dollars & SENSE II

Lessons from Good, Cost-Effective Small Schools

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Overview

This report deepens the argument for small schools in three important ways. First, analysis of more than three thousand construction projects shows that smaller schools are no more expensive to build than much larger schools. Second, analysis of the budgets of 25 good small schools throughout the United States demonstrates that on average they spend less per student on educational program, maintenance and operations than the per-pupil expenditure in their districts, yet they achieve results that are equal to or better than schools in the same area. Third, these schools offer innovative and effective educational programs, facilities, and strategies for cost effectiveness that can serve as models and inspiration to people interested in cost-effective good small schools.

A complete Appendix containing contact information, budgets, test scores, and references follows the text. The website www.goodsmallschools.org supplements the written report, and contains many documents from the schools and links to additional resources. This website will be updated periodically, and will collect and disseminate strategies for good, cost-effective small schools beyond those contained in this report.

About This Report

Dollars & Sense II was written for parents, students, school board members, school officials, teachers, policy-makers – and all other members of the community who have an interest in establishing and operating good small schools. It presents findings and offers cost-saving suggestions from 25 sample schools, information that can be used as a jumping-off point for discussions and planning for others in similar circumstances.

This second report assumes that readers are familiar with the first *Dollars & Sense* report, which summarizes the benefits of small schools for students, teachers, parents, and communities. This report is designed to be used as a working reference, allowing readers to move around in the text according to their interests.

Most cost-saving strategies appear at least twice in the report – in the section about that type of strategy, and in the profile of the school(s) that use the strategy. Most readers are likely to find it helpful to move back and forth between the strategies and school profiles, as the profiles provide the context for the strategies, and show how they are being used in support of student learning. To identify which school employs specific strategies, consult the "Strategies Grid" in Appendix 4.

The appendices provide detailed information on each school, including contact information, key statistics, maintenance and operations budgets, construction and renovation costs, test scores, and a summary of the research on school construction projects. Finally, the appendices include the school selection criteria and the site-visit guidelines used with each of the 25 schools featured in this report.

This report and additional information, including photographs, tables, charts, and sample documents, are available on the companion website at www.goodsmallschools.org.

Lessons from Good, Cost-Effective Small Schools

INTRODUCTION

Good small schools make sense. Good small schools create supportive communities where students succeed, and both students and teachers thrive. Years of research and experience – not to mention common sense – support this notion. Yet legislators and other decision-makers continue to close small schools and build large ones because they think large schools are more cost effective to build, maintain, and operate. The first report, *Dollars & Sense: The Cost Effectiveness of Small Schools*, outlines the economic and social arguments in support of smaller schools and demonstrates that the true costs of large schools are enormous and the benefits dubious (D&SI, pp. 8 - 19).[1]

Dollars & Sense II: *Lessons from Good, Cost-Effective Small Schools* strengthens the case for the cost effectiveness of small schools with new research and examples of what's working at 25 such schools[2] across the nation. It answers the question – "Can small schools actually be built and run at a cost per pupil that is comparable to that of large schools?" – with a resounding "yes."

First, the report offers an analysis of the budgets of 25 good small schools from across the nation with various styles of education and diverse student populations. On average, these schools spend less per student than do other schools in their districts. These 25 schools prove that good small schools are possible to build, maintain, and operate cost-effectively (D&SI, p. 20).

[1] Throughout the text of *Dollars & Sense II*, the reference (D&SI) and a page number indicate that further information on a specific topic is available in *Dollars & Sense: The Cost-Effectiveness of Small Schools* (available in the Resource Library at www.kwfdn.org and www.goodsmallschools.org).

[2] The 17 schools listed at the beginning of this document add up to 25 small schools, because there are four small schools at Morris High School, two at Camino Nuevo, two at H.S. Truman, and four at The Met.

The central section of *Dollars & Sense II* offers specific, creative, cost-saving ideas that any school can use – from finding space in multiple buildings in a revitalized downtown to working math problems on desktops using erasable markers to save paper.

