



The Cost of Small High Schools: A Literature Review

Education Resource Strategies

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After more than a decade of focus on elementary schools, high schools have moved to the forefront of the national school reform agenda. This shift is based on striking evidence that suggests that high schools fail to prepare many students for success. Less than three-quarters of all students graduate from high school and only about half of African American and Latino students do (Greene & Winters, 2005). More than one-third of students who enroll in college require remedial coursework (U.S. Department of Education, 2004a). On the 2003 National Assessment of Educational Progress (NAEP), only 30 percent of high school seniors scored proficient or advanced in reading, and 27 percent scored proficient or advanced in math (U.S. Department of Education, 2003).¹ Shockingly, African American and Latino high school seniors scored four years behind whites, reaching the same or lower proficiency levels in both math and reading than the average white eighth grader. In international comparisons, U.S. high school students are consistently average or below average in reading, math, and science, outscored by many other countries (U.S. Department of Education, 2004b, 2005). Only three countries score lower on average than the United States in math (U.S. Department of Education, 2004b, 2005).

“How much will it cost to create the high-performing small high schools that urban students so desperately need?”

The large comprehensive high school receives much of the blame for these poor results. In response, the federal government and private foundations such as Carnegie and Bill & Melinda Gates are investing hundreds of millions of dollars in high school redesign with a focus on creating small high schools. Proponents argue that small high schools will lead to better educational outcomes for students because their smaller size will foster stronger communities and build stronger relationships between students and teachers — relationships that research suggests

especially benefit urban students in poverty. Others envision high school redesign also will adjust curriculum and instruction to better match student needs and raise the level of rigor for more students (Darling-Hammond, Aness, & Ort, 2002; Gladden, 1998; Klonsky, 2004; Lawrence et al., 2002; Lee & Smith, 1997; Cotton, 1996; Raywid, 1996; Wasley et al., 2000). While some scholars note the evidence in favor of small schools (Cotton, 1996; Raywid, 1999; Gladden, 1998), others note that the evidence about whether small schools yield better outcomes for students is mixed and largely masked by the dominant negative effect of poverty (Stevenson, 2006).

While districts scramble to reap the potential benefits of small high schools, state and local leaders and taxpayers begin to ask: “How much will it cost to create the high-performing small high schools that urban students so desperately need?”

¹ NAEP tests three representative samples of American students: one sample of 17-year-olds, one of 13-year-olds, and one of 9-year-olds.

In this review, we consider the limited research on small high school expenditures, resource use, and constraints to understand the key questions surrounding the cost of small high schools and to identify further areas for investigation. Specifically, we review the available research to examine the following questions:

- I. How much do small high schools spend, and how does this spending compare with large high schools?
- II. How do small high schools organize resources to support high achievement? How does this compare to the resource use of high-performing high schools?
- III. What constraints do small high schools face in designing cost-effective, high-performing organizations?

Review Process

Our search process included Web searches, use of electronic databases such as Education Research Information Clearinghouse, library catalogue searches on key words and authors, electronic journal database searches on authors, literature summaries prepared by the National Center for Educational Statistics, and mining bibliographies for references on the topic.

We also conducted a search for published and unpublished reports, articles, chapters, books, papers, and opinion pieces relating to small schools and their supporting organizations. Topics of the selected literature included high-performing small high schools, high school operating costs, small school operating structures, and high school resource allocation. Because small high schools are a relatively new phenomenon, the volume of published empirical research analyzing them is relatively small.

This limited literature presents three challenges. First, the literature on costs of small high schools is relatively scant. Though we prefer studies reported in scholarly, peer-reviewed journals, to bring as much insight as possible, we included literature that does not typically get the level of review of that in scholarly journals. Second, much of the most widely cited and imitated research on the impact of school size on cost was conducted in the 1960s when the concept of small schools and the challenges facing educators were significantly different. We have included these foundational articles in our literature review along with some historical context to help the reader understand the small high school of the 1960s.

Finally, the young literature on contemporary small high school costs and results has not produced much criticism. Therefore, much of the literature is written from the perspective of those who support or have opened small schools and is couched in a positive and supportive light. In the interest of full disclosure we should acknowledge the financial support provided by the Bill & Melinda Gates Foundation, a financial supporter of small schools, in the preparation of this review. This support has not influenced the literature we reviewed nor the conclusions we have reached. These are our own.

LITERATURE REVIEW FINDINGS

I. How much do small high schools spend, and how does spending compare with large high schools?

The limited research on the cost of small high schools points to **three key findings**:

1. Small high schools typically spend more per pupil to operate than large schools.
2. High school spending per pupil varies widely across schools regardless of size.
3. Accurate spending comparisons must go beyond simplistic calculations based on school reported budgets.

We summarize these findings in the text that follows.

What do we mean by “small high schools” and “cost”?

From the outset, it’s important to define the terms “small high schools” and “cost,” both of which take on multiple definitions in research and practice. Research we reviewed defined a small high school as autonomous, with an independent faculty, led by its own principal, and serving its own distinct group of students. Though many reformers argue that schools must be smaller than 600 students to allow the optimal sense of teacher and student community, studies examining the characteristics and costs of such schools tend to begin calling high schools “small” when they have enrollment below 900 students (Lee & Smith, 1997; Fowler & Walberg, 1991; Howley, 1989; Cotton, 1996; Funk & Bailey, 1999; Lawrence et al., 2002; Oxley, 1989; Raywid, 1996; Stiefel, Iatarola, Fruchter, & Berne, 2000; Walberg, 2002).

The definition of cost has two components: (a) determining what expenditures to include in the comparison and (b) defining the unit of output.

a) *Determining what expenditures to include.* In this paper we focus on what the literature says about current operating costs, which are the costs of keeping a school running on a daily basis. These costs include provision and support of the academic program; administration and support services; provision and maintenance of the physical plant; and auxiliary services such as food, transportation, and security (Miles & Darling-Hammond, 1998). Operating costs do not include startup costs or long-term capital costs for large building projects. Although it is obviously critical to understand the costs of converting to small schools, taxpayers and those who answer to them must understand first whether and how they are changing the baseline cost of running a school before they can evaluate whether the startup and capital investments make sense.

b) Defining the unit of output. Defining the unit of output also raises important questions. The National Center for Education Statistics reports the cost for each student in attendance. A more sophisticated measure would incorporate some aspect of performance or output, such as graduation. Many have argued — and some research has shown — that small schools cost the same or less *per graduate* than large schools because of their higher graduation rates (Funk & Bailey, 1999; Lawrence et al., 2002; Oxley, 1989; Raywid, 1996, 1999; Stiefel et al., 2000; Walberg, 2002). Some literature also takes this analysis a step further by hypothesizing the lower costs to society of small schools due to the higher graduation rates and the eventual lower costs for social services ranging from health care to welfare to prisons (e.g., Funk & Bailey, 1999). We found only one scientific study that attempted to relate cost to any measure of student output. The study includes the original New York City alternative schools as small schools, in addition to other models of small schools in existence at the time of the study, such as Central Park East. Using budget data for 121 schools for the 1995–1996 school year, Stiefel and colleagues showed that even though the small academic high schools have higher per pupil operating costs, they have similar costs per graduate (Stiefel et al., 2000).

