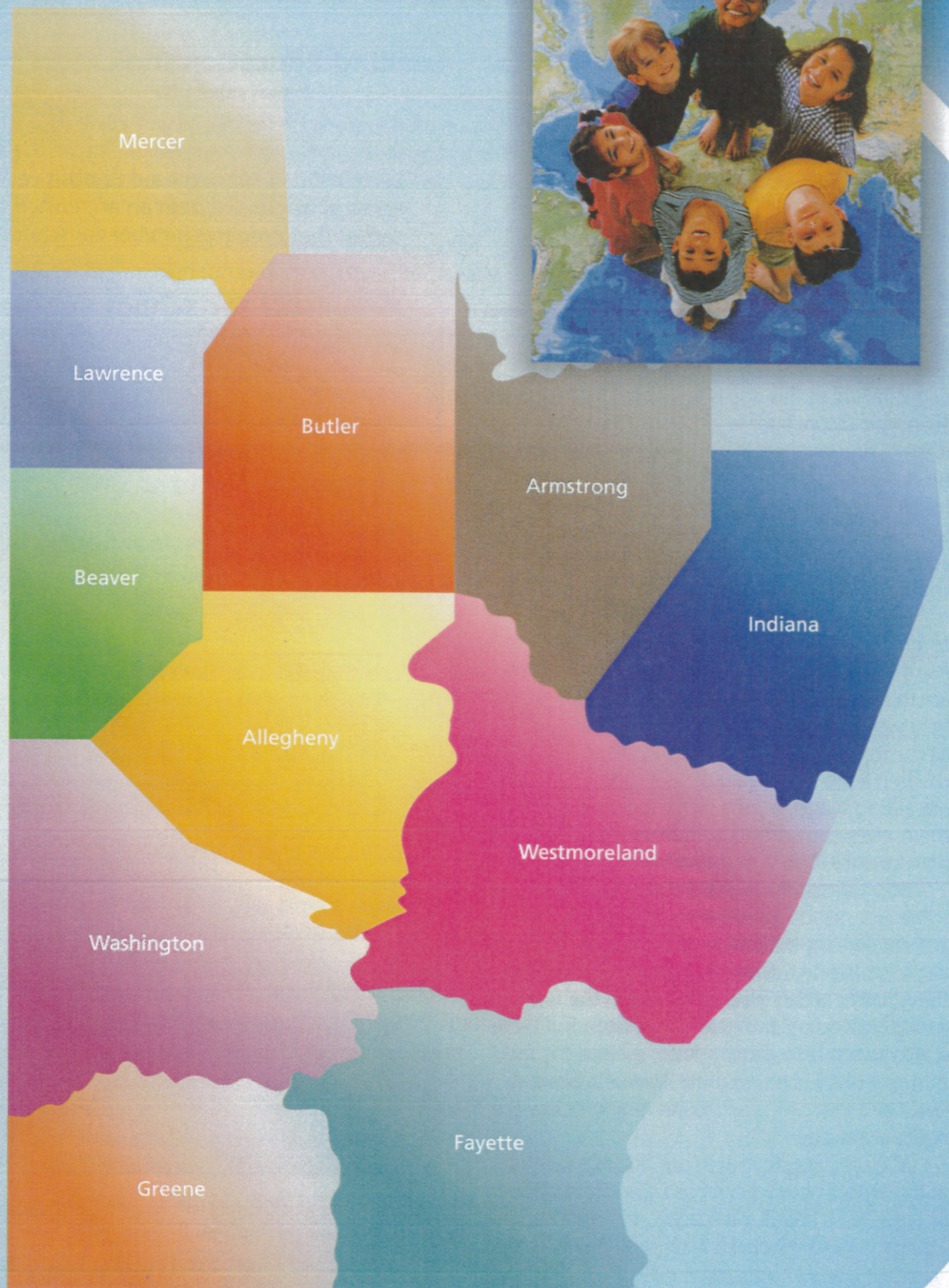


third annual



2001

Regional Education Index Report: The State of Education

SOUTHWESTERN
PENNSYLVANIA

Prepared by the Education Policy & Issues Center

The Education Policy & Issues Center (EPI-Center) offers the third annual edition of the “State of Education,” the Regional Education Index Report for Southwestern Pennsylvania. This report is the most comprehensive indicator of the trends in academic achievement of children in Pittsburgh and eleven surrounding counties.

EPI-Center is an inclusive organization with diverse constituencies aligned to a visionary objective: All 10-year-olds in our region must meet or exceed state standards in reading, writing, and mathematics. Why “by age 10?” Because academic failure at this age is a predicate for social or economic failure later in life. Why “reading, writing, and mathematics?” Because these are the fundamental skills that provide a firm foundation for all other learning. Achieving this goal is critical for our region to rebuild our competitive advantage and move forward in an ever-changing global economy.

EPI-Center helps educators, parents, and community members make our children’s achievement a number one priority for the region. If we are to succeed, if our children are to thrive in this new world, then we must have high standards for *all* children, and we must ask schools to help our children learn to the very best of their abilities. We are asking that everyone in the region hold themselves and schools accountable for good performance. This is everyone’s job.

You will see that we are making progress in some areas, such as an increase in the number of accredited early education centers, the number of districts offering advanced placement courses, and the number of 5th graders scoring in the top group on reading and math PSSA tests. But there is also some discouraging news, such as the fact that few districts have school readiness plans in place and that SAT math scores remain below the national average.

We urge you to review our findings carefully, and then see how you can use this information to ask questions about our schools and communities and get actively involved. Each child deserves the very best chance to succeed.

■ **Murry S. Gerber**

Chairman, President and CEO
Equitable Resources, Inc.

■ **Karen S. McIntyre, Ph.D.**

President
Education Policy & Issues Center

Leading Education Indicators

PG.
NO.

Strength of Early Education

4

Every child will be exposed to positive educational experiences at home and/or in an accredited early education center that prepares him/her for school success.

Readiness for School Success

6

All children will enter kindergarten ready to learn, and every school will be ready to educate children.

Achievement of Academic Standards

8

All students will be able to read, write, and compute on grade level as indicated by performance on state and local assessments.

Strength of Curriculum

10

All students will experience a rigorous, engaging curriculum based upon high standards and high expectations.

Strength of Instruction

12

All students will be taught by highly qualified teachers, as demonstrated by high levels of teacher education, certification, and quality professional development.

Strength of School Environment

14

Every day, all students and educators will attend a safe, orderly, and stable school, well-equipped to support learning.

Course Completion

16

All students will pass — with a C or better — rigorous secondary level courses in core subjects, including passing the “gatekeeper” courses early in their schooling.

Preparedness for Post High School Success

18

All students will graduate from high school prepared for a lifetime of continual learning and able to meet workforce demands.

Overview of the State of Education

This report is divided into eight sections, each presenting data on a Leading Education Indicator — or LEI — that contributes to student and school success. Following is an overview of each LEI, including steps that can be taken to make a difference.

Within each section is a case study of how a district or school has improved outcomes in the area encompassed by the LEI. The case studies are a new feature in this year's report. Those selected are not meant to be the exemplar for all districts to adopt. Rather, they are examples of how a district or school chose to proceed. We recognize that there are many other successful initiatives throughout our region, and these will be detailed in subsequent reports. The EPI-Center is in a unique position to facilitate the sharing of information between districts and schools. It is too expensive and time consuming for each district to rediscover what others may already have perfected. We hope that you will share with us the successes that should be a source of pride for your district and your community.

It should be noted that an extensive study was recently completed by Standard and Poor's School Evaluation Services (www.ses.standardandpoors.com) on several indicators of performance for schools in Pennsylvania, and many of these parallel the Leading Education Indicators used here. The Standard and Poor's evaluation will be a valuable resource for additional analysis and better understanding of the challenges facing school districts in improving education for all students.

Strength of Early Education

What was found:

- The number of early education centers is slowly increasing, but the number of accredited centers is less than one in ten.
- Low salaries, few fringe benefits, and high turnover rates characterize early education center staffing.
- Pennsylvania continues to be one of a few states providing no direct financial support to early education programs.
- High-risk children who have had quality early education experiences significantly exceed achievement expectations when entering public school.

What it means:

Pennsylvania ranks among the lowest in the nation for direct state funding of early education, offering little incentive for providers to become accredited — a hallmark of quality — and resulting in low salaries and high turnover rates among employees in the field.

The data show that high-risk children who have a quality early education experience enter school ready to learn. High quality early education may be the most cost-effective way to close the achievement gap between economically diverse groups in public schools. An increase in the early investment in our children will save millions of dollars in special education and other remedial costs when children enter public schools.

What should be done:

We must continue to advocate for adequate state funding of early education programs, accreditation of those programs, and research to chronicle the impact of the investment.

