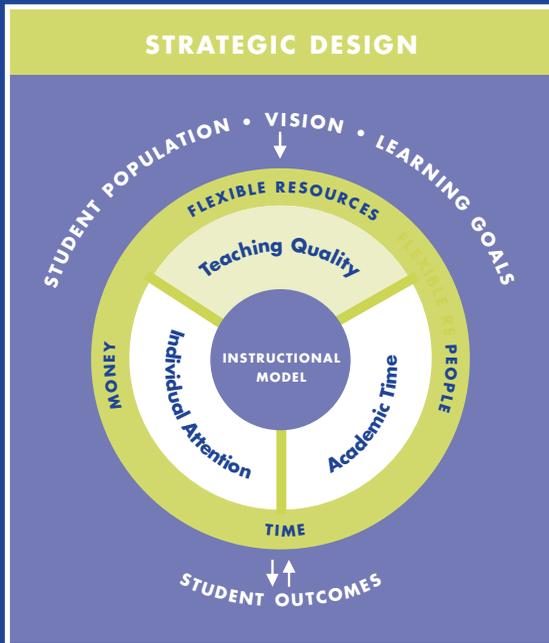ERS
Education Resource Strategies

THE "BIG 3" GUIDING RESOURCE STRATEGIES

Teaching Quality: The First Priority

The "Big 3" Guiding Resource Strategies

Resources matter. How **well** schools and districts use their people, time, and money is often even more important than how **much** they receive. While statistical research shows no consistent link between the level of spending and student results,[i] it does suggest that effective resource use can lead to dramatic improvement in student learning.[ii]

STRATEGIC DESIGN

STUDENT POPULATION • VISION • LEARNING GOALS

FLEXIBLE RESOURCES

Teaching Quality

MONEY

Individual Attention

INSTRUCTIONAL MODEL

Academic Time

PEOPLE

TIME

STUDENT OUTCOMES

To successfully improve student achievement, schools must rethink how they use all of their resources—people, time, and money—and redirect them to ensure that they are most effectively targeting teaching and learning. The relevant question is not simply, "How can schools get more resources?" but **"How can schools best use what they already have?"** In today's fiscal context, this question is more pressing than ever. Difficult times present difficult choices, but also opportunities for districts and schools to take the sometimes dramatic steps necessary to reallocate resources and ensure that every dollar, hour, and teacher are focused adequately on improving student learning.

Education Resource Strategies' extensive research with districts and schools shows that despite differences in school level, size, location, student population, or even instructional focus, high-performing schools organize their resources in very consistent ways. They begin with a clearly defined instructional model and create organizational structures we call "Strategic Designs" that deliberately organize people, time, and money to advance their specific instructional practices. Specifically, high-performing schools organize and use resources to:

1 Invest to continuously improve TEACHING QUALITY through hiring, professional development, job structure, and collaborative planning time

2 Use STUDENT TIME strategically, linking it to student learning needs

3 Create INDIVIDUAL ATTENTION and personal learning environments

We have dubbed these organizing principles the "Big Three" guiding resource strategies. These strategies can either be implemented by individual schools or designed and supported by school districts for implementation at the school level. This brief dives into the specifics of the first principle of Strategic Design. It is intended to jumpstart resource conversations by providing examples, action steps, and probing questions to consider as schools and districts rethink their resources. For more information about ERS' research, tools, and practices, visit www.educationresourcestrategies.org.

Teaching Quality: The First Priority

Overview

Teaching quality trumps any other school-based factor in predicting improved student performance. Research suggests that most schools could benefit from organizing in ways that weight teaching quality over other priorities. Studies demonstrate that when faced with the option of lowering class size by a few students or investing to ensure higher teaching quality, the choice is clear: investing in effective teaching leads to more student learning.[1] In fact, in one highly-regarded analysis, Odden, Picus, Goetz, Turner Mangan, & Fermanich (2006) found that using classroom-based coaches for professional development can have an effect size up to five times larger than class size reduction efforts.

Armed with this knowledge, high-performing schools, and the systems that support them, focus on hiring qualified individuals and then designing opportunities for them to learn and work together to improve their individual and collective practice around clear student learning goals.