The question of whether we can afford small high schools rests partly on whether we can create schools that generate higher performance and better outcomes than our current schools. If we could get better outcomes, the cost-benefit equation and our sense of “affordability” might change. In this paper, however, we focus on *per-pupil* operating costs — the dollars spent on the daily operation of a school divided by the total number of students enrolled in the school — rather than *per-graduate* costs for two reasons:

1. Per-pupil operating costs are of more immediate concern to taxpayers and, consequently, to the superintendents and school boards who must answer to them. They are therefore a critical measure of the feasibility of creating small schools.
2. Per-pupil calculations provide a consistent baseline with which to begin cost comparisons. Districts and schools define the term “graduation rate” differently, making comparison difficult.

An alternative approach to per-pupil cost focuses not on dollars spent but on how much it would cost to provide a particular set of services. This approach, often called “adequacy” or “costing out,” is increasingly popular as districts and states struggle to determine funding levels that are equitable and sufficient to meet the demands of No Child Left Behind (NCLB) and lawsuits (see, for example, Augenblick, Palaich, & Associates, 2003; Odden, 2001; Odden, Fermanich, & Picus, 2003). Hanushek, however, charges that existing costing-out methodologies are “not just inaccurate” but “quite generally unscientific” (p. 35), in part because of the political context in which they’re imbedded (2005). Our review of the literature focuses on actual expenditures rather than hypothetical or “adequate” costs.

Key Finding #1

Small schools typically spend more per pupil to operate than large schools.

Simply because fixed and program costs cannot be spread over a large number of students, **small schools typically spend more per pupil to operate than large schools**, up to a certain point where the advantages of such “economies of scale” appear to decline. This finding holds true especially in districts that allocate staff to schools using allocation formulas designed to support traditional comprehensive high schools. These comprehensive high schools have staffing patterns that look very similar from school to school with an administrative and support structure that typically includes: a head principal and administrative assistants, several assistant principals, department heads, guidance counselors, a librarian, and a school nurse. In addition, these schools offer a full range of academic coursework at all skill levels as well as a wide range of electives designed to meet the needs of students aiming for college and those targeting careers out of high school. Each of these features increases the “fixed cost” — the costs that do not vary based on the number of students in a school. So, if small schools keep all of these structures, the spending per pupil will rise when school size drops below a certain point.

Early work on high school costs

The first set of research that addresses the cost of high schools emerged in the 1960s and 1970s when the term “small schools” applied to schools organized in the same ways as large comprehensive high schools but with fewer students. This differs from the reform concept of today that suggests these schools might organize and allocate time, people, and dollars differently.

Large comprehensive high schools became a widespread phenomenon in the late 1950s following the publication of “The Conant Report,” a major Carnegie-supported study of the American high school (1959). Conant argued that large comprehensive high schools offered two advantages. First, larger schools offered greater “range of options to the majority of students.” Small schools (those with graduating classes of fewer than 100 students), he contended, should be eliminated because they did not offer sufficient differentiation in their programs. In their place, “an excellent comprehensive high school can be developed in any school district provided the high school enrolls at least 750 students and sufficient funds are available” (1959).

Second, proponents argued that large comprehensive high schools cost less per pupil than small schools because they could spread costs over a larger number of students, providing economies of scale (Irmsher, 1997; Mitchell, 2000).

There is limited early research that seeks to examine these arguments and identify the true economies of size at the high school level. After a careful review of this literature, we find that the work conducted until 1972 suggests that in general, optimal school size is approximately 1,500 students (Cohn, 1968; Johnson, 1972; Katzman, 1971; Osburn & Goishi, 1971). In other words, larger comprehensive high schools appear to spend less per pupil than smaller comprehensive high schools until there are more than 1,500 students in the school. However,

these school cost-size literature studies cannot be generalized due to methodological and theoretical weaknesses (Fox, 1981; McKenzie, 1983; Stiefel et al., 2000; Andrews, Duncombe, & Yanger, 2002), and evidence is at best ambiguous (Guthrie, 1979).

As a result, after approximately 40 years of research on the topic of economies of scale in high schools, we are no clearer on the impact of comprehensive school size on operating expenditures or how these relate to student experiences. As Andrews et al. suggest, more work needs to be done to “shift the focus of research from speculation about how the cost-size relationship could play out in consolidated schools to an examination of consolidation experiences themselves” and thereby “ascertain the actual impacts of consolidation on expenditures and student performance” (2002, p. 256).

Research on contemporary spending

Several studies explore the statistical relationship between the size of student body and school spending. Using data from New York City, where small high schools have been open for some time, Stiefel et al. (1998) found that small academic high schools of fewer than 600 students spent nearly 50 percent and \$2,000 more per student than high schools with 2,000 or more students. The table below summarizes their findings in more detail.

Number of students in high school	Spending per pupil enrolled
0–600	\$7,628
600–1,200	\$6,943
1,200–2,000	\$6,489
2,000+	\$5,219

Colegrave and Giles (2005) estimate an optimal school size of around 1,300 students based on a review of 29 studies primarily from the United States, Canada, the United Kingdom, and Australia. These studies suggest that beyond a certain size, expenditures begin to rise again as high schools need to add layers of administration to manage complexity (Coleman & LaRocque, 1984; Lee & Smith, 1996). The studies cited previously do not attempt to measure student performance results as part of the definition of “optimal” size; they simply define optimal as low spending.