Readiness for School Success

What was found:

- Large numbers of parents recognize the importance of early learning and are reading to their children daily.
- Less than 40% of early education centers transfer individual student data to schools to assure a smooth transition into public school.
- Only 37% of school districts offer parents the option of full day kindergarten.

What it means:

It is critically important for parents to read to their children daily. Children will not only sharpen reading and listening skills, but also learn that their parents value reading.

Data gathered on what a student knows and is able to do in an early education center assist kindergarten teachers with designing appropriate lessons to build upon the child's skills and knowledge.

Full day kindergarten provides more time for the child to learn from well-designed lessons.

What should be done:

We must reinforce the vital role that parents play in the education and social development of their children. Parents should insist that their child's early education records be shared with public schools at the time of enrollment into kindergarten. School leaders must provide the option of full day kindergarten.

Achievement of Academic Standards

What was found:

- Fifth grade students have made progress on the Pennsylvania System of School Assessments (PSSA) in both reading and mathematics.
- Eighth grade students have made progress as evidenced by decreasing percentages of students in the lowest achieving group for both reading and mathematics. The percentage of students in the highest achieving group has been stable.
- Eleventh grade students have made no progress in either reading or math.

What it means:

The PSSA are high stakes tests. School districts with consistently poor results may be taken over by the state government. Any single measure of school performance, however, is imperfect if considered alone. The PSSA scores, as an example, can vary as much as 50 points up or down strictly by chance. The importance of reading and math to future success is undisputable. This region can and must do better. The cohort data, which compare the progress of the same class of students between their 5th and 8th grades and between the 8th and 11th grades, show no improvement and indicate the difficulty of remediating children once they fall behind. It is somewhat encouraging to note that 5th grade achievement gains, while small, are increasing.

What should be done:

School districts must refine those programs and practices that result in higher achievement for students. These include early education programs, curricula aligned with the state standards, continuous teacher training focused on high standards achievement, and increased time and assistance for those students who need help. School leadership must utilize multiple assessments that will inform teachers of child-specific reading and mathematics deficiencies.

Strength of Curriculum

What was found:

- The number of regional schools offering Advanced Placement (AP) courses is increasing rapidly.
- There is a small but positive increase in the percentage of students earning a three or higher on AP exams in English and sciences. The percentage in math has been stable.
- Eighth grade students, when compared to peers in 38 countries and 27 states, districts and consortia of districts in the U.S., scored above the international average on math and science tests. In science, only one district was significantly above the region.
- Compared to the rest of the U.S., school districts in this region offer a higher degree of both high- and low-demand curriculum in science and math and a significantly higher degree than high achieving countries.

What it means:

AP courses utilize national curricula written at a freshman university level. The exams are standardized and administered to all AP students at selected times across the nation. Students who score a three or higher on a five-point scale receive college credit at many colleges and universities across the country.

Data from the Third International Math and Science Study indicate that policy and practice regarding math and science instruction should be examined.

What should be done:

We must advocate for the same standards of achievement for all students rather than offering a rigorous curricula to some and a less demanding curricula to others. We must advocate that school districts regularly review and modify curricula based on teacher recommendations and student performance. Written curricula should be sequential and aligned to grade level so that demands and standards of achievement increase as students move from grade to grade.

Strength of Instruction

What was found:

- The number of non-certified teachers in our region is rapidly decreasing.
- The number of contractual professional development days is decreasing.

What it means:

Certification assures that teachers have had a requisite amount of preparation specific to their teaching assignment. Focused professional development is one of the factors most associated with student achievement gains. It is too soon to evaluate the effects of Act 48 on the number of professional days in the negotiated contracts. Act 48 requires significant professional development for all educators to maintain their certification status. Teachers can satisfy the obligation through district, university, or other approved provider training.

What should be done:

School district and teacher organization leaders must require that teacher professional development be focused on improving student achievement gains. School districts should encourage teachers to pursue National Board Certification and explore ways to provide incentives and support for teachers who are willing to undertake the Certification process.

Strength of School Environment

What was found:

- The average annual number of days absent for students and teachers has remained stable at ten days for students and nine days for teachers.
- The mobility rate, or the percentage of the student body that changes between the first day of school and the last, ranges from 0% to over 40%.
- There is a substantial increase in the number of schools, classrooms, and other learning areas with access to the Internet. Correspondingly, there is a decrease in the ratio of students per computer.

What it means:

Well-trained teachers, well-designed curricula, and state-of-the-art technology are meaningless if students are absent from school. In some cases, the combined absence of students and teachers results in a huge loss of productivity, particularly if the absences are on different days and a quality substitute teacher is not available.

High mobility rates are typically associated with urban school districts where a high percentage of students live in public housing. Because movement into and out of stable classrooms is disruptive to all of the students, schools with high mobility rates usually have large numbers of students who are not achieving.

While the infusion of technology into classrooms is commendable, it does not guarantee higher achievement. Technology must be supplemented with teacher training to assure that the technology is infused into the curriculum.

What should be done:

School and community leaders must work together to identify the reasons for high absenteeism. Compulsory attendance laws should be vigorously enforced by school districts. The problem of school mobility must be studied to find solutions that will permit and encourage students to remain in classrooms for the balance of a school year, even if they have moved to another attendance area.

Course Completion

What was found:

- With the exception of geometry, which remained unchanged, the percentage of graduates who earned a C or better in key science and mathematics courses decreased.
- With the exception of the foreign languages, which remained unchanged, the percentage of graduates who completed four years of key humanities courses decreased.

What it means:

These data are the most alarming in this year's report. While the downward trend could be attributed to the size of the sample and the change in the number of districts reporting, it is cause for concern.

The differences between school districts are even more revealing. While it is praiseworthy that at least one district reported 100% of its graduates met the goal, at least one district reported that less than 1% of its graduates met the goal in trigonometry.

What should be done:

We must advocate that school districts require four years of English, social studies, and demanding mathematics and science courses. An oral proficiency in a foreign language should be encouraged. While not all parents will embrace such a rigorous policy, school leaders must begin working toward the goal.

Preparedness for Post High School Success

What was found:

- Regional dropout rates are steady at 11%.
- SAT scores are slightly higher than the state and the nation (verbal only).
- A large number of students indicate that they will continue their formal education beyond high school.

What it means:

The quality of our region's workforce is directly related to our ability to educate all students well. The more our high school graduates display the knowledge and skills required for 21st-century careers, the more economically vital our region will be.

What should be done:

We must strive for a 100% graduation rate in the region. School and business leaders must work together to increase the quality and quantity of information regarding local career options and opportunities.

Strength of Early Education

LEI
LEI
LEI

O U R
G O A L

Every child will be exposed to positive educational experiences at home and/or in an accredited early education center that prepares him/her for school success.

In a child's life, the first steps toward future reading and learning occur long before kindergarten. Starting at birth, exposure to the sounds of language and the sight of letters and words form the foundation for school readiness.

A child can gain these valuable experiences at home, at pre-school, or in a childcare setting. According to the North Central Regional Educational Laboratory, "A literacy-rich learning environment is one where parents or

1 Accredited Childcare Centers

	Early Education Centers	Number Accredited
2000	733	60 (8.2%)
2001	807	68 (8.4%)

Source: NAEYC and Department of Public Welfare

caregivers provide children with occasions for daily reading, extensive talking and writing, experimentations with literacy materials, discussion of characters, actions and plot, and dramatic play."

Many parents, through choice or necessity, place their children in early care and education centers. While "care" remains the predominant word used to describe these centers, children derive important early educational experiences there. Childcare centers that provide high quality care and education can positively affect language and social development as well as math and reading skills in the long term.

But dramatic differences in quality from one center to another make it difficult for some parents to choose quality programs for their infants, toddlers, and pre-school-age children. In fact, only one in seven centers receives a "quality care" rating from the National Association for the Education of Young Children (NAEYC).

Standards of Quality: Licensing and Accreditation

Pennsylvania's Department of Public Welfare (DPW) licensing is mandatory for all childcare centers in the state, and programs must meet a minimum level of quality to legally operate. Licensing, therefore, serves as a baseline for quality care and helps to assure children have access to an acceptable level of care. Currently, 807 early education centers in SWPA are licensed by the DPW.

NAEYC accreditation, a voluntary quality certification process first offered in the 1980s, helps centers to evaluate themselves on a variety of quality indicators. But the time-consuming and costly nature of accreditation is a deterrent for many centers. Unfortunately, the state offers no direct funding for centers seeking accreditation, which contributes to the slow growth in the number of accredited centers in our region. Out of 807 early care and education centers in SWPA, only 68 (8.4%) were accredited as of July 2001 (see Table 1). However, eight centers received accreditation since the last report.

Adult/Child Relationships and Staff Turnover at Centers

In its accreditation guidelines, NAEYC stresses the importance of adult/child relationships and appropriate interactions. Therefore, the rate of turnover among classroom staff (group supervisors, assistant group supervisors, and aides) becomes important in the context of maintaining consistency in these adult/child relationships. Results of a recent survey of 73 childcare centers in Allegheny County indicate that the annual turnover rate among classroom staff ranges from 34% for group supervisors to 55% for aides (see Figure 2).