High-performing schools invest to continuously improve teaching quality in several key ways:

1 Hiring and organizing staff to fit school needs in terms of expertise, philosophy, and schedule

2 Integrating significant resources for well-designed professional development that provides expert support to implement schools' instructional models

3 Designing teacher teams and schedules to include blocks of collaborative planning time used effectively to improve classroom practice

4 Enacting systems that promote individual teacher growth through induction, leadership opportunities, effective and collaborative professional development, evaluation, and compensation.[2]

This brief describes a vision for investing in teaching quality at the school level and provides guiding questions for both school leaders and those who support them to consider and discuss as they rethink and reallocate current resources to better support improved student learning. Organized around these four Guiding Resource Principles, the brief provides research, practical examples, and strategies for prioritizing people, time, and dollars in ways that promote instructional quality and student success. These strategies can either be implemented by individual schools or designed and supported by school districts for implementation at the school level. We describe a broader system framework and principles for district leaders to consider as they create a system-wide strategy for building teaching quality in the Education Resource Strategies brief, Creating a Strategic Human Capital System.

1

Improving Teaching Quality Through Hiring and Organizing:

Hiring and organizing staff to fit school needs in terms of expertise, philosophy, and schedule

Leaders of high-performing schools and systems view hiring as a way to strategically improve teacher capacity and overall school performance. They use each vacancy as an opportunity to evaluate and strengthen their school organization, recruit the best talent, and build expertise. These leaders deliberately assign teachers to create a complementary mix of skills across subjects, teams, and grades and provide leadership opportunities that allow teachers to share and develop their expertise.

The Mary Lyon Elementary School in Boston, Massachusetts, demonstrates how a strategic approach to hiring and organizing teachers can create a powerful teaching community in which teachers team together to meet complex student needs and build their own teaching practice. Although one-third of the students at Mary Lyon School have intensive special needs, this school's unique instructional model and its deliberate hiring and staffing strategies make it one of Boston's top performers.

The school's principal and leadership team allocate resources to support mainstreamed classes of 15, each with five special needs students, a master teacher, and an intern. To serve a range of students, including special needs, gifted, and limited English proficiency students, the leadership team must define the unique combination of skills necessary for each grade-level team. All teachers must have a specified base of skills, but the additional needs of each position depend on the set of skills possessed by the existing team of teachers. For example, if one grade-level team does not have a teacher certified to serve special needs students, the school would make sure the new hire brings this particular expertise. If one grade-level team has more expert teachers than another, the principal works to redistribute this expertise creating leadership opportunities for accomplished teachers and ensuring the growth of more junior teachers.[3]

High-performing schools, like Mary Lyon, effectively hire and utilize staff to support performance goals by:

- Understanding that teachers are not interchangeable, but members of balanced teams with unique, specific requirements

- Detailing how student and teacher schedules and groupings support the school's instructional model

- Creating an inventory of current teacher skills, expertise, and needs by grade, team, and subject area

- Developing a hiring plan that sets clear expectations and responsibilities, detailing:

  - The number/ type of classroom teachers by subject, grade, certification, and skills

  - Expert resources required to lead teacher teams and build subject area skills

  - Subject specialists needed for individualized instruction in reading and math

  - Work schedules and commitment requirements by teacher type

- Building an interview process that ensures hiring the best matched candidate through comprehensive interview questions, site visits, writing samples and teaching demonstrations to test skills, philosophy, flexibility, and commitment

- Leveraging all local resources including internship programs and university affiliations to nurture talent and attract the most promising candidates[4]

Although hiring takes place at the building level, districts can support a strategic hiring process in schools by sharing information about potential candidates such as teachers' years of experience, certifications, and district training. Districts can also help schools create an inventory of staff skills and a long-term hiring plan that fits student learning needs. To ensure schools can hire the most qualified candidates, districts may need to involve union leadership and redesign policies relating to salary scales, career paths, schedules, and seniority. By creating a **Teacher Inventory** of staff skills and a long-range hiring plan, school and district leaders can keep a running list of the qualities they are seeking in new personnel. They can target recruiting to increase overall instructional capacity, balance teacher teams and skills, and best meet individual school designs and student learning objectives. (See sample **Teaching Inventory** below).

