing program. Even though state officials have told the researchers from the beginning that the primary program was designed to model instruction that would help students achieve KERA goals and expectations—and even though assessment results have consistently shown that elementary students are performing better than middle and high school students—teachers have held to the belief that the primary program does *not* prepare students for the state test. These comments from a fourth-grade teacher illustrate the problem:

> The primary teachers are not preparing students or using the curriculum necessary for them to succeed in fourth grade. They still have a lot of freedom of choice in content and materials—I understand that is part of KERA—but we are finding so much inconsistency in what kids have covered in core content. The writing program is not what we'd like to see to support fourth-grade writing.

This kind of pressure has had an effect on primary classrooms in all four study districts. The researchers observed that primary teachers initially instituted a number of changes consistent with the primary program critical attributes, which emphasized *how* to structure classrooms rather than *what* students were to learn. Because of pressure from fourth-grade teachers who believed primary students were coming to them unprepared, primary teachers backed away from the new instructional practices. A primary teacher commented during a 1997 interview:

> We have a contradiction between what we're doing and what primary was supposed to be doing. It was to have these wonderful hands-on activities and time for learning.... We have heard numerous people complain that kids spent too much time on bears and thematic approach, hands-on, what have you—[and] they couldn't perform on the KIRIS test [in fourth grade]. Now [in response to that pressure], I do a few short themes, but if it doesn't do skills and it lasts more than 2 weeks, I won't do it.

Linking the findings to KERA. The primary program was intended to help students meet KERA's high learning standards at their own rate and in their own way without the stigma of early school failure. It is designed to give all students the foundation to achieve at high levels.

Most teachers are not yet fully (1) integrating technology into the instructional program, nor (2) teaching the higher-order thinking skills described in KERA goals five and six.

Generally speaking, since the reform law was passed, student achievement has increased, curriculum has become more focused and aligned with the core content, and classroom instruction has become more varied. However, AEL's researchers noted two aspects of instructional reform where progress has been slow.

Technology in the classroom. A 1999 survey of teachers in Kentucky, Tennessee, Virginia, and West Virginia indicates that many teachers *never* use computer software in their classrooms.[8] Moreover, survey results indicate that software is most commonly used for word processing activities, research, drill and practice, and academic games. While the four study districts indicated increased use of technology in Kentucky classrooms over the past decade, the researchers observed that only a few teachers integrated technology into

their instructional program. Computers were used mostly for word processing in grade 4, and for enrichment and skill reinforcement at other grade levels. The following quote is from a 5th/6th- grade math teacher who recognized the problem:

> I can use the computer, [but] I did not feel like I was well-versed at integrating it into my everyday instruction. Those were actually the sessions that I went to [at the National Council for Teachers of Mathematics meetings] in Louisville and I've now got so many ideas I can't get them all in.... I feel like I'm...just in an evolving stage. I'm not a master of that yet, but I'm really trying to get better.

Teaching higher-order skills. Goals five and six call for students to learn to think critically, solve problems, integrate knowledge from various subject matter fields, and apply what they have learned. Although the researchers observed increased levels of subject matter integration and some experimentation with problem-solving activities, classroom instruction continues to be predominantly focused on imparting basic factual knowledge to students. The result: limited opportunities for students to engage in critical thinking, problem solving, and exercises that require the application of skills and knowledge.

When interviewed by researchers, teachers in the AEL study schools explained that they continue to rely on textbooks, lectures, and other traditional means of delivering basic facts to students because they cannot teach all of the core content while *also* covering subject matter at a deeper level. More integration of subject matter could alleviate this problem, but some find this to be a catch-22: doing a better job of integrating subject matter requires planning, practicing, and refining new methods; but covering core content leaves them with insufficient time to plan, practice, and refine methods to integrate subject matter.

Teachers' focus on the *Core Content for Assessment* has also resulted in its heavy use as a curriculum guide, to the near exclusion of the other two curriculum support documents: *Transformations* and the *Program of Studies for Kentucky Schools*.[9] This near-exclusive use of the core content compounds the lack of teaching higher-order skills because the core content emphasizes KERA goals one and two, which focus on basic factual knowledge.

Administrator and teacher interview data revealed other barriers to "teaching for understanding." Teachers believe that it is their job to
convey a vast body of factual knowledge, and they fear that they may lose control of student learning and behavior if they allow more student direction in the classroom. They also report that they *simply do not know how to teach in this way* and *do not have the time or resource structure to learn*.

Linking the findings to KERA. Integrating technology and higher-order thinking skills into the curriculum is part of the fundamental education reform mandated by KERA. Teachers will need a great deal of assistance with these aspects of reform if the complete vision of the reform is to be realized.

Finding #3: Certain aspects of KERA—and their implementation—warrant further attention.

Aspects warranting further attention:

- link between reform efforts and KERA vision
- teacher time
- accountability program
- school-based decision making

The "Big Picture" of KERA. The "big picture" of KERA—ensuring that each and every student achieves KERA goals and expectations—got lost in the initial push to get the various KERA strands in place and in the focus on test preparation. Initially (and even now, to an extent) schools have implemented KERA components without attending to how they should fit together to further the overall goal of high levels of achievement for all students. Now that the various components and a support structure for reform are in place, there is a need to re-emphasize the overall purpose of this massive reform effort. Education agencies at every level need to explore how to incorporate the big picture into every reform-related activity (professional development activities, consolidated planning, district and regional administrative meetings, etc.).