These real-life ideas assembled from 25 small schools should inspire school board members, parents, teachers, students, school administrators, policy-makers, community members, and taxpayers to come up with their own techniques for creating and running good, cost-effective small schools. The report concludes with profiles of each of the small schools or small school complexes. The profiles offer brief insights into why these schools are "good," and set the context for the strategies they employ to run cost-effectively.

Appendix 2 provides an analysis of recent school construction projects. Like similar work highlighted in *Dollars & Sense 1* (D&SI, pp.18-20), this research shows that small schools can be built as affordably as larger schools. Extremely large schools appear to be cheaper only because they provide less space per student. As demonstrated in the original *Dollars & Sense* report, the educational and social costs of such "mega-schools" are exorbitant (D&SI, pp.11-17). Appendices 1 and 3 offer detail on school budgets and test scores. Appendix 4 summarizes the strategies used by the schools on a single grid. The criteria for selecting study schools and the site visit guidelines are detailed in Appendix 5, and selected references are presented in Appendix 6.

While this report provides remarkably convincing evidence that small schools can operate cost-effectively, there are undeniably some inherent difficulties in doing so. Administrators, staffs, and communities supporting small schools must be creative and inventive to achieve these results. This "out of the box" thinking is hard work, but it can be done – these schools have done it.

Small schools also operate within systems and structures that are organized to support large schools, and sometimes must seek solutions outside normal bureaucratic procedures. The hard work of seeking creative solutions is worth it, though, and not just because of the benefits to the students. The opportunities for participation and community connection also make the effort worthwhile.

"A key finding of this report is that smallness – something that research and experience prove is good for students – in itself opens doors on ways to stretch dollars strategically in support of high quality education."

A key finding of this report is that smallness – something that research and experience prove is good for students – in itself opens doors on ways to stretch dollars strategically in support of high quality education. Small schools can be flexible and nimble, just because they are small. It is easier for them to use volunteers and form deep, lasting partnerships with other agencies because they are working at a smaller scale. In large schools, more bureaucratic and systematic solutions are necessary just because of the size of the enterprise. So while some of the cost-saving strategies highlighted in the report could certainly be employed in a large school, a main point of the report is to demonstrate that small schools have unique strategies for cost effectiveness.

Operating Costs of Good Small Schools

Another key finding of this report, in addition to the conclusions on the affordability of small school construction, concerns the actual per-student costs of operating small schools. Here, too, the facts defy the common wisdom. Twenty of the 25 schools in this study spent less per student than the average expenditure in their districts.[3] The four schools comprising The Met spent more than the district's per-pupil allocation, but this may be due in part to the fact that the Met has chosen to grow slowly, so that it does not yet serve its potential enrollment (even though it has a waiting list). At the time of the analysis, the school had 438 students, but by 2004-2005 it had six hundred.[4] Spending by the MATCH school exceeds the per-pupil expenditure for Boston, but the amount the district allocates per student has been steadily decreasing because of budget constraints. MATCH considers its tutoring program essential and found outside sources to fund it.

[3] Note that the four small schools at Morris High School in the Bronx, the three academies at Todd Beamer High School, and two schools at H.S. Truman High School are each reported as one school for purposes of the budget summary.

[4] The Met actually has six schools, and for the purposes of the budget all six are included. However, the discussion and profile include only the four schools at Public Street because the team did not visit the other campus.

Because the way in which schools and districts determine budgets varies enormously, it is extremely difficult to compare costs. The team has made every effort to make accurate comparisons, which sometimes required adding or subtracting items that were or were not included in individual school and district budgets. These adjustments are noted in the budget summary and individual school budgets in the Appendices.

According to the estimates produced by this analysis, the schools in this study spent, on average, almost 17% less per student than the per-pupil expenditure for their districts. This finding shows that small schools in very different locations, serving different populations and grades, are operating efficiently. These schools prove that communities can have small schools that offer an excellent education and also are cost effective to maintain and operate.