Teacher Inventory

Grade	Teacher	Certification	Years Teaching	Training in Guided Reading and Writers' Workshop	Implementation of Guided Reading and Writers' Workshop	Implementation of Math Curriculum	Math Student Performance measures (summary)	Teacher Evaluations ratings/scores (summary)
K2	Osborne	Early Childhood	3	Partial	Medium	Medium		
K2	Perez	Elem Ed/ELL	7	Partial	Medium	Low		
1	Moore	Elem Ed (1–6)	17	Complete	High	Medium	High	Practitioner
1	Martin	Early Child and Elem	16	Complete	High	Medium	High	Expert
2	Maxwell	Elem Ed & French (6–12)	10	Partial	Medium	Medium	Low	Journeyman
3	Stewart	Early Childhood Pre-K-3	5	Partial	Medium	Low	Low	Journeyman
3	Harris	Elem Ed (1–6) & Mild/Moderate Disabilities (K–8)	2	None	Low	Low	Low	Novice
4	Danielson	Elem Ed (1–6)	5	Complete	High	Medium	High	Practitioner
5 (ELL)	Martinez	ELL, K–3, 1–6	6	Partial	Medium	Medium	Low	Journeyman
5	Jones	K–8	10	Complete	High	Medium	High	Expert
Literacy Coach	Estes	Reading: Elem & MS	19	Complete	HIGH	N/A		Expert
Reading Recovery	Write	Reading: Elem	4	Complete	N/A	N/A	N/A	Expert

The following questions can begin the process of strategic hiring and teacher assignment at both the school and system level:

QUESTIONS FOR SCHOOLS:

- What are the skills and areas of weakness of your current teachers, teams, and departments?

- Do you have a long-range hiring plan?

- How does your hiring plan outline expectations for staff expertise, commitment, and leadership roles? Does it detail your school's particular scheduling needs, including instructional/non-instructional time and the structure and length of the school day/year?

- How does your interview process screen candidates to best match your instructional goals, schedule, and philosophy?

- Do you review the composition of your grade and subject level teaching teams to ensure that each team has the needed level and combination of expertise?

- Do you provide leadership opportunities for the most accomplished teachers through their roles on teaching teams?

QUESTIONS FOR SYSTEMS:

- What information on personnel do you routinely track and provide to your schools to help clarify hiring and assignment needs? Do you track years of experience, subject area credentials and certification, teacher leadership experience, training in district instructional models/curricula, and past performance and evaluation results?

- How do you support school leaders in assessing the level and distribution of teacher expertise in their schools?

- Do schools have the authority to create position-specific job descriptions for each vacancy, including responsibilities and work schedule?

- Does your hiring timeline allow you to compete for the best candidates early in the decision making process?

- Do schools have the flexibility to hire the best candidate for the school regardless of seniority?

2 Improving Teaching Quality Through School-Based Professional Development:

Integrating significant resources for well-designed professional development that provides expert support to implement schools' instructional models

Excellent schools are more than an assembly of good individual teachers—they are organizations that encourage collaboration across classrooms and engage in ongoing efforts to improve instructional practice.[5] They focus this collaboration by engaging in well-designed, school-based professional development that includes three key components: time for teachers to collaborate, regular analysis of formative assessment to gauge learning along the way, and expert support. This expert support can come from existing teacher leaders in the school or from "outside coaches" hired explicitly to build capacity where needed.

WELL-DESIGNED SCHOOL-BASED PROFESSIONAL DEVELOPMENT

School-Based Expert Support

Each school's specific curricular, faculty, and student needs

Collaborative Planning Time

Formative Assessments

Increasingly, schools and districts are allocating resources to school-based experts without ensuring that all **three** components of well-designed support are in place. Further, schools often hire these "coaches" without paying attention to the roles they want coaches to play and the skills they will need. Evidence and our own experience working with districts show that a successful coaching model follows nine principles:

- Has a rigorous selection process that results in hiring coaches who are credible to teachers and principals
- Clearly defines the coaches' roles and responsibilities

- Has a systematic evaluation process linked to the development of teachers and job-specific roles and responsibilities
- Is structured around teaching and student performance standards that guide work
- Provides comprehensive induction and on-going training to coaches, in both content and adult learning, that is differentiated based on school instructional design and coach need
- Provides time in the school day for coaches to work one-on-one with teachers as well as collaboratively with groups of teachers organized around teacher and student needs
- Provides schools with flexibility over the use of resources based on performance needs and capacity
- Provides adequate and differentiated levels of coaching support for schools based on need
- Is paid for through a stable funding source