The structure of teacher time. The requirement that schools help *all* students meet learning goals and expectations—which includes helping them learn to think critically, solve problems, and integrate knowledge—requires additional teacher time at several points in the process of implementation. Teachers need time for intensive professional development that includes talking with and observing others who have experience teaching higher-order skills to diverse learners, and time to plan new strategies with colleagues. Next, they need time to practice the new strategies with their students and time to reflect on and adjust their plans. Finally, teachers need flexible time to implement the new teaching strategies (some of which simply do not fit well into a schedule where students change classes every 50 minutes), as well as time to meet with colleagues to analyze individual student learning and adapt teaching plans to meet student needs. Some thoughtful and creative study of the issue of restructuring teacher time is needed at both the state and local levels.

Accountability. Kentucky's accountability program has been successful in getting educators' attention and generating discussion and activity toward improving curriculum, instruction, and student learning. It has motivated some teachers to work harder with all of their students. The Kentucky General Assembly, Kentucky Board of Education, and Kentucky Department of Education have demonstrated a consistent commitment to improving education for all students, and to adjusting reform strategies based on feedback from schools. However, data from the AEL study schools suggest that the accountability system, as it is currently structured, has reached a plateau in motivating change. Teachers have aligned their curriculum to the content that is tested, emphasized writing in the classroom, and

taught students how to respond to open-response test items and to writing prompts. This macro focus on improving whole school test scores, however, has often not led to a micro focus on the learning of each child. For instance, the AEL researchers have observed schools making such decisions as requiring hands-on science activities once a week in every classroom as the route to improved science scores, rather than looking at how each student has performed in science, then adapting that child's work in an effort to improve his/her performance.

In addition to a focus on test preparation, most teachers have not had the time, resources, or know-how to make real changes in how they teach children. The kinds of changes most teachers still need to make involve creating classrooms where basic content and higher-order skills are taught simultaneously through authentic activities that help develop deeper conceptual understanding of subject matter for *all* students. External rewards and sanctions cannot help teachers learn to teach in this way, nor is the accountability structure motivating teachers to focus on the learning of *each and every* student as the path to high achievement for *all* students.

Further study and consideration should be focused on expanding the accountability system in ways that will develop teachers' intrinsic motivation to find ways to help each child reach challenging goals. For example, money could be applied toward providing released time for teachers to plan with colleagues, participate in professional networks and organizations, observe and reflect on practices in successful schools, analyze individual student learning, and adapt strategies to individual student needs.

School-based decision making. SBDM has provided a mechanism for involving principals, teachers, and parents in making decisions for the school. While councils have varied widely in the extent to which they constitute major decision-making bodies at their schools—and in the extent to which they have seen their main task as helping all students achieve KERA goals and expectations—they nevertheless provide a mechanism for participatory decision making if schools are inclined to use them. It would be useful if schools were provided with a variety of tested, effective models for moving their schools toward improved curriculum, instruction, and student learning.

Recommendations for Policymakers

Education agencies at every level:

- Explore how to incorporate the "big picture" of helping all students achieve KERA goals into every reform-related activity.

State and local policymakers:

- Assist teachers in developing strategies for helping diverse learners achieve, and develop models of manageable systems to track individual student progress. Provide professional development and technical assistance to encourage the implementation of such systems in all schools.
- Continue efforts to develop instructional leadership, including creating strategies to identify, recruit, and assist skilled local educators in obtaining principal certification (especially in rural areas).
- Develop and implement professional development and technical assistance opportunities focused on:

  1. implementing the primary program in ways that move students toward reaching the learning goals and academic expectations
  2. integrating technology into the instructional program
  3. teaching the higher-order skills defined in KERA goals five and six

- Study and develop ways to give teachers the time they need to learn about and implement instructional reforms.

State policymakers:

- Continue to develop the accountability system in ways that provide positive incentives for change.
- Provide school-based decision-making (SBDM) councils with various models for how they can move their schools toward improved curriculum, instruction, and student learning.

Notes

1. All three documents were published by the Kentucky Department of Education [KDE], Frankfort, KY: *Transformations: Kentucky's Curriculum Framework*, 1993; *Core Content for Assessment, Version 1.0.*, 1996; and *Program of Studies for Kentucky Schools, Grades Primary–12*, 1998.
2. Susan Perkins Weston, Executive Director, Kentucky Association for School Councils, memorandum to Robert Sexton, Prichard Committee for Academic Excellence, 15 June 1999, "KIRIS Data on Improvement in Student Performance."
3. Susan Perkins Weston, Executive Director, Kentucky Association for School Councils, memorandum to Robert Sexton, Prichard Committee for Academic Excellence, 19 March 1999, "NAEP Data on Kentucky Performance."
4. Office of Education Accountability, *Annual Report* (Frankfort, KY: Office of Education Accountability, 1999).
5. Editorial Projects in Education, *Quality Counts* 2000, special report from the publisher of *Education Week*. Bethesda, MD, 13 January 2000. HtmlResAnchor http://www.edweek.org/sreports/qc00/ (28 February 2000).
6. J. Augenblick, *Changes in the Funding of Kentucky School Districts Between 1989-90 and 1997-98: Report to the Kentucky State Board of Education* (Denver, CO: Augenblick & Myers, Inc, August 1999).
7. Kentucky Institute for Education Research, *1999 Statewide Education Reform Survey of Teachers, Principals, Parents, and General Public* (Lexington, KY: Kentucky Institute for Education Research, November 1999).
8. Tammy McGraw, T. M., Betty C. Blair, John D. Ross, *Educational Software Use: Results of a 1999 Regional Survey* (Charleston, WV: SEIR◇TEC at AEL, October 1999).
9. See note 1 above.

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