Analysis of School Budgets

School	Average Annual Cost per pupil		Difference	Percent Difference	District	District Data Source	County	Year
	School	District						
Avalon	$10,176.36	$11,876.00	$1,699.64	14.31%	St. Paul School District	Dist office	Ramsey	2002-03
CC. Blaney**	$8,366.00	$11,533.90	$3,167.90	27.47%	Charleston School Distr/State Report	Dist office	Charleston	2002-03
Bronx Schools**	$11,138.00	$11,640.00	$502.00	4.31%	New York City Public Schools	Dist office	Kings	2002-03
Camino Nuevo ES**	$7,487.00	$8,408.00	$921.00	10.95%	Los Angeles Unified School Dist.	NCES*	Los Angeles	2003-04
Camino Nuevo MS**	$6,848.00	$8,408.00	$1,560.00	18.55%	Los Angeles Unified School Dist.	NCES	Los Angeles	2003-04
FALA	$6,102.00	$11,783.00	$5,681.00	48.21%	Flagstaff Unified District	Dist office	Coconino	2003-04
High Tech High**	$7,614.00	$9,092.00	$1,478.00	16.26%	San Diego Unified School Dist.	NCES	San Diego	2004-05
IDDS***	$11,543.00	$12,616.34	$1,073.34	8.51%	Minneapolis School District #1	Dist office	Hennepin	2002-03
Laurel-Concord****	$7,927.00	$8,089.93	$162.93	2.01%	Cedar County Public Schools	NDE	Cedar	2001-02
MATCH**	$12,580.00	$11,943.00	($637.00)	-5.33%	Boston Public Schools	BPS	Suffolk	2003-04
MET**	$13,953.00	$11,426.00	($2,527.00)	-22.12%	Providence School District	RIDOE	Rhode Island	2002-03
Oak Valley****	$4,965.00	$6,698.60	$1,733.60	25.88%	Lancaster County Public Schools	NDE	Lancaster	2003-04
RD Schroder**	$9,440.00	$11,533.90	$2,093.90	18.15%	Charleston School Distr/State Report	Dist office	Charleston	2002-03
STAR	$8,661.00	$11,783.00	$3,122.00	26.50%	Flagstaff Unified District	Dist office	Navaho	2003-04
TSOTA**	$5,922.00	$8,738.00	$2,816.00	32.23%	Tacoma School District 10	Dist office	Pierce	2003-04
Todd Beamer	$6,747.00	$7,377.00	$630.00	8.54%	Federal Way School District	Dist office	King	2003-04
Truman	$6,893.00	$7,377.00	$484.00	6.56%	Federal Way School District	Dist office	King	2003-04
WOO*****	$2,557.26	$8,778.00	$6,220.74	70.87%	Birmingham City School District	NCES	Jefferson	2003
Average	$8,273.31	$9,950.09	$1,676.78	16.85%				

*In those few cases in which the districts were either unable or unwilling to provide comparative data, the latest available National Center for Education Statistics (NCES) financial data was used and this was for school year 2001-2002

**The financial data obtained from many of the schools did not include expenditures for food service as well as a number of other expenditures known to have been incurred. Since the districts did include all expenditures in their averages, in order to make the figures comparable the NCES data for each of those items was added to the financial data obtained from each of these schools. The two Camino Neuvo schools did in fact know and capture these expenditures but as separate cost centers. Those allocations were added back to the two schools' original numbers as well.

***A weighted average of per pupil spending for the 10 schools which send students to IDDS was used as a basis of comparison and while only 8 of the 10 schools' financials were available, the 8 reporting schools comprise 96.1% of the total IDDS enrollment. The IDDS average annual cost per pupil also had to be adjusted to include other expenditures that were included in the Minneapolis School District numbers.

****Because the two Nebraska schools are, uniquely, also their own districts, meaningful pupil expenditure comparisons could only be made to the countywide pupil expenditures of the county in which each school resides. The county data was obtained from the Nebraska Department of Education website.

*****WOO reports its financials on a calendar basis, i.e., January thru December. The average annual cost per pupil is based upon an average daily attendance of 45.

Selecting Good Small Schools for Analysis: What Makes a Good Small School?