Turnover in management staff also must be considered, as consistency in leadership is as important as consistency in the classroom. Among reporting centers, the combined annual turnover rate of management staff (directors and assistant directors) was almost 20%.

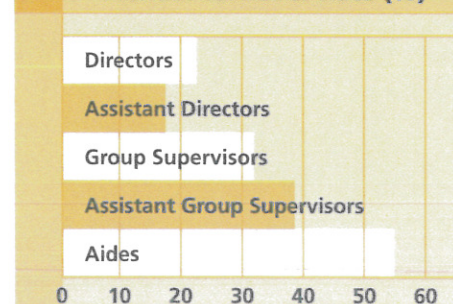
According to the Quality Early Education through Salaries and Training (QUEST) initiative, classroom staff most often leave for higher wages or health benefits. The average annual salary of early education teachers in Pennsylvania is \$16,000, with assistant teachers and aides averaging \$12,000 annually. In general, kindergarten teachers earn more than twice as much as equally certified early education teachers. In addition, only one in four early education workers receives health insurance from his/her employer.

Quality through Leadership: Management of Early Education Centers

Good leadership is critical to the overall quality of an organization. Strong leaders often have significant experience backed up by formal education. Of the 73 centers surveyed, 59% of directors and 47% of assistant directors who responded have been in the field of early education for more than 10 years. In addition, 42% of directors and 60% of assistant directors have been at the same center for five or more years.

Half of all directors (50.5%) who responded to the survey reported having a bachelor's degree in child development. Among assistant directors, 37% reported a bachelor's degree, while 29% reported college credits or an associate's degree in child development.

2 Annual Turnover Rate (%)



Source: Pathways for Early Education Professionals

Case Study

Becoming Accredited: The Case of Butterfly Garden

Butterfly Garden, an early education center in Sto-Rox, is in the process of seeking accreditation from the National Association for the Education of Young Children (NAEYC). The Butterfly Garden started as part of the Early Childhood Initiative of the United Way two years ago and has since become part of Focus on Renewal, an organization in McKees Rocks. The center, serves roughly 65 children daily.

Butterfly Garden has sought national accreditation in an effort to improve the overall quality of the center. This process requires the center to meet high standards for their facility, staff and education programs. In preparing for the accreditation process the center had to evaluate the safety of their facility and the quality of their staff and programming, which included distributing surveys to parents and staff.

The Director of the Butterfly Garden explains that they were fortunate that few changes had to be made, although they did have to improve communication among staff at all levels. She is concerned that some centers wanting to seek accreditation might find the process too costly and time consuming to pursue. Centers often find they must hire more qualified staff, provide additional training, purchase new materials or change their education program, and renovate their buildings. This process can take from 8 months to 3 years.

Although the accreditation process can be a strenuous one, the Director of the center thinks the benefits are worth it. Accreditation is a reliable measure of quality early education and assures parents that the care their children receive is quality. Butterfly Garden's Director also feels that accreditation is a source of pride for the staff and for parents who send their children to the center. This in turn helps increase the community's awareness of the benefits of quality early education. Butterfly Garden is also hoping that accreditation will make their center eligible for additional funding that will help sustain its high quality programs. There are currently 68 NAEYC accredited centers in our region.

Fifty-six percent of responding group supervisors also reported a bachelor's degree in child development.

The Impact of Quality Early Education for At-Risk Children

The importance of quality early education experiences at home and/or at a center cannot be emphasized enough. These experiences prepare children for school and for a lifetime of learning. School readiness — an indicator of children's social, emotional, and academic readiness to start kindergarten — has become a high priority for educators since the establishment in 1990 of the National Education Goal that all children in America will start school ready to learn. But what does it

However, children from low-income homes and those whose parents have less education often acquire significantly fewer early literacy and math skills.

An ongoing study is assessing the performance of children from low-income homes who are enrolled in quality early education centers, and the results look promising. During their two-year participation in Early Childhood Initiative (ECI) classrooms, 340 children have shown dramatic progress in thinking, language, social, behavioral, and pre-academic skills that exceeded that of 90% of their peers who did not participate in such a program. Teacher assessments over time on the Developmental Observation Checklist System (DOCS) showed that, compared to the

3

Literacy and Math Skills of Children Entering Kindergarten



Listens to a story for at least five minutes

Asks questions using how, why, do, does, can, and will

Understands words such as above, over, beside

Counts five to ten objects

Names letters of the alphabet in order

Writes a few letters of the alphabet

mean for a child to be "ready to learn"? Due to environmental experiences, from counting street signs to listening to stories, most children begin kindergarten with some literacy and math skills (see *Table 3*) which serve as the foundation for early schooling experiences and overall school success.

national average, ECI children displayed average performance in all developmental areas at transition into kindergarten. After participation in a full year of kindergarten, 99% of ECI children were promoted to first grade and only one child was referred for special education services.

QUESTIONS YOU SHOULD ASK

Get the answers from your early education center and elementary school

Is there quality care and education for children in my community?

What should children know and be able to do each year from one to five years of age*?

Do early education centers help children master what they should know and be able to do each year?

Do all children in my community enter kindergarten possessing some basic literacy and number skills?

* For more information see EPI-Center's Boys and Girls Books

LEARNING OUR GOALS

All children will enter kindergarten ready to learn, and every school will be ready to educate children.

The term “school readiness” implies children should be socially, emotionally, and academically ready to enter the primary grades. A critical building block of school readiness is early literacy development, which is nurtured by caring adults and exposure to children’s books, songs, and stories. Many parents from around the region believe that they have primary responsibility for teaching their children to read, and well over half of parents read to their child every day (see *Table 1*). Clearly, many of the region’s parents are getting the message about the vital importance of reading to children from a very early age.

It is also important that schools provide experiences that adapt to the learning needs of every child. Virtually all districts contend with a vast range of ability and preparedness for the classroom setting as children enter kindergarten and the primary grades. In fact, studies show that children from disadvantaged communities often start kindergarten developmentally a full one-and-a-half years behind their peers from middle class areas. A solid school readiness plan by districts can help improve all children’s success in the primary grades and beyond.

Developing School Readiness Plans

Elementary schools can build on the experiences of children prior to the first day of kindergarten by establishing ways to learn about the developmental level of each child that enters the school system.

School readiness plans that include input from school districts, parents, and early education centers promote a smooth transition into elementary schools. School readiness plans might incorporate opportunities for local early education providers to visit kindergarten classrooms, for kindergarten teachers to visit centers, or for children and parents to visit the kindergarten classrooms. Although plans can and will look different, every plan should have a way to describe each child’s entry skills and interests.


Results of a recent survey of early education centers in Allegheny County indicate that 63% of the programs responding use developmental assessment measures in evaluating the progress of children. These developmental profiles can be

valuable for planning to address the needs of children as they enter elementary school. Unfortunately, survey results also indicate that only 39% of centers forward these developmental or educational records to the elementary schools. More research and information-sharing is needed to ensure consistent definitions of school readiness as well as mechanisms to support children as they move into elementary school.

The Benefits of Full Day Kindergarten

A full day kindergarten program can be effective in preparing children for successful learning. Research suggests that full day kindergarten students display stronger independent learning skills, productivity, and positive behavior as well as improvements in later school performance.

Although it is ultimately up to parents to decide whether they want their child in a full day kindergarten program, every parent should at least have the option. Between 1996 and 2000, only seven districts in our region added full day kindergarten, bringing

1 Parental Involvement in Children’s Reading*	
	Parents
I read aloud to my child every day	62%
I started reading aloud to my child before her/his first birthday	73%
I feel it is my responsibility to teach my child to read	74%
My child reads for at least an hour every day	20%

*Random sample of 335 Allegheny County parents and 301 parents in the surrounding 10-county region. All parents had children 10 years old or younger in their household.
Source: Education Policy and Issues Center

Case Study

One Approach to School Readiness

At Avonworth School District a new bottom-up approach to kindergarten readiness is helping the district's elementary school make critical curriculum changes in an effort to improve the success of entering students. Last year, Josephine Cosgrove, the district's Title I coordinator, visited many of the early education centers in the community as a first step in forging new and effective partnerships. Ultimately, the district hopes these partnerships will begin to improve the transition of incoming kindergartners and their parents.

Last spring the district administered the Early Screening Inventory to all pre-kindergarten students to determine their eligibility for a new pre-kindergarten summer school. The goal of the Summer Studies Program for pre-kindergarten is two-fold: to better prepare students for kindergarten and to better prepare Avonworth Elementary School for all incoming kindergartners. Avonworth used the assessment results as one measure of where in-coming kindergartners were developmentally in order to plan their curriculum for the Program.