Perspectives Charter School, a 300-student high school in Chicago, Illinois, offers a powerful example of well-designed professional development that is school-based, classroom-driven, and built around a team coaching model. In this case, expert support comes from teacher leaders within the school. Four part-time Instructional Leaders are selected, based on their ability to improve student achievement and motivate students, to coach, mentor, and evaluate a group of four to eight teachers. These Instructional Leaders conduct weekly teaching lessons, observe, and conference as well as set and routinely review 60-day goals with teachers. Because they coach and observe multiple teachers on an ongoing basis, they extract common themes and plan schoolwide professional development activities.[6]

Although professional development and instructional improvement ultimately occur at the school level, school systems can do much to initiate and support an effective

ongoing strategy. For example, Cincinnati Public Schools (CPS) launched a system-wide review of their resource use that gave the district a powerful inventory of the time, staff, and dollars allocated to developing its teachers and principals. Using the data from the review, action teams of principals, teachers, and central office staff then designed a CPS-wide professional development strategy that focused on targeted, school-based expert support. Specifically, the district provided schools with:

- Resources to pay significant stipends to team leaders to facilitate grade- and content-based teamwork around planning, practice, observation, and assessment of student work

- Instructional Support Teams made up of five to eight subject-specific coaches to work directly with teachers and principals to improve content-based instruction, develop teacher leadership, and provide a unified instructional model for individual school improvement[7]

School and system leadership must understand the importance of ongoing and long-term investment in professional development. With a clear overview of school-by-school performance and professional development needs and spending, leaders can target professional development resources where they are most needed, expanding teaching capacity in each school and across the system.

Schools and systems can begin to assess how well their current professional development meets these principles with a series of initial questions:

QUESTIONS FOR SCHOOLS:

- How are your professional development activities linked to your school's overall instructional goals, specific teacher and student performance and needs, and daily classroom practice?

- Do you use a specific reform design, professional development approach, or literacy/math model that provides protocols and a common language for teacher collaboration around content?

- Do teachers have timely formative assessment data that align with the school's curriculum and help them diagnose learning and adjust instruction?

- How do you measure the effectiveness of your professional development activities?

QUESTIONS FOR SYSTEMS:

- Do schools have access to curriculum, instruction, and formative assessment tools that align with state and district standards?

- How do you support schools in recruiting and screening expert support that matches each school's specific needs?

- Do you have a career and compensation structure that encourages teachers to take on team leadership roles where they can lead team-level instructional improvement?

- How do you diagnose the type and level of need for professional development at the school level?

- Do you target additional funds for low-performing schools?

- How do you create accountability across schools for professional development resources and efforts?

3 Improving Teaching Quality Through Collaborative Planning Time:

Designing teacher teams and schedules to include blocks of collaborative planning time used effectively to improve classroom practice

Collaborative planning time, along with teacher control over instructional decisions, are two critical workplace predictors of student performance.[8] When **used well** and in long enough segments, a minimum of 90 minutes of collaborative time each week can improve instruction. The investment in teacher time for collaborating with colleagues represents the **largest single item of professional development spending** at the school level. Collaborative planning time accounts for approximately 65 percent of school-level professional development spending (districts devote other resources to building teacher skills and knowledge through the salary structure).[9] Given the expense and the potential impact on instructional quality, the amount and effective use of collaborative planning time is paramount.

Boston Public Schools (BPS) is nationally recognized as a model for successfully implementing collaborative planning time as a central piece of its teaching quality strategy.[10] Adopted system-wide in 2001, Collaborative Coaching and Learning (CCL) allows teachers to improve their practice through the effective use of collaborative planning time. Rather than attend stand-alone workshops or work in isolation, teachers meet for 90 minutes each week to study a common instructional topic linked to student work, model lessons for one another, and practice implementation of new instructional strategies with the support of a coach and a group of colleagues working on the same strategy.