The schools studied in this report were not selected randomly. The *Dollars & Sense* team identified more than one hundred schools throughout the country through discussion with other researchers and educators and through its own knowledge. The team then applied a series of screens to determine each school's suitability for a site visit and inclusion in the study. Schools had to meet size limitations recommended in *Dollars & Sense I* – four hundred or fewer students in a school at the time of selection, or no more than one hundred students per grade in high school, 75 per grade in a middle school, and 50 per grade in an elementary school. To maximize diversity in a small sample, the team looked at schools in urban, suburban, and rural communities in different regions of the nation (D&SI, pp. 7-8) and schools that served diverse populations. Again, as a group, the schools needed to be governed differently, use different approaches to curriculum, and include different configurations of grades. The final requirement was that within the previous five years, each school had completed a facilities project such as new construction, addition, or renovation.

"All schools have strengths – and weaknesses. The goal of this report is to highlight strengths that can be shared and emulated."

In addition, the team used specific criteria[5] to assess the quality of schools selected:

- autonomy,
- good leadership,
- a defined mission,
- making choices to ensure coherence and support the distinctive nature of the school,
- developing good working relationships within the school and between the school and community,
- equity,
- respect,
- a supportive culture, and
- a commitment to academic achievement.

These, in the team's estimation, are the most important elements of a good small school. The schools also had to agree to share information and provide the Dollars and Sense team the opportunity to talk with parents, students, teachers, and staff. The team also studied budgets to determine if a school was spending within the same allocation per pupil as other schools in its district.

Site teams visited the schools that appeared to meet the criteria. The purpose of the site visits was to confirm that the schools met the criteria and to gather information on the strategies they used to operate and to house themselves cost-effectively. Each site visit team included an architect, a budget analyst, a community engagement specialist, and the project director. Most of the team members were also experienced educators. During the site visits, the team observed classes; interviewed teachers, administrators, architects, custodians, and other staff members; and held focus groups with students and teachers. Each member of the site visit team submitted a report from which the project director wrote a group report. (Summaries are available on the website at www.goodsmallschools.org.) Finally, the entire team reviewed its findings and selected 25 schools as the focus of this report.

No single school is strong in all areas, and what constitutes a good small school is linked to local history, culture, and needs. These schools respect the needs and concerns of students, parents, and communities. These schools are agile and willing to adapt to changing and unexpected circumstances. They are entrepreneurial; they use resources effectively and thoughtfully and they are able to think creatively. Also, they have an identifiably good educational program[6] supported by the facility. All schools have strengths – and weaknesses. The goal of this report is to highlight strengths that can be shared and emulated.

[5] A more in-depth discussion of the criteria is available in Appendix 5.

[6] The term "program" for the purpose of selecting schools applies to those activities, including governance and administration, most directly connected to teaching and learning, as distinct from those related to the facility and its operations. Program criteria reflect both Linda Darling-Hammond's "10 Features of Good Small Schools" as set forth in *Redesigning Schools: What Matters and What Works*, as well as those defined on page 7 of *Dollars & Sense: The Cost Effectiveness of Small Schools*. See also the Bill & Melinda Gates Foundation's list of "What Makes a Great High School" at www.gatesfoundation.org. A full statement of all criteria is set forth in Appendix 5.

Small schools typically demonstrate greater agility and flexibility than large schools in meeting changing circumstances. Still, small schools can be fragile. Leadership, demographics, finances, facilities, curriculum – all of these may change, sometimes very quickly, and any of these changes can affect a small school significantly. It is important to point out, therefore, that the descriptions of the schools in this report are just snapshots of a particular moment.

Most of these schools have operated successfully for several years. Some have existed for decades, but many face continuing pressures from state legislatures, school boards, and school administrators who want to close small schools.

The selected schools offer a diverse sample of innovative small schools, but this is by no means an exhaustive list. Many good small schools across the country are operating cost-effectively and have wonderful ideas to offer. The schools in this report are simply ones that met the criteria for this report, both individually and as a group. As a result, these schools provide a wide array of strategies for building and running good small schools cost-effectively. *Dollars & Sense II* aims to start conversations that will continue on the website or in future publications. That said, each of these schools has an important story to tell and each is serving its students and community in ways that are worth observing closely.