The district also plans to use the assessment results to help kindergarten teachers improve curriculum overall. It was discovered during research and conversations with local childcare centers that much of the curriculum at the beginning of kindergarten at Avonworth is repetitive of what children have already been exposed to at the centers. The district hopes that assessments and other on-going efforts to make connections with local early education providers will be a first step toward aligning curricula. The pre-kindergarten Summer Studies Program is based on nationally accepted standards and benchmarks and includes reading and spelling, physical education, social skills, oral language, vocabulary and phonemic awareness. The district plans to follow students who participated in the pre-kindergarten Summer Studies Program through grade five in order to evaluate the effectiveness of the readiness program.

the regional total to 52 districts, or 37% (see Table 2). One of the chief barriers to offering full day kindergarten programs for all children is cost. Full day programs require additional teachers, classroom space, and materials. However, due to the nature of the state's subsidy program, there is no increase in funding if a child is enrolled in full day kindergarten. Therefore, the money to pay for these expenses must come from a district's local tax base.

The Advantages of Smaller Class Size

While costly, smaller class size in the early grades has been linked to improved student performance over the short and long term. In addition, teachers of smaller classes report a reduction in time spent on disciplinary action and an increase in one-on-one time with students, particularly those having academic difficulty. However, in order to fully reap the benefits of smaller class size, teachers must learn and use new teaching strategies and

practices that are tailored to the smaller class. Research has shown that without these strategies, smaller class size can be a largely ineffective tool.

Research suggests that, in combination with effective teaching strategies, primary level classrooms are most effective with no more than 17 students. Research also supports classrooms of no more than 15 students if the school has a particularly high concentration of at-risk students. In a recent survey of school districts in SWPA, it was discovered that roughly one-third of districts have no policy in place regarding class size in the primary grades (kindergarten, 1st, and 2nd only). Of the districts that have a policy, the average maximum number of students allowed in kindergarten, 1st, and 2nd grade classrooms is 23. The range of policies went from a low of 12 to a high of 33. This means that in one school district, primary level classrooms could have no more than 12 students, while in another district, classrooms could have as many as 33 students.

2



Availability of Full Day Kindergarten

	Districts Offering Full Day Kindergarten*
1996	45 (32%)
1997	48 (35%)
1998	50 (36%)
1999	52 (37%)
2000	52 (37%)

* Although these districts report that they offer full day kindergarten, this does not mean it is available to all students who want to attend.

QUESTIONS YOU SHOULD ASK

Get the answers from your elementary school or early education center

Does my school district seek input regarding what children know and are able to do as they enter kindergarten?

Is the option of full day kindergarten available to every child in my community?

Does the local school district work with providers of early education to share information about curriculum and assessments?

What programs are available in the community to support parents in their understanding of children's developmental milestones?

Achievement of Academic Standards

LEARNING


OUR GOAL

All students will be able to read, write, and compute on grade level as indicated by performance on state and local assessments.


The Pennsylvania Department of Education has adopted a set of academic standards that describe what students should know and be able to do at each grade level. Beginning in grade five and again in grades eight and eleven, the state requires each school district to administer the PSSA, a performance-based assessment that is intended to gauge a student's ability to meet the state's academic standards. A performance-based test measures students' skills, not just their knowledge of facts.

A student's ability to meet academic standards in grade five is directly linked to his/her ability to meet the standards in all future grade levels. Performance-based testing aligned with standards prior to grade five is therefore critical to monitoring a student's progress so that necessary interventions may be made early on. However, prior to grade five, the state does not administer a performance-based assessment like the PSSA. Instead, it is up to districts to choose the type of assessments they will use to measure student proficiency. Currently, less than 10% of the districts in the region report using a performance-based assessment for 3rd and 4th graders.


Grade five also is an important transition point for students because their school work begins to shift from basic skill-building to the application of those skills within more enriched content. Testing in grade five is one way to see how well students are prepared to move on to the academic complexities of the middle grades.

1 5th Graders: State Reading and Math Exams					
		% in Top Group		% in Bottom Group	
		Reading	Math	Reading	Math
1997	 1996*	27% (7,666)	27% (7,574)	22% (6,376)	22% (6,309)
1998	1999	30% (8,535)	24% (6,859)	18% (5,244)	18% (5,203)
	2000	32% (9,508)	28% (8,407)	18% (5,400)	18% (5,323)

*Baseline year

2 8th Graders: State Reading and Math Exams					
		% in Top Group		% in Bottom Group	
		Reading	Math	Reading	Math
1997	 1996*	25% (7,066)	24% (7,306)	25% (7,128)	26% (9,643)
1998	1999	24% (7,861)	23% (6,845)	22% (6,303)	21% (6,066)
	2000	27% (7,831)	25% (7,402)	20% (5,911)	20% (5,852)

*Baseline year

3 11th Graders: State Reading and Math Exams					
		% in Top Group		% in Bottom Group	
		Reading	Math	Reading	Math
1997	 1996*	25% (5,863)	24% (5,562)	25% (5,786)	25% (5,786)
1998	1999	24% (6,153)	20% (6,288)	23% (5,742)	25% (5,181)
	2000	25% (6,551)	24% (6,450)	24% (6,353)	24% (6,453)

*Baseline year

Over the past five years, 5th graders in the region have made some progress in reading (see Table 1). The percent of students scoring in the top group has grown while the percent scoring in the bottom group has decreased. In mathematics achievement, the percent of students scoring in the top group gradually decreased until 2000, when mathematics achievement jumped four

percentage points, reaching a five-year high. The percent of students scoring in the bottom group also has decreased. Overall, fewer students are leaving elementary school with inadequate reading and math skills than five years ago. We are making steady progress toward our regional goal of 100% grade-level proficiency.

Case Study

One Successful Approach to Increasing Student Achievement

Joyce Speck is the principal of West Newton Elementary School in the Yough School District. She believes that her students' continuous improvement on the Pennsylvania System of School Assessments (PSSA) is a result of changes in the way West Newton educates its children.

The Department of Education reported last February that the school's 285 students had steadily increased their 5th grade PSSA reading and math scores between 1996-2000. The students' average reading scores rose 210 points to 1,430, 110 points higher than the state average. Students' average math scores increased by 260 points to 1,480, placing them 180 points higher than the state average.

This steady improvement over the past four years earned West Newton a nomination for the National School Change Award, sponsored by Fordham University's Graduate School of Education and the Chase Manhattan Foundation.

West Newton's efforts for school-wide change began in 1994 when the district initiated instructional techniques based on each student's individual needs with a focus on students' social and emotional growth. Hands-on learning is now an integral part of daily instruction, and math and reading are integrated into all subject areas. For example, the mathematics of a timeline and calendar would be integrated into a history class. Students also complete creative writing and combined math and science projects.

Mrs. Speck believes West Newton is building a strong foundation for students' future success and attributes changes in student performance to her dedicated staff and supportive parents. She remarked that her teachers have made themselves more available to students during lunch hours, and every day during the last half hour of school, 4th and 5th grade students have the opportunity to receive extra help.


Superintendent Dr. Paul Rach believes West Newton is an example of how a combined effort by students, teachers, parents, and administrators can lead to better student performance.

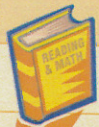
The state reading and math exams for 8th graders help to indicate how well-prepared students are for the rigorous, course-specific content of high school. Exams for 11th graders provide insight as to how well graduating students are equipped to meet the demands of adult life. Overall, 8th grade achievement in reading and math has been improving somewhat, as indicated by a decrease in bottom group scorers (see Table 2). Eleventh grade achievement has been steady, with no notable increase or decrease in bottom and top group scorers (see Table 3). There are still a significant number of students lacking the basic skills to succeed in high school and

beyond, and this has profound implications for the future of our regional economy.

Following a Group of Students

Data following the classes of 2001 and 2004 indicates that there is virtually no change in test scores over the three-year span (see Table 4 and Table 5). Although this analysis does not take into account students moving in and out of the region or dropping out of school altogether, it is useful in demonstrating that the percentage of students scoring in the bottom group remains relatively stable within a group of cohorts: failure in 5th grade likely leads to failure in 8th grade and failure in 8th grade likely leads to failure in 11th grade.

4		Class of 2004: State Reading and Math Exams			
		% in Top Group		% in Bottom Group	
		Reading	Math	Reading	Math
	1997 At Grade 5	28% (8,106)	25% (7,221)	20% (5,873)	21% (6,063)
	2000 At Grade 8	27% (7,831)	25% (7,402)	20% (5,911)	20% (5,852)

5		Class of 2001: State Reading and Math Exams			
		% in Top Group		% in Bottom Group	
		Reading	Math	Reading	Math
	1997 At Grade 8	24% (7,382)	23% (6,269)	23% (6,618)	22% (6,475)
	2000 At Grade 11	25% (6,551)	24% (6,450)	24% (6,353)	24% (6,453)

QUESTIONS YOU SHOULD ASK

Get the answers from your district's administrators, teachers, and counselors

Are all students completing my local elementary school with skills in reading, writing, math, and science?