Two recent in-depth analyses reported by Marguerite Roza and colleagues show how district allocation practices heavily influence how much small schools spend relative to large schools in the same district (Roza, 2005; Roza, Swartz, & Miller, 2005). Roza et al. found that in Seattle Public Schools the seven small schools spend an average of only 3 percent more than large schools, while Denver Public Schools spends 20 percent more on its small schools (2005). The Seattle Public School system uses a weighted student formula to allocate the majority of school-level resources to schools. This naturally minimizes the differences between schools based on size because, except for centrally allocated staff for special programs, the resources come as a set amount per pupil. Seattle small schools also used fewer central resources. Denver allocates

resources using a staffing formula, where for example, each school receives the standard administrative staff positions — resulting in higher administrative cost per pupil in small schools.

A study tracing the reasons for differences in per-pupil spending across Providence, Rhode Island, public high schools identified three categories where diseconomies of scale drove up spending for very small schools: administrative and support personnel, programmatic diversity, and special program costs aimed at bilingual or special education students (Miles, Shields, & Johnson, 2004). In Providence the extra per-pupil expenditures associated with administration and student support staff positions (principal, assistant principal, clerks, nurse, and librarian) accounted for about 80 percent of the difference between its smallest school and a typical large high school.

Key Finding #2

High school spending per pupil varies widely across schools regardless of size.

Roza's analysis also illustrates that despite the general trends, **the per-pupil spending of small and large high schools varies widely within districts**. In Seattle, Roza (2005) found that the lowest-spending school received 87 percent of the district average per-pupil expenditures while other schools' spending ranged to a high of 125 percent of the district average, adjusted for student population. In Denver, funding levels ranged from about 90 percent of the district average to 120 percent of the average. Miles and Roza (2006) show how school-level spending per pupil varied dramatically in Houston and Cincinnati before implementation of specific strategies to reduce unplanned variation.

A recent study by Lawrence and colleagues confirmed this wide variation in small high school expenditures per pupil (2005). This research profiled the spending and practices of 25 highly regarded, cost-effective small high schools across the country. The schools included in the case study were deliberately chosen as examples of schools that seemed to operate at similar spending levels to larger high schools in the same district. Lawrence et al. estimated per-pupil spending levels ranging from \$6,000 per pupil to a high of nearly \$14,000 per pupil. The case studies were drawn from rural and urban districts with very different costs of living, and these spending numbers do not adjust for differences in costs of living. Looking only at rural schools, estimates of per-pupil expenditures still varied by 25 percent from a low of \$9,000 to more than \$12,000 (Lawrence et al., 2005). As we will discuss further in section three, Lawrence and colleagues estimated that most of the small high schools profiled operated at per-pupil expenditure levels similar to or lower than larger high schools in the same district.

Since it seems clear that high schools can be designed at a variety of expenditure levels, the critical question arises: "If schools spend more, does student performance rise?" We found no studies that show a consistent, statistical link between the level of high school spending and

performance. A genre of research examines the link between the spending levels of all school types and student performance. Although it is a subject of vigorous academic and political debate, scholars have not found conclusive statistical evidence that, when student characteristics are controlled, higher-spending schools achieve better student-performance results (Hanushek, 1997; Hedges, Laine, & Greenwald, 1994; Ladd & Hansen, 1999). This finding is not surprising, however, when we consider that it matters very much *how* dollars are used.

Key Finding #3

Accurate spending comparisons must go beyond simplistic calculations based only on school-reported budgets.

Accurate calculation and comparison of per-pupil expenditures require more sophisticated analysis than most current studies currently perform. Emerging research suggests that when calculations adjust for differences in student population and accurately allocate district-reported spending, the results may change significantly.

Schools serve differing percentages of poor, bilingual, and special education students with varying needs. Clearly, it costs more to serve a student with severe special needs than to serve a student in the general education program. District assignment policies and incentives influence the distribution of students with special needs across schools. For example, some districts manage student assignment to concentrate students with similar needs in certain schools so that they can ensure expert resources at these schools. A simple calculation that divides total school-level spending by the number of pupils enrolled in a school with a concentration of students with special needs would provide a misleading sense of spending as compared to a school with a higher percentage of general education students. Miles and Roza describe a method for adjusting for differences in student population by weighting students based on how much more they typically cost (2006).

Second, spending comparisons must take care to include *all* of the school expenditures, including all sources of funding and centrally or externally provided services. Districts differ widely in their practices regarding the percent of total spending they report and track to the school level, ranging from a low of about 40 percent to a high of about 85 percent (Miller, Roza, & Swartz, 2004). The percent reported on school budgets does not represent the full set of resources schools have, as many line items are routinely budgeted out of central office departments.² For example, districts vary as to where they report spending on resources like facilities, literacy coaches, nursing services, guidance counselors, security personnel, and substitute teachers.

Thus, accurately comparing school-level spending requires delving into district budgets to pinpoint which direct services, staff, and materials schools receive. Using Denver as a case

² The percent reported at the school level also does not necessarily describe the portion of resources that schools control. A district can report dollars at the school level and still define how schools must use them.

study, Roza and Swartz show that when these resources are added into the picture, the results can change significantly (2004). In Denver, though small school-reported budgets appeared larger per pupil than small schools, they received less of the district-budgeted resources. Thus, when all expenditures were included, small schools appeared to be more equally funded (Roza & Swartz, 2004).

Analyses that incorporate all operating expenditures and differentiate spending for particular services make it possible to more accurately compare expenditures across schools. Most analyses oversimplify spending calculations, making comparisons unreliable.

Summary

In summary, research suggests that small high schools are likely to spend more than large high schools if they attempt to replicate large schools in design, organization, and use of resources. Research also seems to show that it is possible to operate a small high school at comparable, even lower spending levels than large high schools. Given these rather commonsense findings, it then becomes critical to turn to research that explores how large and small high schools can best use their resources to improve student performance.

II. How do small high schools organize resources to support high achievement? How does this compare to the resource use of high-performing high schools?

Unfortunately, the difficulty of conducting research on the effect of school organizations makes conclusive evidence hard to find. Two main challenges account for this dearth of information.

First, school organizations do not vary enough to statistically test different ways of organizing. Despite calls for restructuring, schools rarely engage in major reorganization of school-level resources (Canady & Rettig, 1995). Consequently, the basic organization of high schools is strikingly similar across and within districts. Secondary schools organize classrooms by age and subject. Teachers in these schools usually have responsibility for the learning of more than 100 students. Class sizes are the same for most academic subjects. Most schools use one of a few typical daily student schedules having between six and eight instructional periods daily. This sameness makes it difficult to test the impact of features like teacher load on student performance because researchers cannot find schools where teachers have fewer than 90 students except in magnet or special schools.