DEFINITION OF TERMS:

Advisory

An advisory is a small group of students, usually ranging in number from 14 to 18, who work together and with their advisor for the entire time they attend the school. Much more than a traditional homeroom, the advisory functions as "home-base" for students, and the advisor plays a major role in their lives. The small size of the group and the time the students spend together allow close relationships to develop and for advisors to know not only their students but their students' families as well. In some schools, the advisor is also the primary teacher who guides students in developing projects and internships and making connections with their academic subjects.

For more information see: www.essentialschools.org

Internships

In an internship, a student works with an experienced adult outside the school on a specific project in a field that interests the student. The internship mentor supervises and offers opportunities to learn about the field and work that expand the student's skills in much the same way as skilled craftspeople coach apprentices.

The student's teacher or advisor monitors that the work is meaningful and that the student is learning skills that connect to and supplement his or her academic work. Because students help create an academic program based on their own interests, they are already invested in making it successful. What they learn in the internship becomes the basis for learning academic skills.

For more information see:
The Big Picture Company: Learning Through Internships: www.metcenter.org

Mentor

A mentor is an older and more experienced person who develops a relationship with a student and serves as a role model. Mentors are not usually teachers, but receive training and support from the school. The mentor gives the student help in making decisions, encouragement, assistance in setting and fulfilling

(continued next page)

goals, and support in daily situations. The mentor may also help the student with academic work, but the scope of a student's relationship with a mentor is usually broader than that with a tutor.

Program

The educational program includes the curriculum, but also the way in which teachers teach and students learn. The educational program is designed to help the school achieve its mission and encompasses the way in which material in the curriculum is taught. For example, an internship-based program will differ from a project-based program.

Project-based

In project-based education, students and teachers may work together on projects such as writing, producing, and presenting a play, or students may work individually on a project with the guidance of their teacher. By being involved in a project, students have a chance to apply not only skills of analysis and problem-solving, but also to gain academic knowledge in a way that is both rigorous and engaging.

For more information see:
www.bie.org/pbl/pblhandbook/intro.php

Teacher-owned

In schools working under the EdVisions model, "teachers work not as employees, but as part of a professional partnership which contracts with school boards to operate schools...the teachers have authority over all aspects of running the school, from budget to personnel decisions and salaries, to curriculum and pedagogical methods."
www.edvisions.com

Volunteer Tutor

A tutor gives private instruction that is often remedial. In the case of most schools in this report, all tutors volunteer their time to work with students, but MATCH funds its extensive tutorial program through the federal Work Study program.

Small Schools, Big Ideas

Introduction

The 25 schools highlighted in this report may be small in size, but their innovation and determination are immense. This section organizes the cost-saving ideas from these schools into five broad categories: staffing, educational program, services, sources of funding, and facilities (including construction, maintenance, and operations). In each category, the report describes cost-saving strategies and offers specific examples from schools that have used them. Readers can refer to the "Strategies Grid" in Appendix 4 for a complete list of schools employing a specific strategy.

Staffing

Salaries are the largest expense for any school. However, there are ways to attract and retain good teachers and administrators without raising costs, including offering attractive working conditions and providing incentives beyond compensation. The schools in this study use several strategies to reduce the costs of staffing and to improve working conditions for their teachers.

Juggling Act

Savvy schools take advantage of opportunities in district funding formulas for staffing. They look carefully at their own needs and juggle district allocations. For example, H.S. Truman High School in Federal Way, WA, has no librarian; it uses the money allocated for that position to employ a tech specialist because that role is critical to its alternative internship program. The school also redirected the money earmarked for one guidance counselor into a teacher's salary. The counselor is not needed, because the teachers serve as advisors.

Using Rules Strategically

Schools can use rules to their advantage. For example, the Tacoma School of the Arts (TSOTA) in Tacoma, WA, hires most of its staff in April and May. This timing gives school officials the maximum flexibility in selection, while still operating within guidelines of the union contract. Precise and clear job descriptions help the school find the best teachers for the job and also deflect protests from the teachers union if the school chooses not to hire a teacher who meets the contract's requirements, but not the school's.

Double Duty

Small schools can conserve funds by having administrators who also teach. Administrators with teaching credentials can keep in touch with students on a daily basis and can better understand students' concerns and teachers' problems. Combining teaching and administration also reduces the staff required in a small school. Avalon Charter High School and Oak Valley School have administrators who teach and teachers who administrate.