How many students in my local schools are in the top and bottom groups on state reading and math exams?

What strategies do my local schools use to improve performance in reading, writing, and math for those students who are not achieving?

Does my school assist parents with their understanding of their child's achievement scores?

Strength of Curriculum

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All students will experience a rigorous, engaging curriculum based upon high standards and high expectations.

Alignment of Curriculum and Assessments

Pennsylvania has adopted standards for reading, writing, listening, speaking, and mathematics for 3rd, 5th, 8th, and 11th grades and provides for statewide assessment beginning in the 5th grade. Individual school districts are responsible for determining if local standards meet or exceed those identified by the state. Beginning with kindergarten and continuing through each of the grade levels, districts must work to ensure that classroom textbooks, curriculum materials, and assessments of student performance align.

Continuous improvement in student performance requires a variety of teaching approaches. Examination of best practices indicates that students should be encouraged to make connections between academic coursework and real life through multi-disciplinary projects, hands-on and inquiry-based learning, and career awareness activities.

Currently there is no easy way to determine the extent to which all districts in the region have aligned their curriculum, approaches to instruction, and assessments to meet state and local standards. The EPI-Center will survey school districts on this issue in the coming year.


Rigorous Coursework in High School

The Southern Regional Education Board reports that high school students, even those who do not intend to go to college, exhibit higher levels of achievement when parents, guidance counselors, and teachers encourage them to take accelerated programs and rigorous coursework. The percentage of high schools that offer college courses in the high school or provide opportunities for students to take courses available through local colleges is increasing.

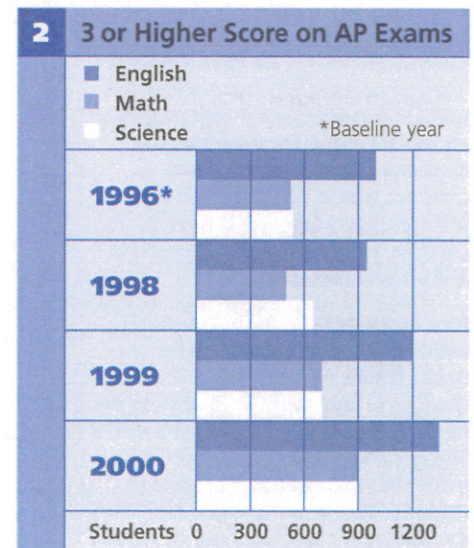
Programs like College in the High School and the International Baccalaureate as well as Advanced Placement (AP) courses are ways students can experience challenging curricula. Since 1996, the percentage of high schools offering AP Calculus has doubled (see *Table 1*). There has been a 10% increase in the number of schools offering AP Chemistry. While opportunities for rigorous curricula are increasing, one in three of the region's high schools still do not report offering AP English.

Successful Completion of AP Courses

Even more important than the number of AP courses that are offered is the extent to which students take and pass the examinations offered for these courses. There has been a positive incremental improvement in the percent of students scoring three or more on AP science exams since our baseline year (see *Table 2*). Currently, 70% of the students taking AP English exams, 69% of students taking AP math exams, and 61% of students taking AP science exams receive a score of three or higher.

1  Advanced Placement Course Offerings*				
	1996	1998	1999	2000
Biology	52 (30%)	57 (37%)	57 (36%)	61 (39%)
Chemistry	59 (34%)	66 (42%)	67 (43%)	69 (44%)
Calculus	53 (30%)	80 (51%)	86 (55%)	93 (60%)
Computer Science	26 (15%)	23 (15%)	22 (14%)	27 (17%)
English	NA	96 (62%)	99 (63%)	105 (67%)
Foreign Languages	NA	17 (11%)	19 (12%)	22 (14%)
Physics	29 (17%)	35 (22%)	37 (24%)	39 (25%)
Total Schools	156	156	157	156

*Data was not collected in 1997



Scores based on a scale of 0 to 5

Case Study

Learning Through Discovery

First developed in 1993, Allegheny Schools Science Education and Technology (ASSET) Inc. brings hands-on standards and inquiry-based science education to elementary school students in 66 SWPA school districts. At Quaker Valley, a pilot district for the program, ASSET has meant more than a change in the way science is taught. It has meant turning elementary school students into junior scientists.

ASSET approaches science education using the inquiry method and provides teachers with professional development that engages them and their students with hands-on materials. ASSET classrooms, when fully transitioned into the program, receive four rotating, reusable "modules" a year. Each grade's set includes one based in earth science, another in life science, and two in the physical sciences. The modules build from skills taught during the previous year. Modules include all of the components necessary for every student to conduct the experiments for a series of lessons. When the class has completed the module, they send back all non-consumable materials (like scales) and begin the next module. The kits are then refurbished at ASSET for use by another classroom.

The modules bring science to life. For example, through skillful questioning, teachers help students determine whether toothpaste is a solid or liquid. They build and wire a dollhouse. They make instruments that sound four pitches. Using inquiry and observation skills based in the scientific method, they identify unknown household chemicals.

These skills often carry outside of the classroom. Quaker Valley Assistant Superintendent Dr. Joseph Clapper stated that not only has student achievement in science improved, the district is certain that math scores have improved as a result of the ASSET approach. A Quaker Valley teacher agrees, explaining that ASSET got her students to see that science is everywhere and that scientific investigation is interwoven through all of life.

TIMSS Results (text and graph source: *Math & Science Collaborative*)

Benchmarking Our Students with World-Class Standards

In 1999, 38 nations benchmarked the math and science performance of 8th grade students by participating in the Third International Math and Science Study (TIMSS 1999). SWPA was one of 27 districts, states, and consortia of districts in the U.S. that participated. In addition to student performance information, TIMSS 1999 collected information about curriculum, instruction, and student life to better understand the performance results. The results are statistically representative of *all* schools and students across SWPA.¹

What We Learned

■ In overall math and science achievement, SWPA 8th grade students scored above the international average and on par with the U.S. and Pennsylvania averages, though we score below the high-performing countries. High achievement in science is related to students


engaging in investigations: doing science rather than reading about it.

■ Over half of our students are in schools that practice "content tracking," which is defined as teaching different mathematics content to different groups of students at the same grade level. This affects 20% more of our students than in the rest of the U.S., and is more than three times the percentages in several of the "world class" countries.

■ Unlike high-achieving countries and jurisdictions, our curriculum in both math and science remains fragmented and repetitive, focusing on teaching specific content areas rather than a more unified and integrated approach.

For More Information

The Math & Science Collaborative will be releasing an in-depth regional close-up report in February 2002. Please consult the MSC website for up-to-date information: www.msc.collaboratives.org.

3 Comparing International Results on the TIMSS		
	Math	Science
 Above Our Regional Consortium	5 countries 2 districts/consortia	1 district No countries
Same as Our Regional Consortium	16 countries 12 states 6 districts/consortia	18 countries 10 states 8 districts/consortia
Below Our Regional Consortium	16 countries 4 urban districts	19 countries 2 states 5 districts

¹ The region met rigorous international sampling guidelines which required representative samples of all middle and junior high schools teaching 8th grade students throughout the region, including all public and private schools in the nine-county area.

QUESTIONS YOU SHOULD ASK

Get the answers from your district's administrators and teachers

Are all curricula in my school designed so that all students experience rigorous coursework and high expectations?

Is the curriculum at my local school aligned with the Pennsylvania state standards?

Are students in my school district engaged in hands-on investigations involving physical, chemical, and life sciences at all grade levels?

Are written curriculum guides for each secondary course available for review by parents and interested taxpayers?

Strength of Instruction

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All students will be taught by highly qualified teachers, as demonstrated by higher levels of teacher education, certification, and quality professional development.

Mandated and Emergency Teacher Certifications

The quality of a school is directly linked to the quality of its classroom teachers. Pennsylvania requires that every teacher working in a public school, including substitutes, hold a state teacher's certificate. Certification is awarded in subject or grade-specific areas, meaning that a teacher who is certified to teach Science grade 7-12 is not certified to teach high school English or 1st grade.

1 Emergency Certification		
	Permanent Teachers	Short Term Substitute Teachers
1998	228	N/A
1999	190	401
2000	75	N/A

Schools are required to have classes taught by appropriately certified teachers unless there is an emergency situation. In 2000, approximately 98% of classes in SWPA schools were taught by teachers certified in their subject or grade (see *Table 1*). If no properly certified teacher is available to teach a particular subject or grade, districts may request emergency certification from the state.

National Board Certification

National Board Certification, a voluntary certification process offered by the National Board for Professional Teaching Standards (NBPTS), is a measure of teacher quality that complements state certification. To become National Board Certified teachers must undergo a rigorous evaluation and assessment process that measures their practices against high professional standards. Candidates seeking certification must submit portfolios that contain evidence of teaching methods and examples of student work. Candidates also must undergo an intense performance-based assessment that is intended to gauge their mastery of a subject area.