The second challenge in conducting research on the effects of school organization arises from a lack of detailed information on resource use across schools. Summary budget and staffing data collected by states and districts do not consistently provide information on class sizes; student grouping; and the amount, allocation, and use of teacher and student time. The National Center

on Education Statistics (NCES) and some states, such as Florida and Ohio, report some of these data, but the data are incomplete and have not been the focus of much research.

Despite the difficulty of generating solid information on the ways of organizing that matter most for improving student performance, two categories of research on high-performing schools provide some clues:

- A. Studies that look for common characteristics across high-performing schools including, but not limited to, resource issues
- B. Studies that specifically examine resource use

A. Characteristics of high-performing schools

A host of studies shows that high-performing elementary and secondary schools weave effective resource use through all aspects of their design. However, most of the well-known frameworks that categorize school success factors either don't directly address resource use or include a vaguely worded, catch-all category such as "resources support" overall school design or "resources aligned."

For example, Marzano synthesizes effective schools research over the last three decades, including the work of Ron Edmonds, founder of the school effectiveness movement (2003). He collapses numerous lists into five categories:

1. Guaranteed and viable curriculum
2. Challenging goals and effective feedback
3. Parent and community involvement
4. Safe and orderly environment
5. Collegiality and professionalism

Some of these categories have resource implications, but the list provides little sense of priorities or concrete guidance for organizing schools.

The National Education Association uses a set of research-based elements describing effective schools that refer more directly to resource use (Hawley, 2002). The Keys to Excellence in Your Schools (KEYS) system includes the following six "domains," which focus more on teaching and learning, including assessment and professional learning, than Marzano's list:

1. Knowledge of teaching and learning
2. Shared understanding and commitment to high goals
3. Open communication and collaborative problem solving
4. Continuous assessment for teaching and learning

5. Personal and professional learning
6. Resources to support teaching and learning

In *Breaking Ranks*, the National Association of Secondary School Principals (2004) recently confirmed its list of critical characteristics of high-performing high schools. This list includes:

1. Creating a safe and orderly environment
2. Articulating a common message on the basis of shared values and a vision focused on the high achievement of all students
3. Holding high expectations for students and staff members
4. Creating structures to support a personalized learning environment
5. Collaborating for shared leadership, decision making, and problem solving
6. Using data for decision making

Like the other frameworks, the *Breaking Ranks* study emphasizes high goals and collaboration and adds the concept of a “personalized learning environment.” Like the KEYS list on page 12, the list has implications for resource use but does not explicitly discuss which resource or organizational features to examine.

Three recent studies address resource use more explicitly. In a study of 1,200 top-performing elementary and secondary high-poverty schools, Education Trust (1999) found six common practices that echo the frameworks above, with the addition of time as a factor. High-performing schools:

- Used state standards to design curriculum and instruction, assess student work, and evaluate teachers
- Increased instructional time in reading and math
- Devoted a larger proportion of funds to support professional development focused on changing instructional practice
- Implemented comprehensive systems to monitor individual student progress and provide extra support to students as soon as it was needed
- Focused their efforts to involve parents on helping students meet standards
- Had district or state accountability systems in place that have real consequences for the adults in the schools

In a large-scale study of California schools, Williams et al. (2005) identified four practices that stood out above all others in predicting high performance: (1) prioritizing and setting goals for student achievement; (2) implementing a coherent, standards-based curriculum and instructional

program; (3) using assessment data to improve student achievement and instruction; and (4) ensuring qualified, experienced teachers and quality instructional materials. The last of these suggests the need to invest in teacher quality.

Chicago-based researchers used survey and school observation to measure the level of “instructional coherence” in schools (Newmann, Smith, Allensworth, & Bryk, 2001). Newmann and others’ study specifically identified resource use as a factor in student performance and defined resources as including time and people in contrast to other studies where the definition of resources tends to be money or more resource-implicit ideas like “structures” or professional development. They defined schools with instructional coherence as having three overarching conditions:

- A common instructional framework that guides curriculum, teaching, and assessment
- Staff working conditions that support implementation of the framework, including clear standards, hiring and induction procedures, teacher evaluation, and professional development
- Allocation of resources such as materials, time, and staff to advance the framework

Schools that improved their scores on these conditions of “coherence” improved student performance more than twice as quickly over a two-year period than schools that did not improve these professional conditions.

These studies capture the features of high-performing schools, including setting high goals; holding people accountable for meeting those goals; supporting teachers’ learning; using data; involving parents and the community; implementing a coherent curriculum; allocating time to support student and teacher learning; monitoring and supporting individual student learning; and fostering a safe, orderly, collaborative environment. While resource use is implied in many of the studies, it is not the focus of the studies and is not elaborated in any detail.

B. Resource use

A small collection of case studies examines resource use in high-performing schools. These studies show that high-performing schools use resources in quantifiably different ways than other schools (Miles & Darling-Hammond, 1998; Odden & Archibald, 2001). High-performing schools explicitly organize and use resources in four primary ways, dubbed the “Big 4” strategies by Miles (2001) and Miles and Frank (forthcoming):

1. Invest in teacher quality through professional development, job structure, and common teacher planning time.
2. Maximize time on core academics in longer blocks where appropriate.
3. Create individual attention and personal learning environments.
4. Flexibly organize to maximize instructional resources.

Other research both confirms and expands on these guiding resource principles (Allington & Cunningham, 2002; Darling-Hammond, 1997; Education Trust, 1999; Marzano, 2003; Odden & Archibald, 2001).

The research on resource use examines the effect of particular practices related to teacher quality, time, and individual attention. There is a dearth of research on the practices of flexibly organizing, which Miles and Frank (forthcoming) describe as defining and refining organizational design based on student and teacher needs; using flexible job definitions, work schedules, and part-time staff; and leveraging internal and external expertise. The lack of research in this area can be attributed both to the difficulty of defining and measuring some of the features of flexibly organizing and to the fact that few schools are yet employing the practices to a degree that could be measured. Most of the research on the other resource practices focuses on the elementary or middle school level and does not differentiate by school size. Little is known about how high-performing high schools of any size use resources, in part because some of the data are much more difficult to collect at the high school level (like class size) and in part because there are very limited data on student achievement outcomes at the high school level, making it difficult to assess the effectiveness of resource use. Research on resource use at the high school level is thus largely based on case studies, which can illuminate some of the details of the resource practices, but are not generalizable to other settings. In the text that follows, we summarize the limited research on resource use at the high school level and note areas for further inquiry.