Sharing Administrative Duties

Small schools have found a way to obtain the administrative leadership they need, without incurring disproportionate costs. At Avalon Charter High School in St. Paul, MN, teachers have a proprietary interest in the school and share administrative duties. Each is paid a small stipend for these duties in addition to his or her salary for teaching, but the total expense is far less than it would be to hire a full-time principal or bookkeeper. Avalon Charter High School, by having its teachers absorb many of its administrative functions, saves approximately $40,000 annually (the average staff salary plus benefits).

Working within a network such as EdVisions (see Benefits of Networks box) in order to have access to outside advice and expertise, as well as funding, can also be cost effective. Schools such as Avalon Charter High School and Camino Nuevo Charter Academy in Los Angeles found such affiliations invaluable, not only in the process of applying for the charter but in finding sites and establishing the schools.

Laurel-Concord Public School in Laurel, NE, is a K-12 school whose strong superintendent works closely with a forward-looking board.[7] Together, they have put the school on such a steady course that the superintendent has taken on leadership of a second district, thereby relieving Laurel-Concord Public School of half his salary, saving the district approximately $53,000 annually. Using the computer program PowerSchool (see box, page 8) simplifies many administrative functions and helps administrators, teachers, and students save time. The school has recently been able to share principals – as well as its superintendent – with a smaller district.

[7] Dan Hoesing is superintendent of the district, which runs a K-12 program in the same building; however, there is a principal for each of the three separate sections of the school: elementary, middle, and high school.

Tiny Oak Valley School in rural Nebraska shares its part-time principal (a former superintendent and a practicing lawyer) with several other small schools, making his time and expertise affordable. The shared principal costs the school $4,599, including benefits, or three percent of the budget in 2001-2002. Schools in the area more typically spend 10% of their budget for the principal, which suggests that Oak Valley School is saving between $15,000 and $50,000 annually.

BENEFITS OF NETWORKS

Several schools are allied with networks of schools with a similar vision, or affiliated with organizations that provide them with particular expertise. For example, Avalon Charter High School is allied with EdVisions and follows that group's model of teacher-owned and -operated schools. The Burlington Street campuses in Los Angeles are part of Camino Nuevo Charter Academy, a network of schools under the guidance of Pueblo Nuevo Development, a nonprofit community outreach effort.

In schools that are part of a consortium, the cost of expertise and support services for accounting, payroll, curriculum development, facilities purchase or leasing, renovation, and maintenance is shared within the network. For example, C.C. Blaney Elementary and R.D. Schroder Middle schools buy testing services, but not supervision, from the for-profit school management company Edison Schools, Inc. Although this costs rather than saves money at the outset, over time it will reduce outlay as people in the district assume responsibility for testing using the training they have received from Edison. Experts at Excellent Education Development helped Camino Nuevo Charter Academy find a site for its middle school that was affordable and also helped negotiate a contract for its renovation. For more information on education networks, visit the websites listed below.

The Big Picture Company: www.bigpicture.org
Edison Schools, Inc.: www.edisonschools.com
EdVisions: www.edvisions.com
Excellent Education, ExEd: www.exed.net
High Tech High Learning: www.hightechhigh.org
New Visions: www.newvisions.org
Pueblo Nuevo: www.pueblonuevo.org

PowerSchool

PowerSchool, a division of Apple, provides web-based student information systems (SIS) for small, medium, and large school districts. PowerSchool's products are flexible and comprehensive systems that allow districts to use demographic data and student performance factors to inform instruction, increase parental involvement, drive individual student achievement, and produce local, state, and federal reports. Through PowerSchool, administrators build a community of interaction and accountability, teachers gain timesaving administrative tools, parents gain immediate access to their children's grades, and students can track their own progress and take ownership in their education. PowerSchool has built a record of success in a range of districts, from public to private, rural to urban, and small to large. Four thousand schools and more than two million students use PowerSchool daily.

www.apple.com/education/powerschool

Sharing Staff

Some schools share staff other than administrators. For example, Camino Nuevo, a nonprofit organization in Los Angeles that runs a group of schools, uses two highly qualified and experienced staff members to test and evaluate scores for all its schools and to serve as faculty. C.C. Blaney Elementary and R.D. Schroder Middle schools share several staff members, including an assistant sheriff who is in charge of security. Many people at The Met in Providence also work for its sponsoring organization, The Big Picture Company. Laurel-Concord Public High School plans to increase the number of English teachers it shares with a smaller district.