National Board Certification is the highest level of certification available to professional educators. While there are currently 9,531 National Board Certified educators in the nation, only 30 educators across Pennsylvania and two in our 11-county region have attained this level of certification. Teachers cite time and cost as the major obstacles to

achieving national certification. While many states provide fee reimbursements, salary supplements, and other incentives to encourage teachers to seek the certification, Pennsylvania does little to support teachers in acquiring this rigorous certification.

Local efforts to encourage national certification have also been limited. However, a Pittsburgh Public Schools pilot program supports teachers throughout the certification process, and new language in the district's teacher contracts denotes a salary increase for obtaining certification. As a result, 10 teachers in the Pittsburgh Public Schools submitted portfolios for National Board Certification in spring 2001.

Advanced Education and On-Going Professional Development

Educators must stay abreast of new research and learn new skills in order to provide the best possible education for their students. Continuing education and on-going professional development provide opportunities for teachers to collaborate with and learn from their colleagues. Pennsylvania Act 48 requires that all teachers earn at least 180 hours of continuing education credit every five years in order to retain their certification. In addition, the recently ratified Teacher Assessment Act requires all public school teachers be tested every five years on their content knowledge of the academic standards in their area of certification.

2 Teacher Contract Professional Development Days		
	Average Number of Days	Range of Days
1996*	4.8	1-12
1999	3.9	0-12
2000	3.5	0-12

*Baseline year

Case Study

Supporting National Board Certification

National Board Certification is the highest level of certification a teacher can obtain and is only granted after a rigorous application process that assesses teachers on their depth and range of content knowledge and instructional skill. The application process is time-consuming, difficult, and costly, and it often frustrates many teachers' efforts to become National Board Certified. Recognizing the value of Certification for its teachers, the Pittsburgh Public Schools piloted a program that encourages teachers to seek National Board Certification by providing trained facilitators to offer hands-on guidance as well as post-certification salary incentives.

Pittsburgh Public Schools launched its effort during the 2000-2001 school year with 18 teachers who had expressed interest in becoming National Board Certified. The teachers worked closely with four trained facilitators whose role it was to help the teachers prepare all pieces of their portfolio for submission. The facilitators spent over 200 hours with the teachers — all after school — to prepare their portfolios for submission. Out of this initial group, 10 teachers submitted complete application materials and are currently waiting to hear whether they have become National Board Certified.

The district's trained facilitators are a pivotal element of the program. Each facilitator received training by the National Board for Professional Teaching Standards. Several key leaders in the district also received training in order to support the facilitators in their work with teachers. This year, facilitators enhanced the program by developing a pre-candidacy class to prepare interested teachers for the process of submitting portfolios. The 30-hour class ran during after-school hours from June to September. The facilitators hope to offer a second class in the spring of 2002.

Despite the increasingly stringent standards and requirements for teachers, the average number of contractual professional development days continued to drop in 2000 (see Table 2). These numbers do not reflect professional development activities that occurred outside of school hours, nor do they reflect the quality of the professional development.

Teachers' education level and length of service are strong indicators of the quality of instruction. There has been a continuing decrease in both the

percentage of teachers with advanced degrees and the average number of years of teaching experience (see Table 3). These figures suggest that an increasing number of experienced teachers in the region are retiring, and they are being replaced by less experienced teachers. While many of these teachers are well prepared, research indicates that their effectiveness is enhanced through a guided mentorship program focusing on regular feedback about student performance.

3 Teacher Education and Experience*		
	Number and Percent of Teachers with Graduate Degrees	Average Years of Teaching Experience
1996**	10,595 (45.6%)	19.2
1999	10,933 (44.6%)	18.2
2000	10,898 (43.6%)	17.0

*Public schools only
**Baseline year

QUESTIONS YOU SHOULD ASK

Get the answers from your district's administrators and teachers

How many days does my school district provide during the school year for teacher professional development?

What teacher training opportunities does my district provide for improving classroom instruction?

Does my district provide information to teachers about National Board Certification and encourage them to attain it?

Strength of School Environment

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Every day, all students and educators will attend a safe, orderly, and stable school, well equipped to support learning. The school will reflect high expectations and accountability between and among students, staff, board members, and parents.

Several factors contribute to the strength of a school's environment and shape teaching and learning experiences. Effective schools establish and enforce high standards of learning and behavior for all students and teachers. Learning-rich environments incorporate technology to support learning by providing convenient access to computers and encouraging daily use by teachers and students.

A safe, orderly, and resource-rich school environment is necessary for optimum learning. Teachers must be given the curriculum, instructional materials, and texts necessary to meet the needs of every child. Strong school district and building level leadership is needed to support

quality teaching. School boards, superintendents, and building principals must share and communicate a common vision that all children are expected to learn and that student achievement is the highest priority.

Teachers have a tremendous challenge when the continuity of learning is disrupted by student truancy, mobility, and disciplinary absences. When teachers are absent, the shortage of qualified substitutes often leads to a loss of that day's lessons.

Access to Technology

SWPA has made major strides in computer and Internet access in the past several years. In 2000, 92% of students had access to the Internet from some location in their school and 69% of students had Internet access inside their classroom (see Table 1). Five years ago, only 11% of students had this level of access. There is currently no data available on how schools actually use computers and the Internet as tools for instruction and learning.


Disruptions to Learning

SWPA data for the average number of days absent during the school year for both students and teachers has remained stable since the baseline year and is consistent with state averages (see Table 2). Student data includes absence due to suspensions and expulsions. Teacher data is based on sick and personal days and does not include days for professional development.

Researchers have found that school attendance is a strong indicator of the level of student achievement. There is a strong link between poor attendance and high mobility. Both are often caused by poverty, the lack of adequate housing, and related factors.

There is a critical need to address the problems associated with student mobility. In our region, one elementary school had no students leave during the school year while another had 40% of its students transfer out during the school year (see Table 3).

During a school year, an average class of 24 students may see one new student enter school and one withdraw. However, in an elementary school with a high mobility rate, as many as 15 students may enter or leave the classroom during the year. This is disruptive to both the students who are leaving and those who remain. Nationally, school districts are examining innovative and practical ways to minimize student mobility. EPI-Center is investigating the local impact of student mobility and possible solutions to this issue. A full report will be released early next year.

1		Students Per Computer and Internet Access					
		Students per Computer (Average and Range)	Internet Access in:				
			School	Library	Computer Lab	Workroom	Classroom
	1996*	7.8 (3-21)	37%	29%	18%	7%	11%
	1999	5.9 (3-15)	82%	74%	66%	32%	50%
	2000	5.1 (2-13)	92%	85%	77%	46%	69%

*Baseline year

Case Study

Recognizing Strong School Board Leadership

In 1989, the University of Pittsburgh's Tri-State Area School Study Council initiated the D. Richard Wynn Award to recognize outstanding school board leadership in improving outcomes for students. One of the 2000 winners was the Board of Education in the Burgettstown School District, Westmoreland County. Over the past three years, the Burgettstown School District implemented a reorganization plan that replaced five outdated schools with a new elementary center and created a district-wide, state-of-the-art technology infrastructure.

The Board also adopted the Act 178 Committee strategic plan as its driving force and link to the community. All curricula were aligned with state standards and a common K-12 articulation strategy was developed. All of these changes occurred in an open environment that encouraged parent and community participation and reinforced that the board values education.

School Safety

Issues and information surrounding the safety of students in school continues to be an important area of concern for parents and the community. The Annual Report on School Safety published by the U.S. Department of Education states, "Overall crime rates in schools have declined since their peak in 1993 ... the rates at which students were threatened, injured, or were in a fight at school during a given year remained relatively unchanged during the 1990s."


Locally, schools report the number of safety infractions in a variety of ways. Data includes the number of infractions that occur with firearms and other weapons, violence against students, and violence against staff. Because of discrepancies in the data reporting systems and the different

ways districts interpret infractions, it is difficult to accurately present a regional profile.


State data indicates that there is an average of 2.25 total safety infractions per 100 students. This includes physical

violence against students and staff and weapons possession in both elementary and secondary schools.

Interested citizens are encouraged to review the reports issued by their local school district and become involved in violence-prevention efforts.

2 Average Student / Teacher Absences		
	Student Days Absent (Range)	Teacher Days Absent (Range)
 1996*	10 (6 to 25)	9 (4 to 16)
1999	10 (6 to 25)	9 (4 to 15)
2000	10 (6 to 22)	9 (4 to 15)

*Baseline year

3 Student Mobility in 2000		
	Estimated Average Percentage and Range of:	
	New Entering Students	Student Withdraws
 Elementary School	5% (0% - 28%)	6% (0% - 40%)
Middle Schools/ Junior Highs	4% (0.3% - 32%)	7% (0.4% - 36%)
Senior High Schools	4% (0.2% - 33%)	8% (0.2% - 37%)

QUESTIONS YOU SHOULD ASK

Get the answers from your district's administrators, school board, and teachers

Do students and educators feel safe at our schools? Do the schools offer quality extra-curricular activities?