1. Investing in teacher quality

Investing in teacher quality includes hiring and professional development. Schools have the opportunity to influence teacher quality first through the hiring process. The five high-performing small high schools in a study by Darling-Hammond, Aness, and Ort (2002) tended to carry out careful evaluation of potential hires. This is consistent with case studies at other grade levels, which show that high-performing schools take great care to hire teachers that fit their school designs and use multiple ways of assessing the potential effectiveness of candidates (Miles & Darling-Hammond, 1998). In a recent study of hiring practices at all grade levels in California, Florida, Massachusetts, and Michigan, Liu (2004) found that 33 percent of all new teachers were hired after the start of the school year, but new teachers in small schools were less likely to be hired late than new teachers in large schools. Liu also found that new teachers who reported that the hiring process gave them an accurate picture of their job also reported being more satisfied in their job than teachers who did not see the hiring process as information rich.

Schools might also seek to screen applicants by assessing the quality, content, and level of their education. Regarding overall education level, in a study comparing the resource use of 21 high-performing high schools versus 21 low-performing high schools, Thompson (1998) found that the percentage of teachers with degrees beyond a bachelor's was higher in the high-performing schools. However, in a meta-analysis of close to 400 studies of schools at all grade levels, Hanushek (1997) concluded that there is not a strong or consistent relationship between student performance and any of the following: teacher education (teachers having a

master's degree), pupil-teacher ratio, teacher experience, teacher test scores, teacher salary, or expenditure per pupil.

The limited research on high school teacher education suggests that content preparation matters, especially in math and science. Ingersoll (1999) found that a large percentage of high school students are taught by teachers who have neither a major nor a minor in the subject they are teaching: 16–24 percent of students in math; 23–29 percent of students in life science; 37–62 percent of students in physical science. This seems like a problem since Goldhaber, Brewer, and others find that college math and science coursework improves math and science teachers' student performance at the high school level (Goldhaber & Brewer, 1997, 1998, 2000; Goldhaber & Anthony, 2003). The evidence is less clear for other subject areas.

Beyond hiring, another way to invest in teacher quality is to provide opportunities for teachers to improve their skill and knowledge. Several case studies show that high-performing small high schools invest in common planning time and expert support that promote teacher collaboration (Darling-Hammond et al., 2002; Lawrence et al., 2002; Lawrence et al., 2005). This research is consistent with findings from case studies of high-performing large high schools (Education Development Center, 2005) and a large body of research about professional development in high-performing schools at all grade levels (see, for example: Flowers, Mertens, & Mulhall, 1999; Fullan, 1993; Glickman, 1993; Hargreaves, 1994; Knapp, McCaffrey, & Swanson, 2003; Miles & Darling-Hammond, 1998; Peterson, McCarthey, & Elmore, 1996; Shannon & Bylsma, 2003; Cohen & Hill, 2000).

Research that documents the impact of content-based professional development at the high school level is quite limited. In studying three restructuring large high schools, Little (1999) found that there was an emphasis on structural reforms and a general underestimation of how much teacher learning needed to happen to improve student learning.

More research is needed on teacher quality in high-performing high schools, both small and large, including the area of new teacher support.

2. Maximizing time on core academics

In keeping with the consistent general finding that schools that devote more time to literacy and math and use this time well show dramatic improvements in student achievement (Education Trust, 1999; Lake, Hill, O'Toole, & Celio, 1999), many high schools have adopted schedules with longer blocks of time than the traditional 45–50-minute period. The limited research on the use of time in high schools suggests that creating longer blocks of time by itself is unlikely to be an effective reform unless it is accompanied by support and professional development for teachers to make effective use of it. The success of block scheduling also seems to depend on the subject being taught and on the types of students involved. Several studies find a positive effect of block scheduling in high schools (Deuel & Stoyco, 1999; Doran, 2004; Trenta & Newman, 2002; Weller & McLeskey, 2000). Other studies note either no effect or a negative effect of block scheduling on academic achievement among high school students (Gruber &

Onwuegbuzie, 2001; Jenkins, Queen, & Algozzine, 2002; Lawrence & McPherson, 2000; Rice, Croninger, & Roellke, 2002). In a recent analysis of 58 empirical studies of block scheduling in high schools, Zapeda and Mayers concluded that block scheduling seemed to increase student grade point averages and improve school climate, but its effects on teacher practices, student achievement, and attendance were inconsistent (2006). Studies of scheduling do not differentiate for small versus large high schools.

3. Creating individual attention and personal learning environments

There are a number of resource practices that would help schools create individual attention and personal learning environments, including reducing class size and teacher load, creating small learning groups, personalizing instruction strategies, and creating advisory structures. Like the other areas of resource use, there is little evidence of to what extent high-performing high schools implement these practices.

A few small-scale studies suggest that high-performing high schools have smaller class sizes (Archibald, 2001; Darling-Hammond et al., 2002; Deutsch, 2003). A recent study found that reduced teacher loads helped one high school reach the highest level of school performance for schools under the district's school accountability plan (Archibald, 2001). More research is needed in these areas.

Case study research points to the importance of finding ways to tailor instruction to individual student needs and provide extra support to students who need it, but makes no attempt to determine the relative impact of different approaches. The limited research suggests that high-performing high schools of all sizes use structures that allow for personalization, strong relationships, and collaborative learning (Darling-Hammond et al., 2002; Doran, 2004; Hock, Pulvers, Deshler, & Schumaker, 2001; Lee & Smith, 1997). Organizing schools into smaller houses or clusters where teachers and students stay together for all or most subjects is perhaps the most dominant strategy used. "Looping" — the practice of keeping students and teachers together for more than a year — provides another less-often used strategy. High schools that are more successful with at-risk youth tend to make use of out-of-classroom learning (Hamilton, 1986). Darling-Hammond, Aness, and Ort (2002) point out that not all small high schools are successful, and that those schools that incorporate fewer personalizing features and less ambitious instruction produce fewer benefits (see also McMullan, Sipe, & Wolf, 1994; Raywid, 1995; Wehlage, Smith, & Lipman, 1992).