Importing Teachers

Some schools in areas where it is hard to attract teachers recruit internationally. C.C. Blaney Elementary and R.D. Schroder Middle schools, for example, sent the superintendent to Jamaica to interview and hire teachers. These schools have also hired a teacher from New Zealand through a teacher-exchange program.

Accepting No Substitutes

A few schools – H.S. Truman High School and High Tech High in San Diego, CA, for example – choose not to hire substitutes to cover for absent teachers. Instead teachers work in teams and cover for each other.

Using Mentors and Tutors

MATCH in Boston hires tutors from local colleges to work individually with its ninth- and tenth-grade students. Students are required to spend 10 hours per week, in addition to the regular school day, working with tutors. Since tutors are paid with federal work-study money, the school provides only $1.75 of their $15 hourly wage. Not only is this arrangement good for MATCH students, but the colleges appreciate having meaningful work-study jobs for their students. Colleges also welcome this opportunity because they are now required to allocate a percentage of their federal work-study money to programs that benefit the local community. It is easier for small schools to find mentors and tutors for all or at least the majority of their students simply because fewer are needed.

Adjunct Faculty

TSOTA hires full-time teachers for core subjects, but uses adjunct faculty, much as colleges do, for classes in the arts. Hiring adjuncts allows TSOTA to attract practicing artists, dancers, and actors who prefer to teach part time and who are willing to do so for a per diem rate without benefits. The Visiting Artists program would not be possible without adjunct faculty who help TSOTA increase its offerings cost-effectively.

Using Volunteers

Interdistrict Downtown School in Minneapolis has almost as many volunteers as students. Volunteer help reduces the load on teachers and makes the school a more attractive place to work. Successful programs such as those in place at IDDS, The Met, Avalon Charter High School, The STAR School, Laurel-Concord Public School, Camino Nuevo Charter Academy, and WOO rely on community and parent volunteers and some invest in a paid volunteer coordinator. This liaison at Camino Nuevo Charter Academy in Los Angeles coordinates parent volunteers, each of whom signs an agreement stating that his or her family will give 15 hours of work per year to the school.

Parent volunteers at Camino Nuevo Charter Academy assist in a variety of tasks, including helping to supervise playgrounds and streets around the school, answering phones, translating, maintaining an information line, and greeting visitors.

The coordinator at IDDS helped bring more than 500 volunteers into the school, many of them on a daily or weekly basis. In addition, she organized an "e-mentor" program in which students and mentors communicate regularly by e-mail. Some of the gains, such as improvement in reading scores, are measurable, while others are immeasurable. Students see that people in the community care about them and their futures, and teachers have many extra hands and eyes to help students learn.[8]

Laurel-Concord Public School initiated a small program that matches people from the community with students in particular need of an older buddy. This informal advisory program became so successful that the school implemented an advisory program based on the TEAMMATE concept developed by University of Nebraska football coach Tom Osborne in which athletes tutor in local grammar schools.[9]

"The coordinator at IDDS helped bring more than 500 volunteers into the school, many of them on a daily or weekly basis."

Multiple Credentials

Many small schools hire people who have multiple credentials, which is less expensive than hiring separate people to cover the same areas. For example, the lead teacher for the seventh and eighth grades at The STAR School is also an experienced special needs teacher and wrestling coach. Teachers at H.S. Truman High School, by contrast, have a state waiver to cover a wider range of subjects without multiple credentials. Teachers of core subjects at High Tech High are credentialed for either math and science or humanities (English/language arts and social studies). This lets a team of two teachers work closely with as many as 50 students.

[8] Because the school thinks this position is so important, in 2004 IDDS created three new part-time positions as Learning Partnership Coordinator (LPC). LPC teachers are relieved from some teaching duties in order to coordinate partnerships between the school and the community.