The coaches specialize in specific subject areas and assist individual teachers with skill building, reflection, and instructional practice linked to school performance measures. Teachers share their instructional strategies with one another, building a community where communication about instruction is the norm.[11]

CCL is designed to be incorporated into the school day using creative scheduling and, when needed, substitute teachers. To address the challenge of scheduling relevant grade and subject teams during the school day, BPS captures and reuses existing resources, claiming and ensuring the productive use of some of the teachers' non-teaching periods. Schools and districts can also create adequate collaborative time by:

- Creating double periods
- Combining planning periods with other non-instructional time such as lunch
- Rethinking the use of student time, creating time for learning activities such as study halls or community service blocks not supervised by core teachers
- Combining classes for specialist subjects
- Creating early release days by lengthening instructional time on non-release days
- Adding time to the teacher work calendar
- Reducing teacher administrative assignments[12]

To provide and effectively use collaborative planning time, system and school leaders need to consider the following questions:

QUESTIONS FOR SCHOOLS:

- Have you created teams of teachers who share common work?

- How many minutes per week of collaborative planning time are built into your school's weekly schedule?

- Do you have expectations and protocols for how teachers should use this time together?

- How do your school-based experts—coaches or other instructional leaders—support teachers to ensure the productive use of collaborative planning time?

- How do you monitor the effectiveness of collaborative planning time?

QUESTIONS FOR SCHOOL SYSTEMS:

- Does the district create school-based expectations around the amount and use of collaborative planning time and hold schools accountable?

- Do you provide a professional development model that involves collaboration and instructional improvement focused on instructional content and driven by student work?

- What leadership, coaching, or other school-based expertise do you provide to support the work of school-level teams?

- What information on scheduling options and student and teacher assignment do you provide for schools wishing to implement or expand collaborative planning time?

- How do you work with the union to alter the work day and capture and expand non-instructional time for teachers?

4 Improving Teaching Quality Through Supporting Individual Teacher Growth:

Enacting systems that support individual teacher growth through induction, leadership opportunities, effective and collaborative professional development, evaluation, and compensation

In building teacher capacity, increasing the quality of instruction is the central focus, with numerous opportunities for building both individual and collective capacity **in the context of** the ongoing hard work of teaching. After induction, much of the capacity building comes through collaborative problem solving and apprenticing with experts. To do this, successful leaders must clearly articulate their school's instructional model and staffing needs, and challenge standard district practices, salary structures, and assumptions that can distract them from achieving their goals.

Although teachers grow collectively, they also have individual professional development needs as they transition over their careers from novice to proficient, and expert to leader. School leaders need to pay attention to two categories of individual professional development needs that teachers have: needs that vary by individual because of prior training, aptitude, and experience; and those that are more predictable by stage of career.

To address individual teacher needs, successful schools leverage individual professional development plans and evaluation conversations to both facilitate teacher reflection and give school leaders a systematic strategy for ensuring they provide the support that meets each teacher's needs.[13] The Headmaster of one of our partner schools writes, "Evaluation and professional development are two sides to the same coin; they are the essential currency of improving teachers' practice and students' learning."[14] While most school districts have some form of individual teacher evaluation and growth plan with varying requirements around frequency and formality, too often these efforts become routine form-filling exercises.
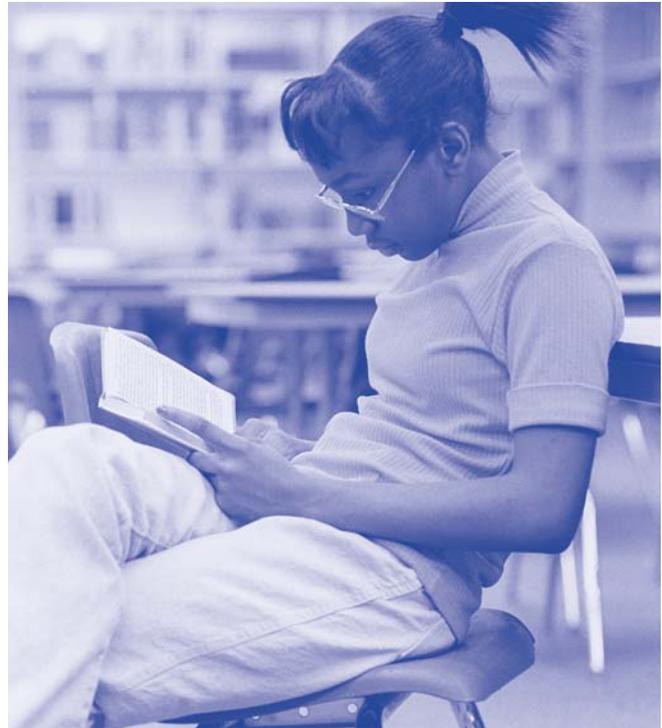
However, leaders in high-performing schools view these evaluation discussions and growth planning as an essential part of their role. School leaders can also encourage individual growth by recommending additional coursework in target areas and creating learning opportunities through new assignments and roles.