Finally, advisories have become a popular strategy for personalization and building relationships in small high schools. The term refers to the practice of assigning a small group of students to meet with an adult regularly — often daily or weekly — who serves as a touch point and counselor throughout the year and sometimes over a student's entire high school career. While a host of case studies documents the use of advisories in high-performing high schools (e.g., Darling-Hammond et al., 2002; Doran, 2004), research on the effectiveness of advisories at the high school level is mixed (Hagborg, 1995). For example, Bergeson (2003) found that the success of advisories in lowering dropout rates varied and depended on the specifics of the schools

and teachers. Hertzog and Morgan (1999) found that advisory/mentoring programs in ninth grade to help with the transition from middle school to high school were related to significantly lower dropout rates than schools without comparable programs.

Summary

The table on page 19 summarizes the available research and begins to provide a framework for thinking about research needs related to resource use in high schools. The table lists the array of resource allocation strategies that have the potential to improve student performance discussed previously and shows whether research addresses their effectiveness in high school settings. In the first two columns the table distinguishes between research that looks at the existence of these strategies in high-performing high schools in general (column 1) and in high-performing small high schools (column 2). Because it is case studies or surveys, this research cannot prove a causal relationship between the strategy and student performance. The third column shows whether research has been conducted to test a potential link between these strategies and improved student performance.

As we have highlighted, limited research exists that addresses resource allocation in schools at any level, and the research that focuses on high school resource use is scarcer. The table provides information on the quantity of research: bold font indicates that at least five studies address this issue in some way and asterisked entries indicate that two or fewer studies do. We have not attempted to evaluate the quality of the research in this table, merely the amount.

TABLE 1
Summary of research to date on resource-allocation strategies in high schools

Resource-allocation strategies	Evidence these strategies are used in <i>high-performing</i> high schools?	Evidence these strategies are used in <i>high-performing small</i> high schools?	Evidence that these strategies improve student performance in <i>high schools</i> ?
Invest in teacher quality			
Selective hiring practices	Yes**	Yes	Undetermined**
Certification/education	Yes**	No	Mixed
Common planning time	Yes	Yes	Yes**
Professional development	Yes	Yes	Mixed
New teacher support	Yes	Yes**	Undetermined**
Time on core academics			
Longer and varied blocks of instructional time	Yes	Yes	Mixed
Total instructional time	Yes	Yes	Yes**
Individualized attention and personal learning environments			
Small class size	Yes	Yes	Undetermined**
Flexible student grouping	Yes	Yes	Yes
Teacher load	Yes**	Yes**	Undetermined**
Personalized instruction	Yes	Yes	Yes**
Tutoring	Yes**	Yes	Yes**
Advisory structure	Yes	Yes	Mixed

Bold indicates that there are at least five studies in this category.

** Two asterisks indicate an extreme dearth of research in this category (1–2 studies).

III. What constraints do small high schools face in designing cost-effective, high-performing organizations?

As discussed in the previous sections, examples of high-performing high schools that operate at spending levels comparable to large high schools exist, but they typically organize resources in ways that require districts, states, and unions to change their practices. A growing number of case studies document the strategies small schools use to operate at comparable spending levels to traditional large schools (Center for Collaborative Education, 2001; Lawrence et al., 2005; Miles & Darling-Hammond, 1998; Odden, 1997; Odden & Busch, 1998; Odden & Archibald, 2001; Raywid, 1996; Wing, 2003). Many of these case studies explore schools that have special freedom from typical district constraints either because they have special status or are in a new initiative.

For example, the Center for Collaborative Education (2001) profiled unique resource use in Boston pilot schools that have freedoms from the union contract and some district policies. A recent report by the Center claims that these schools have outperformed traditional Boston public schools with a similar set of students (2006). Miles and Darling-Hammond (1998) profiled high-performing New York City high schools that have alternative school status and were designed from the beginning with different rules. In *Dollars & Sense II's* (Lawrence et al., 2005) profile of small schools that appear to operate at similar per-pupil spending levels to large schools, 12 of the 17 schools profiled operate outside the rules of traditional school systems, either as experimental district schools or charter schools.

The Public Education Association (PEA) examined the costs of small schools in New York City and suggested that small schools can be affordable (Heinbuch, Frankl, & Duncan, 1992). The researchers conducted in-depth case studies of four schools — two regular schools and two alternative schools that enjoyed increased flexibility.³ Based on their findings, the researchers argued that large schools are more expensive than their smaller counterparts because they require a disproportionately large management structure (administrative personnel are more expensive than teachers) and incur high security budgets due to the higher rate of violent incidents.

In particular, this PEA study compared the relative costs of different staff positions (both salary or wage, and number of full-time equivalent employees) in these four high schools. It illustrated the different organizational structure adopted by alternative schools: fewer assistant principals for supervision, fewer secretaries, and guidance services that are provided in ways other than reliance on guidance counselors. The report showed that a reconfigured small school of 750 students would only spend incrementally more than a large comprehensive high school.

Scholars with an intimate knowledge of small schools have prepared sample school budgets that show how small schools can be affordable. The School Redesign Network ([www](http://www.schooledesignnetwork.org)).

³ Authors' definition: "Alternative high schools depart from traditional school organization, employing different strategies to achieve traditional educational outcome" (Heinbuch, Frankl, & Duncan, 1992, p.15).

schoolredesign.net) includes a detailed budget for a small school in the report, “Redesigning Schools: What Matters and What Works” (Darling-Hammond, 2004). This budget is based on an analysis of three large, traditional schools in California that employ about 50 percent of their staff in classroom teaching positions. The small redesigned school uses the same amount of per-pupil revenue in a completely different way, with 80 percent of its staff in classroom teaching positions using a different schedule. This allocation of resources supports the characteristics of a small school described previously — fewer non-teaching and specialist staff and more classroom instructional staff.

Gregory (1992) also provides a hypothetical budget of a small school, which is based on his study of the Jefferson County Open school. Again, the hypothetical school costs no more than a comprehensive school and resources have been reallocated compared with a conventional comprehensive school’s resource allocation. Indeed, the school spends less than a conventional school. The hypothetical budget is more of a mental exercise in which Gregory draws the reader to question where all the money is being spent, if not on teachers. The school receives per-pupil revenue equal to that of other schools in the same district. After spending on items that obviously support the small school, such as 70 percent on classroom teachers and fewer administrative and support staff, there is still an unallocated amount of \$73,000 in the budget.

These studies and practitioners highlight five strategies that high-performing small schools use to keep spending within the range of larger high schools, including (Miles, 2001):

1. Creative staffing and scheduling of jobs
2. Changing the use and amount of students’ instructional time
3. More strategic grouping of students and teachers
4. Reducing programmatic offerings, especially electives and extracurricular activities
5. Reducing spending for support staff and operations by hiring lower-cost staff or contracting out for services

Schools operating outside of union contracts and traditional constraints find more opportunities to implement the above strategies and they systematically exert more control to implement two additional strategies: (1) hiring and keeping staff that fit design and standards and (2) strategically managing salary level and distribution. We summarize the details of each in the text that follows.