What are the local schools' rates of absenteeism, suspensions, expulsions, and transfers?

Do students and teachers have easy access to technology? Is staff trained to make effective use of it?

Are students in the local high school required to take at least one course in basic computer skills and word processing?

Do the district's school directors and administration provide leadership and resources that enable teachers to set high standards for all children?

Course Completion

RELIEVE

OUR
GOAL

All students will pass – with a C or better – rigorous secondary level courses in core subjects, including passing the “gatekeeper” courses early in their schooling.

In order for students to have a solid foundation for future learning and employment, they must master (with a C or better) rigorous courses in the humanities (English, social studies, and foreign languages), mathematics, and science (see Table 1). While most high school students take English and social studies courses, only one third of

graduating seniors completes four years of foreign language (note: it is not clear from the data whether all four years were spent studying the same language).

“Gatekeeper” courses – introductory algebra or geometry, a lab science, and a foreign language – prepare students for the post-secondary education they will need to compete for careers that offer competitive salaries and opportunities for advancement.

The Profile of Math and Science Indicators, distributed annually in nine SWPA counties by the Regional Math and Science Collaborative, examines successful completion (with a C or better) of math and science courses among graduating seniors in 49 school districts and the Diocese of Pittsburgh. It shows that less than two-thirds of students are completing Algebra 1 or Geometry and only half of students are completing chemistry (see Table 2).

	English	Social Studies	Foreign Language
1998	88%	80%	35%
1999	88%	88%	33%
2000	85%	85%	33%

*Seniors who have taken the SAT (about 76%)
Source: College Board

¹Based on sample of 9-county region

	1997 44 districts	1998 41 districts	1999 55 districts	2000 49 districts
Algebra I	61% (26-90)	64% (31-90)	63% (37-97)	62% (26-100)
Algebra II	49% (22-82)	55% (27-76)	59% (28-88)	56% (20-100)
Geometry	55% (21-89)	69% (22-99)	62% (29-95)	62% (23-100)
Trigonometry	37% (17-72)	28% (0-62)	38% (0-78)	32% (0-61)
Biology I	67% (22-100)	74% (19-100)	75% (25-96)	72% (21-100)
Chemistry I	46% (12-82)	55% (18-81)	57% (19-97)	53% (22-79)
Physics I	25% (7-55)	31% (6-67)	31% (5-87)	28% (3-64)

*Based on sample of 9-county region
Source: Regional Math and Science Collaborative of SWPA

Case Study

Cognitive Tutor Program at Charleroi

Charleroi High School Principal George Lammay is extremely pleased with the results of a new program aimed at ensuring all students will graduate from high school proficient in algebra, a known "gatekeeper" to success in a multitude of today's careers. The Charleroi School District is one of many in our region that purchased and adopted Carnegie Learning's Cognitive Algebra 1 Tutor. This nationally recognized and validated curriculum integrates computer technology with classroom instruction. The Cognitive Tutor provides individualized and focused instruction as students investigate and solve real-world problems by using verbal statements, tables, symbols, and graphs. Principal Lammay states, "I was a little nervous about requiring all students to take algebra, but now I am a believer."

Mr. Lammay reports that 95% of enrolled students successfully completed the Algebra 1 course last year. Students regularly asked for additional time in the computer laboratories to complete their work. "I can tell exactly where all students are," says algebra teacher Eileen Protin. "I've never been able to do that before."

Charleroi students have shown that with the right tools and the promise of success, they can and do complete this rigorous coursework. Principal Lammay reports that he does not see any boredom in the computer labs, but rather full concentration on the work. "You can actually figure problems out for yourself," said freshman Jessie Kosh. "It's easier to figure out the answers than if someone is telling you what to do."

Charleroi's success illustrates that with extra effort, whether through additional resources and time or access to nationally scrutinized and endorsed curricula, we can indeed expect all students to achieve the same high standards of performance.

There is also great disparity in course completions among schools in the region. For the first time in four years, the profile indicates that in some schools every graduating senior successfully completed (with a C or better) gatekeeper math and science courses while in other schools this number is as low as 21%.

Without further data analysis, it is difficult to determine why some districts are reporting low percentages of students who successfully complete these gatekeeper courses. One reason may be that large numbers of students enrolled in the courses are earning less than a C. Another reason may be that a small percentage of students enroll in these demanding courses while others select less demanding alternatives.

Tracking

Tracking exists when two or more courses can be selected by students to earn credit for a given subject area. As an example, instead of algebra, geometry, or trigonometry, students may select courses such as general math, consumer math, or even pre-algebra. These tracking alternatives usually begin in junior high or middle school. Students who are tracked into low-level courses early seldom learn the prerequisites that enable them to successfully complete more demanding courses in high school.

Tracking and Future Earnings

A recent study compared the incomes and achievement levels of thousands of 1982 high school graduates from across the nation. Nearly 20 years later, they found that incomes are notably higher for students who had completed more challenging mathematics courses such as algebra and trigonometry in high school than their peers who enrolled in less demanding courses. The percentage of college graduates also was significantly higher among the former group.

The ability of tomorrow's workers to compete for ever-increasing skill level jobs and the ability of our region to expand and grow to provide those jobs depends on a highly skilled workforce. High performance schools are a prerequisite to prosperity.

Tracking and PSSA

The required PSSA mathematics tests, which are administered to high school students, contain problems calling for skills taught in the gatekeeper mathematics courses. New assessments in science are scheduled for the near future. They too will demand high-level skills to achieve high scores. School districts that do not demand high standards curricula for all of their students will have difficulty competing with those who do.

QUESTIONS YOU SHOULD ASK

Get the answers from your district's administrators, teachers, and counselors

Are all students in my district required to take Algebra I, Geometry, and Biology I? Are they encouraged to complete these courses early in their schooling?

How many science, mathematics, English, social studies, and foreign language courses are required for graduation from high school in my district?

Does my district provide programs such as school tutorials, summer school, or Saturday school for students who need additional help?

Preparedness for Post High School Success

OUR GOAL

All students will graduate from high school prepared for a lifetime of continual learning and able to meet workforce demands.

Fifty years ago 60% of the national workforce consisted of unskilled laborers while 40% were skilled laborers and professionals. Today companies throughout the United States increasingly rely on knowledge-based and skilled workers. In fact, 85% of today's jobs require some education beyond high school. Nearly 80% of the workforce consists of skilled laborers and professionals.

The quality of our region's workforce, and therefore our region's ability to attract and retain companies, is directly related to our ability to educate all students well. According to a study by the Pittsburgh Regional Alliance, top executives from 50 of the region's major companies rated the ability of our region's high schools to educate the workforce as *fair to good*. There is much room for improvement. Our high schools are in a pivotal position to prepare much of the future labor market of this region. According to the CEO Forum of Education and Technology, successful workers in today's market must have digital-age literacy, inventive thinking, effective communication skills, and high productivity. The more our region's high schools prepare students with these skills, the more economically viable our region will be. Are our graduating students prepared for the life-long learning required of many professions and the increasingly complex demands of adult life?

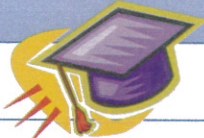
A serious concern is the number of students who do not complete high school. The SWPA region has hovered around an 89% graduation rate (see *Table 1*), nearly meeting the National Education Goal of 90%. However, over 3,300 of our region's high school students do not graduate. We must strive for a 100% graduation rate.


SAT results are often looked to as one measure of students' academic abilities and preparedness for post-secondary education. In recent years elements of the SAT have been redesigned as performance-based measures in order to better assess what skills and knowledge a student can apply to real world problems. SAT verbal and math scores have improved steadily since 1995, with considerable strides in math (see *Table 2*). While students are scoring better than their counterparts across the state in both academic areas, our region falls slightly below the national average in math but outscores the national average on the verbal portion.

Regional Workforce Demands vs Student Post-High School Plans

SWPA workforce leaders have identified five career "clusters" where many of the current and future workforce needs of the region lie: finance, manufacturing (skilled laborers), health care, hospitality and tourism, and technology. Most of these jobs require some form of post-secondary education. A majority of students graduating in the region (78%) have intentions of pursuing post-secondary education (see *Figure 3*). This percentage has increased only slightly over the past five years.