Teachers have more predictable needs by career stage. In particular, support for novice teachers can pay huge dividends in terms of teacher quality and retention. Research shows that all things being equal, teachers with three or less years of experience do not perform as well as those with more experience. Teachers with intensive induction support appear to perform better and are more likely to stay in teaching. Further, in most districts teachers receive tenure at the end of three years, making it critical that school leaders conduct significant formal and informal evaluation of new teacher performance and aptitude.

Most districts allocate resources to new teacher support by assigning a mentor or buddy to provide practical advice as needed. These mentors may or may not teach the same subject or grade, or even teach at the same school. And often, they do not have the training or support to provide good, effective coaching. More powerful induction support offers expert coaching specific to the curriculum and students for which each new teacher is responsible. Regardless of whether the school district has a formal new teacher induction program, school leaders are ultimately

responsible for ensuring adequate support aligned with the school's needs. At the other end of a teacher's career progression, teachers playing new leadership roles may also need specific training. For example, coaching other teachers to improve instruction requires skills that are quite different from those required of expert teachers.

Ideally, compensation systems encourage teachers to gain new knowledge and reward them when they use it to improve student performance or play leadership roles such as mentoring, team leadership, content coaching, or curriculum development. And though most schools must follow the districts' salary structure, resourceful school leaders find creative ways such as stipend dollars, extra release time, and grant dollars to reward greater expertise or contributions.

Compensation systems that link more explicitly to teacher results have become a hot topic despite the complexity of implementing them effectively. Though few models exist, pioneers like the Denver Public School system, which has implemented a widely watched system, are finding that the ongoing discussion of learning goals and the teacher's own role and needs in helping students meet them have been at least as important as the compensation changes themselves.

Because compensation is most often addressed by school systems, we address this topic more fully in *Creating a Strategic Human Capital System.*[15]

To nurture ongoing improvement in its teachers, The Academy of the Pacific Rim (APR), a small charter school in Hyde Park, Massachusetts serving students in grades 6-12, fosters individual and collective teacher growth through a series of programs, growth opportunities, and salary incentives. APR supports individual and collective

teacher excellence around student learning goals in a variety of ways, including:

- Two hours of professional development for teachers every Wednesday, organized by departments or grade-level teams or devoted to schoolwide activities
- Induction and mentoring programs
- Formal professional development programs
- An innovative compensation system

In school year 2005-06, professional development accounted for 13 days of staff time, including both full and partial professional development days. All of this represents a significant financial investment in the individual and collective growth of the faculty: a total of $10,860 per teacher or 10.2 percent of APR's operating budget.[16]

APR also has a strong induction program for new hires and provides its teachers with a number of leadership and growth opportunities:

- Newly-hired teachers work with colleagues in their department before the school year begins (receiving a stipend)
- New teachers are assigned a mentor (both receive a stipend)
- New teachers share collaborative planning time with experienced teachers to enable ongoing support and reflection
- New teachers meet formally with the principal once a week for an hour throughout the school year
- New teachers meet together once a month with an experienced teacher
- Each APR teacher is allotted $300 for individual professional development

As a charter school, APR has more flexibility around compensation. Rather than tying compensation to length of service or course credits, APR has developed an innovative bonus system, linking 50 percent of each teacher's bonus to the collective achievement of schoolwide student performance measures. The other 50 percent emphasizes the individual teacher's instructional skill, ability to meet individual goals, professionalism, collaboration, reinforcement of school culture, and individual attention to students.