Staffing

Small schools of all types find ways to keep their spending down by using creative staffing strategies. In these schools teachers often play expanded roles serving as advisors, sharing in administrative and leadership duties, and team teaching so that the school does not have to hire guidance counselors, extra administrators, and even substitute teachers (Lawrence et al., 2005; Miles & Darling-Hammond, 1998; Raywid, 1996; Wing, 2003). Many schools also find lower-cost staff by hiring retirees willing to work on different schedules at contract rates, or career changers who do not necessarily have current teaching credentials but have demonstrated their

qualifications in other fields. Others that have the flexibility to do so contract out for instruction for elective or foreign language courses or offer credit from community college coursework (Center for Collaborative Education, 2001; Miles & Darling-Hammond, 1998).

Since small schools tend to have fewer total students in special program categories, many leaders have realized early on that they cannot immediately respond to special needs by grouping them together in a classroom. As in high-performing schools of all sizes, these schools find ways to use the expertise of teachers from all programs to teach students in groups that combine students across programs, including regular education, English as a second language, special education, and sometimes honors or advanced courses (Lawrence et al., 2005).

Small size also makes it difficult to offer a wide selection of electives and extracurricular activities cost effectively. Again, small school leaders have quickly realized the need to offer fewer electives and extracurricular activities for students or to provide them in a different way. Instead of funding their own athletics programs, many schools form partnerships with a local YMCA or Boys and Girls Club, or use inexpensive forms of physical education like dance, aerobics, and yoga (Lawrence et al., 2005).

Finally, small schools are beginning to look for ways to save on non-instructional spending. Lawrence et al. reported a range of strategies including having teachers and sometimes students perform custodial duties to save on janitors, contracting out for services to avoid paying high union-level salaries, and sharing staff and services with other small schools (2005).

While case studies highlight the different ways small schools find to reduce spending, it is important to recognize that not all of these strategies make sense for students or for the professionals working in the schools. Because so many of these schools are new, leaders across the country are experimenting with new ways to organize. Many of these strategies, such as having teachers perform custodial duties, ultimately may not be the best long-term solutions. The studies examining expenditures combined with the case studies examining practice show that small schools can be designed at equal or lower spending levels. If so, the most important challenge becomes identifying the critical design features for *high-performing* high schools and understanding whether and how small schools can implement these most promising practices.

Small high schools face an array of constraints that limit their ability to make strategic decisions about how to use their resources cost effectively and in a way that supports high achievement. These constraints include regulations, bureaucracies, and traditions (James, Kelly, & Garms, 1966). Raywid and Schmerler (2003) examined the difficulty of remaking large urban schools into small schools through several case studies from four cities. They describe the current regulatory context for small high schools: “We continue to bind these new organizational entities within old organizational structures, shackle them with outmoded practices, and restrict their success by imposing regulations designed for another time and place” (p. 2). Many small schools have survived only by a policy of exemption (Darling-Hammond, 1997; Toch, 2003), acquiring waivers from state laws, regulations, and union contract provisions (Darling-Hammond,

Ancess, McGregor, & Zuckerman, 2000; Raywid & Schmerler, 2003). Waivers, however, are not a sustainable long-term solution (Raywid & Schmerler, 2003). In this section, we examine the constraints on small high schools.

TABLE 2
Summary of research findings related to small high school organizational constraints

Strategies for creating cost-effective small schools	Source of limit on resource use or organization			
	Legal	Union contracts	State and district policies	Tradition
Hiring and firing	■	■	■	■
Creative staffing	■	■	■	■
Creative staff schedules		■	■	■
Strategic student grouping		■	■	■
Creative student schedules		■	■	■
Reducing electives		■	■	■
Reducing operating costs		■	■	

Legal constraints

The most formal constraints on schools are federal laws, notably NCLB and state laws such as teacher licensure or training requirements (Darling-Hammond et al., 2000; Odden & Busch, 1998; Raywid & Schmerler, 2003). These regulations restrict small high schools in two critical dimensions of teacher quality: hiring and staffing. The “highly qualified” requirement of NCLB and the certification requirements of most states limit the pool of prospective hires to teachers with certification in the subject area they will teach. In small high schools this constraint can be particularly challenging when staffing specialized courses (e.g., science and math courses in which a teacher might be certified in one specific area such as biology but needs to teach additional science or math courses). Certification requirements also can constrain small high schools’ ability to create interdisciplinary classes (one strategy for reducing teacher load) or hire part-time people with expertise in a particular discipline.

Union contracts

Union contracts often constrain small high schools in the areas of teacher quality (hiring, staffing, planning time, and professional development) and time on core academics (length of school day and year). In an analysis of collective bargaining nationally and in 10 of Rhode Island’s 36 school districts, the Education Partnership concluded that teacher union contracts restricted flexibility and school autonomy. Additionally, it concluded that many clauses of the contracts drove up costs without improving quality (2005). Similarly, a report by The New Teacher Project showed how seniority staffing rules mandated by urban teachers’ union contracts effectively

prevented school principals from focusing on quality, school fit, or the needs of the children in each classroom when making a significant portion of their staffing decisions. Based on research in five major urban school districts across the country, The New Teacher Project found that, on average, 40 percent of all school vacancies were filled by incumbent teachers over whom schools had little or no choice in hiring. The study also examined the difficulty of remaking large urban schools into small schools within the context of union contracts (2005).

Union contracts constrain schools' and districts' ability to decide who will work in which school and how much they will be paid. According to Toch (2003), these limitations "undercut the sense of community and level of loyalty in many high schools" and result in small schools that are "likely to function no differently than large schools" (p. 120). Raywid and Schmerler (2003) call the right of teachers to fill openings based on their seniority within the system the "most difficult rule . . . the single practice that is perhaps most inimical to the success of small schools" (p. 89). In New York City (Darling-Hammond, 1997; Toch, 2003) and Boston (Center for Collaborative Education, 2001), special arrangements were made with unions before small high school reforms proceeded.