Many of the graduates moving on to post-secondary education have plans to study in fields related to one of the career clusters of our regional workforce (see *Table 4*). Although the data only reflects the intentions of those students taking the SAT, it gives us an idea of the career plans of a significant number of graduates (70% of students statewide take the SAT). Graduates' interest in the technology

1 Dropout Rates			
	Class of 1998	Class of 1999	Class of 2000
 Total Dropouts	3,294	3,414	3,326
Total Graduates	27,051	27,623	27,913
Dropout Rate	10.9%	11.0%	10.6%

2 Senior Class SAT Scores and the Nation				
 SWPA*	2000 Graduates Taking SAT	1995**	1999	2000
	(est.) 76%	Verbal	499	511
	Math	493	512	510
Pennsylvania	Verbal	496	498	498
	Math	489	495	497
National	Verbal	504	505	505
	Math	506	511	514

*Based on sample of 9-county region
Source: College Board

**Baseline year

Case Study

Boyce Middle College High School

"I'll do anything I can to help this school; it has saved my life." This ninth grade student was on the verge of dropping out of school prior to starting at Boyce Middle College High School on the campus of the Community College of Allegheny County at Boyce. The school was designed and implemented by the academic deans and superintendents of the Gateway, Plum, Penn Hills and Woodland Hills School Districts to provide success for students who had very little or no success in their traditional high school settings.

Since its beginning five years ago, Boyce Middle College High School has impacted the lives of over 500 students. The retention rate over that period has been 98%, an amazing statistic for students at risk for dropout. Of the school's graduates, 86% are in higher education or gainfully employed.

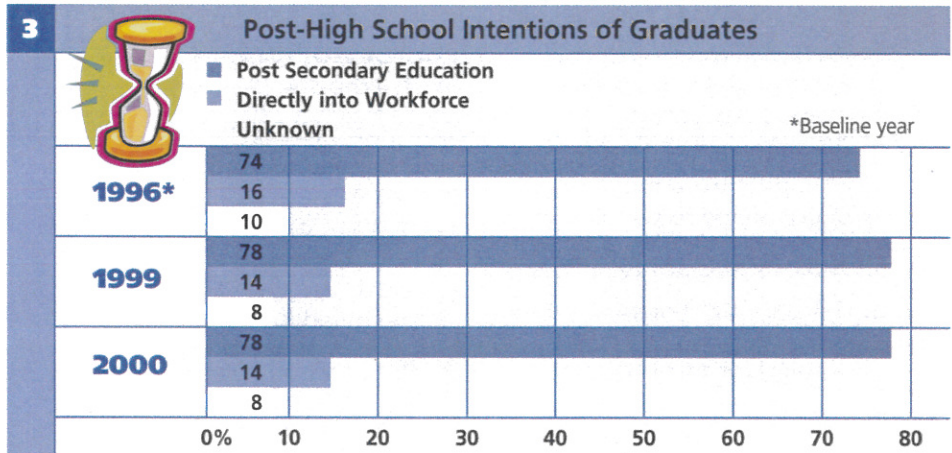
The program's success is attributed to several factors. First, the expectations for students' academic and social performance are high. Students earning less than a C grade in a course must repeat it. Last year 18% of the students earned dual high school and college credit by enrolling in Boyce Community College courses.

Second, teachers have abandoned the traditional lecture approach to instruction. Staff must clearly communicate to students what they are expected to learn, how they will learn it, why they must learn it, and what evidence they must provide to document their understanding. Lessons include alternatives such as small group instruction, cooperative learning, portfolio production, projects, oral presentations, and original field research. One such research project involved students traveling to South Carolina to meet wildlife researchers involved in a red wolf relocation project.

Third, all students are required to complete a supervised half day internship in the community. This year some students are assembling their own computers from parts and will utilize the computers to teach computer skills to senior citizens in area community centers.

field still remains very low. Additionally, although SWPA is a major force in the health care industry, fewer graduates have planned studies in the bio-sciences and health-related

fields. Finally, a very small number of graduates have intentions of attending a vocational or technical school, where much of the training for skilled trade and manufacturing jobs occurs.



4 Post-Secondary Education Plans of SAT Takers*

	1994**	1999	2000
Bio Science/Health	29%	21%	21%
Business/Communications	15%	21%	19%
Computer/Info. Sciences	2%	5%	6%
Engineering/Math	11%	10%	9%
Social Sciences	26%	27%	26%
Technical and Vocational	1%	2%	1%

*Based on sample of 9-county region
Source: College Board

**Baseline year

QUESTIONS YOU SHOULD ASK

Get the answers from your district's administrators, teachers, and counselors

Do my local high school curricula provide students hands-on learning opportunities?

How do students at my local high school explore career options?

How many of the students at my local high school drop out before they graduate?

How many seniors at my local high school enroll in post-secondary school and how many complete a degree or certificate?

Are graduates from my local high school prepared for high skills jobs?



EPI-Center's Commitment

This report calls for consensus and action on a number of issues related to the achievement of high standards by all of our children. To meet this goal, EPI-Center pledges to focus its efforts on the following:

Assure School Readiness

■ EPI-Center will collaborate with the accreditation network of the Pittsburgh Association for the Education of Young Children (PAEYC) to convene early childhood education partners and seek the resources necessary to achieve NAEYC accreditation of all early childhood education providers.

■ EPI-Center will advocate for the resources needed to provide access to full day kindergarten for all parents who request it.

Use Standards to Improve Teaching and Learning

■ EPI-Center will continue to publish the regional *State of Education Report*, which documents progress toward the goal of all students achieving world-class standards and which describes school districts' best practices in meeting the goal.

■ EPI-Center will advocate for the use of multiple assessments of student achievement in order to support student-focused instructional approaches.

Expect Leadership in Improving Student Performance

■ EPI-Center will convene and facilitate discussions among school, business, community, and government leaders interested in high standards achievement for all SWPA students.

■ EPI-Center will seek written commitments from the region's school superintendents, and leadership teams, school board members, and community organizations to work together to ensure that all students meet or exceed state standards by the end of fifth grade.

■ EPI-Center will share meaningful education data with school boards and community groups and facilitate discussions about the data's implications.

■ EPI-Center will advocate for and broker effective school/business partnerships.

Engage the Community And Build Awareness And Commitment

■ EPI-Center will build broad community awareness of the importance of student achievement and the qualities of a world-class public education system.

■ EPI-Center will educate parents and community leaders on what they can do to improve the academic performance of all students in SWPA.

The Region at a Glance*

606 Municipalities in 11 Counties

Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Mercer, Washington, and Westmoreland

7 Intermediate Units:

(provide support to school districts)

Fayette, Greene, and Washington IU1, Pittsburgh-Mt. Oliver IU2, Allegheny IU3, Midwestern IU4, Westmoreland IU7, Beaver Valley IU27 and ARIN IU28

138 Public School Districts

392 Private and Parochial Schools (K-12)

1,176 Schools (Public and Private)

807 State Licensed Childcare Centers

464,481 K-12 Students:

(Public and Private)

- 34,973 Students in the Class of 2012
- 212,382 Elementary School Students (K-5)
- 105,549 Middle Grade Students (6-8)
- 146,550 High School Students (9-12)
- 34,261 Students in the Class of 2002

26,528 Teachers in 784 Public Schools

- 467 Primary and Elementary Schools
- 137 Middle and Junior High Schools
- 161 Senior High Schools
- 19 Vocational Schools

Regional Public School Averages (and Ranges)

- School Size: 527 (33 to 2,224)
- School Low-Income: 35% (1% to 100%)
- Class of 2002 Size: 195 (17 to 720)

**2000 figures*

Technical Notes

Readers interested in a more technical exposition of the data and methods can request a copy of the technical appendix from the EPI-Center.

The data source for all tables is the Pennsylvania Department of Education except where indicated. The tables aggregate data for most or all public schools and districts in the 11-county Southwestern Pennsylvania region, except where noted. Percentages reported exclude all cases with missing data on either the numerator or denominator or both. Because of rounding, some percentages do not add to 100%. The regional averages reported in this document are weighted by the number of students or teachers, as appropriate, in a given school. "Averages" are reported as medians for data for which skewed distributions were exhibited. Ranges represent minimum and maximum values, except for data with unrealistically high or low values, for which ranges are reported as the 5th and 95th percentiles.

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The EPI-Center gratefully acknowledges the contribution of members of the SWPA community who have reviewed and provided input for this report (please see website listing).

About the EPI-Center

The EPI-Center was created to be the link between business and education in Southwestern Pennsylvania. It is a multi-functional organization: a convener and a broker; a policy leader and shaper. Encompassing all of these functions is its role as a communicator. If we are to succeed as a region, then we must accept nothing short of excellence in every school and for every child.

Our Mission

The mission of the EPI-Center is to enable the community to assure that all children in Southwestern Pennsylvania achieve world-class standards.

Our Goal

To assure that all 10-year-olds in the region are proficient in reading, writing, and mathematics.

The EPI-Center has four **strategies** for achieving this goal:

1. Assure school readiness
2. Use standards to improve teaching and learning
3. Expect leadership in improving performance
4. Engage the community and build awareness and commitment



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