High-performing schools like APR link individual professional development plans to evaluation and support in the context of their school improvement plan. They incorporate and adapt existing district processes and structures and create their own when necessary. District leadership can facilitate effective individual professional development by adopting teaching standards and evaluation systems
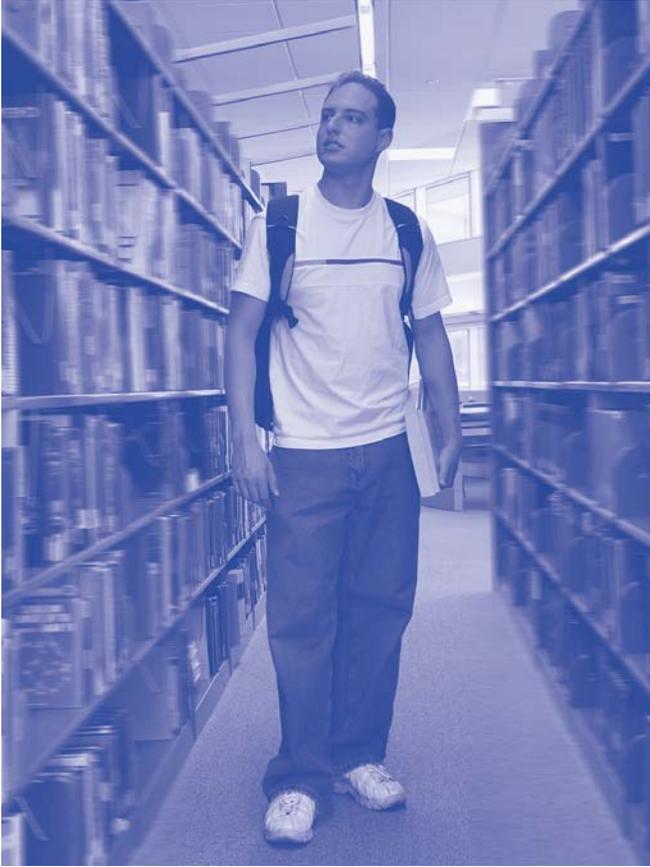
that inform district and school professional development, providing resources and models for providing support for new teachers and those seeking leadership roles, and revising compensation systems.

Teaching Quality: The First Priority

Conclusion

When considering how to begin targeting resources to improve student learning, school and district leaders must first focus on teaching quality to ensure that every student is guided by a strong and effective teacher. They must make trade-offs to invest in all four interdependent teaching quality principles—hiring and assignment, school-based expert support, significant time for teams, and individual capacity—and build an integrated and supportive structure.

Each school's leadership team is responsible for ensuring that all of these things come together in an integrated way that fits student needs, existing teacher capacity, and the school's instructional design. However, districts and union contracts often make it extremely difficult for school leaders to do any one of these strategies well; rigid schedules, little flexibility with teacher assignment, inadequate or irrelevant teaching standards, and compensation systems that reward seniority instead of contribution can make it challenging for schools to implement these principles in a way that helps kids. To make a significant and lasting difference in teaching quality and student achievement, districts must shift their focus and support schools in implementing these fundamental resource strategies.
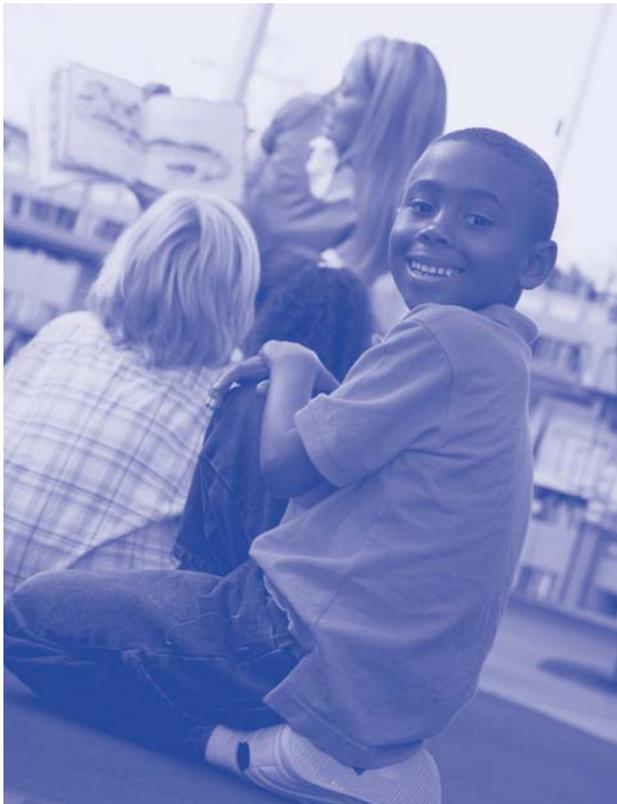
Bibliography and Endnotes

[i]Hanushek, E. (1997). Assessing the effects of school resources on student performance. An update. *Education Evaluation and Policy Analysis, 19,* 141-164.