Union contracts also restrict planning time and time spent on other professional development, often by specifying a total number of hours and/or days that teachers can be required to participate in planning during the school day and professional development. Sometimes contractual restraints limiting the number of consecutive minutes taught can also impede a school's ability to schedule common planning time. Additionally, union contracts constrain the length of the school day and year by defining total teaching minutes per day, daily beginning and end times for teachers, and total contractual days. For example, until the most recent contract negotiation, the contract between the Board of Education of New York City and the United Federation of Teachers specified a work day of six hours and 20 minutes for teachers, which was identical to the length of the students' school day. New York City teachers were expected to attend one 45-minute faculty meeting per month. Attendance at additional meetings was voluntary. The contract also stipulated that teachers in high schools were to spend no more than three consecutive class periods teaching, which can conflict with block scheduling (Ballou, 1999).

State and district policies and bureaucracies

Some school decisions are prescribed, such as the number of children in a class; the number of guidance counselors, librarians, and disciplinary deans in a school; the length of the school day; and teacher time-scheduling requirements. Other decisions must be approved and processed by a bureaucratic administrative structure. These external constraints on school costs deprive school administrators of the discretion to exercise their professional judgment and lead to inefficient and slow decision making (Chubb & Moe, 2001). Additionally, state and district graduation requirements are often credits based on seat time or Carnegie units, rather than on competencies (Warner-King & Price, 2004). The limited research in this area primarily focuses on state policies and bureaucracies, not district-level constraints.

Tradition

Last, small high schools must contend with the equally important influence of tradition. A classic example of this is the use of incremental budgeting, in which current and future spending decisions are based on what was done previously. Custom is particularly difficult to overcome in a decentralized education system like the United States. Tyack and Cuban (1995) argue that the general voting public's adherence to traditional notions of what constitutes a "real school" is the reason why, historically, educational reforms that attempt to change well-established educational structures and practices — such as the school calendar, classroom layout, or division of the school day into separate lessons — have ultimately failed. Tyack and Cuban call these structures and practices the "grammar of schooling" and note that it is remarkably resistant to change (p. 85). As several researchers and policymakers have noted, the high school is particularly entrenched in American history and popular imagination with several expected characteristics, such as extracurricular activities, a thick catalog of courses, and tracks for the college-bound and not-college-bound (Powell, Farrar, & Cohen, 1985; Sizer, 1984; Tyack & Cuban, 1995).

In the context of all of these constraints, researchers and education observers have commented on a striking similarity, across districts and time, in the organization of schools and distribution of resources, despite increases in funding and changes in school expenditures (Miles & Darling-Hammond, 1998; Odden & Picus, 2004). Most schools and districts continue to allocate resources in a manner that is not directed at well-articulated priorities, maintaining, for example, resource allocation that results in large class sizes (Miles, 1995; Odden & Busch, 1998).

Summary

The research on organizational constraints in small schools suggests that not only are there many limitations on the way small schools may organize their resources, but also that the limitations are created by the very people who are trying to improve overall school effectiveness. District, state, and union leaders need to recognize that constraints on creativity and a strong tie to "the way it's always been done" are potentially impeding student learning opportunities.

Overall, our review of the literature suggests that small high schools typically spend more per student than large high schools. Examples of high-performing small high schools that operate at similar spending do exist, but these schools use resources in ways that challenge existing traditions, practices, and regulations.

Next Steps

Existing research offers some insight into the cost of small high schools, but much of the detail behind our original questions remains largely unanswered, including:

- How much do small high schools actually spend, and how does this spending compare to large high schools?
- How are high-performing small high schools using their resources, particularly in the areas of teacher quality, time on core academics, and creating individual attention and personal learning environments?
- What are the constraints? What, if anything, is keeping small high schools from designing cost-effective organizations with resource practices that support high achievement?

Any study of these questions also should address two other limitations in the current conversation about the cost of small high schools:

- Lack of defined terminology and methodology around cost and resource use that would enable “apples-to-apples” comparison
- A missing link between research and practice

Much of the current dialogue focuses on either practice or research, in part because small high schools are developing at a much faster pace than relevant research is appearing. There is a need to consolidate the limited research base and deepen it in a way and at a pace that provides some guidance for policymakers and educators who make decisions about resources. Future research should also use well-defined, consistent measures of cost and document methodology carefully to give researchers, policymakers, and practitioners the ability to compare costs and resource use across schools and districts.

Rethinking the Cost of Small High Schools

Education Resource Strategies (ERS) seeks to strengthen the knowledge on which practitioners, policymakers, and researchers base their resource decisions and questions about small high schools. Through case studies of nine high-performing small high schools, ERS will analyze the operating costs of small high schools and look at the ways in which the schools have organized their resources to support student achievement. The case studies will include a detailed description of each school, including a per-pupil analysis of operating costs and the structure and organization of resources analyzed in the areas of teacher quality, core academic time, and individual attention. ERS also will compare the operating costs of the case study schools and of traditional high schools in their districts. Additionally, ERS will investigate the role that regulations, contracts, and district practices play in the expenditures and resource use of the case study schools.

Based on this research, ERS will provide concrete models of how small high schools can organize resources in ways that are likely to lead to high student performance, and will generate ideas for the tools and support schools need to help them organize for high performance.

Additionally, given the current trend in urban districts considering small high schools as part of their overall reform strategy, ERS seeks to understand the organizational and resource implications of the central office functions of school districts that are moving to support a portfolio of equitable and excellent personalized high schools. To this end, ERS will engage in a collaborative district resource analysis with one urban school district around key resource reform levers that are critical to supporting such a system of small high-performing high schools. The district reform levers will look at a district per-pupil analysis, the contractual and legal implications of small school design, and the equitable distribution of students and programs. Using case studies of seven schools that represent various legal statuses and are at various stages of development, ERS will partner with the district to identify key resource indicators and opportunities for growth. The district case study analysis will:

- Provide school systems with a framework for understanding their role in supporting improved performance through small high schools.
- Highlight the most critical district levers for creating systems of high-performing, personalized high schools and begin to provide concrete examples of how school systems can effectively address these levers.
- Generate lessons and tools to support cost-effective school and system design.

Through these case studies ERS hopes to focus attention not only on how much small high schools cost but also on what the critical resource design elements are to support cost-effective, high-performing small high schools. Additionally, ERS will offer a methodology and tools for both researchers and practitioners interested in investigating these questions further.

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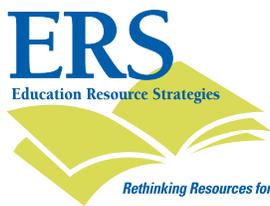
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