[ii]Newman, F., Smith, B., Allensworth, E., & Bryk, A.S. (2001). *School instructional program coherence: Benefits and challenges.* Chicago: Chicago Consortium on school Research; Miles, K. & Frank, S.(2008) *The strategic school: Making the most of people, time, and money.* Thousand Oaks, CA: Corwin Press.

[1]Halbach, A., Ehrle, K., Zahorick, J., & Molnar, A. (2001). Class size reduction: From promise to practice. *Educational Leadership,* 58(6), 32–35; Rice, J. (2002a, November). Some guidelines for investing in class size reduction. *Leads,* 1–2. Retrieved December 28, 2007, from http://www.education.umd.edu/EDPL/CEPAL/Leads/November2002.pdf; Rice, J. K. (2002b). Some guidelines for investing in class size reduction. *Leads,* 1–2. Retrieved January 14, 2008, from http://education.umd.edu/EDPA/CEPAL/pdf/publications/LEADS%20Fall%202002.pdf

Odden, A., Picus, L.O., Goetz, M., Mangan, M.T., and Fermanich, M. (2006). *An evidence-based approach to school finance in Washington.* Submitted to the Washington Learns Steering Committee, Olympia, WA; available at: http://www.washingtonlearns.wa.gov/materials/EvidenceBasedReportFinal9-11-06_000.pdf

[2]Shields, R. & Miles, K. (2008). *Strategic designs: lessons from leading edge small urban high schools.* Watertown, MA: Education Resource Strategies.

[3]Miles & Frank, 2008

[4]Miles & Frank, 2008

[5]Miles & Frank, 2008

[6]Shields & Miles, 2008

[7]Education Resource Strategies. (2006). Cincinnati Public Schools: Professional Development & School Support, http://www.educationresourcestrategies.org; Cincinnati Public Schools (2006) Cincinnati Public Schools OnePlan; A Comprehensive Operational Plan for Attaining School and District Goals, http://www.cps-k12.org/general/strategicplan/Plan.pdf.

[8]Rowan, B., Chiang, F-S., Miller, R.J. (1997). Using research on employees' performance to study the effects of teachers on students' achievement. *Sociology of Education, 70,* 256-284.

[9]Miles & Frank, 2008

[10]Becker, R., Gianino, G., & Blecher, E. *Improving instructional practice: An update on BPS high school literacy Collaborative Coaching & Learning;* viewed December 16, 2008 at http://www.bpe.org/documents/GatesIIFinal.pdf; Curtis, R., Deninger, M., & McIntyre, J. *Professional development spending in the Boston Public Schools.* Fiscal Year 2005, December 2005.

[11]Curtis, Deninger, & McIntyre, 2005

[12]Miles & Frank, 2008

[13]Shields & Miles, 2008

[14]Nathan, L. (2005). *Evaluation and professional development at the Boston Arts Academy.* Unpublished manuscript.

Alliance for the Improvement of Education. (Summer 2002). *Establishing high-quality professional development.* Washington, DC: National Education Association.

Ingersoll, R. M., & Smith, T. M. (2004, March). *Do teacher induction and mentoring matter?* NASSP Bulletin, 88, 638.

Koppich, J. (2008, February). Toward a more comprehensive model of teacher pay. Nashville, TN: National Center on Performance Incentives.

[15]Education Resource Strategies. (2009). Creating a Strategic Human Capital System. Watertown, MA: To be released.

[16]Shields & Miles, 2008

[17]Shields, R. Ireland, N., City, E., Derderian, J. & Miles, K. (2008). *Case studies of Leading Edge small urban high schools*. Watertown, MA: Education Resource Strategies.

Education Resource Strategies (ERS) is a non-profit organization that works to transform urban school systems by helping leaders strategically use resources to dramatically improve student learning.