[9] To find out more about this mentoring program, see: www.teammates.org.

Hiring Young, First-Time Teachers

Some schools hire young teachers, not only because they can be trained in the principles and philosophy of the school but also because their salaries are lower. Camino Nuevo Charter Academy, for example, hires staff from Teach for America, which gives them significant support through summer camps and mentoring. While it was not a strategy Camino Nuevo implemented to save money, *Dollars & Sense* estimates the school may have saved about $100,000 by hiring first-time teachers. (Estimated by comparing salaries for first-time teachers at Camino Nuevo with salaries for tenured teachers in the LA Unified School District.)

Hiring Retirees and Career Changers

Some schools hire people who have retired or who want to change careers. These people may not, at least initially, have teaching credentials, but some states offer a grace period before requiring the appropriate licensing. Retirees and people who had careers in other fields bring experience and expertise they can share with students. They add richness and diversity to a school curriculum and can also fill part-time and unexpected vacancies. Sometimes they are willing to work as volunteers. World of Opportunity (WOO) in Birmingham, AL, for example, relies on a teacher with superb credentials who used to work for the county. High Tech High has created its own accredited teacher education program that allows young or mid-career teachers to earn their California teaching credential for free within a two-year period through an after-school program.

Project- and Internship-based Curriculum

Schools that have a project- or internship-based program augment their teaching staff (and not their facilities) by giving students the opportunity to work outside the school. The regional director of outreach at High Tech High develops connections with the business community. Through these connections, businesses serve not only as sponsors, but also as sites for student internships. Other schools, including Avalon Charter High School, H.S. Truman School, and The Met, also carefully match their students with workplaces. Advisors play an ongoing role in monitoring students' progress and helping them integrate and reflect on their work experiences in an academic context. One outcome of these innovative

programs is that students have a chance to work with a variety of people in interesting fields. Sending students out to internships and for work on projects is not an easy way to avoid responsibility for educating them. Well-designed programs can truly benefit students, but creating and maintaining such programs take dedication, hard work, and a lot of time.

This strategy may work most easily for a small school because larger schools may find it difficult to locate enough placements near the school. Internships located too far away from the school might require that students and teachers make long trips, which are time-consuming and expensive.

"Small schools, precisely because of their size, are well positioned to use strategic, cost-saving approaches."

Other Incentives

Schools can allocate resources to retain good teachers, a strategy that can prove less expensive than hiring and training new people. Laurel-Concord Public School gives teachers bonuses for extra work, and a local businessman set up a fund to reward teachers for special effort. Laurel-Concord Public School pays its teachers well, which may account for its low teacher-turnover rate. In nine years, only seven teachers have been hired, four to replace teachers who retired. Laurel-Concord Public School also allows teachers to exchange health insurance benefits for payouts if they elect to take coverage through a spouse's health plan. Teachers at Laurel-Concord Public School can get money for taking classes and a bonus if they agree to mentor other teachers. After studying the feasibility, MATCH created a dormitory-like space on its vacant third floor to house recent graduates from college. The school advertised for full-time tutors and received more than two hundred applications for 45 positions. Tutors receive $600 per month plus room and board in exchange for working every day with the same MATCH student.

Educational Program

Every school makes decisions, in addition to staffing choices, about how to teach and support learning. These choices have an impact on how much it costs to run the school. Small schools, precisely because of their size, are well positioned to use strategic, cost-saving approaches.

Focused Mission

No school can be all things to all people. Although some may see it as a weakness, a focused mission is really a source of strength. Small schools can offer depth in fields of study and in methods of teaching (D&SI, pp. 8-10, 17). A focused mission means not doing some things, and avoiding the expenditures that these activities would require. Many of the schools in this study, for example, have chosen not to provide athletics, food service, or transportation for students and allocated money saved to strengthening the academic program.

Attracting Students

A school's mission can attract students, along with the revenue that accompanies them. C.C. Blaney Elementary School, for example, is creating a program based in the arts and hopes to evolve into a magnet school for students who live within its district but outside the immediate area. Because Charleston allows students to attend any school in the district, the school may increase its funding by adding the per-pupil allocation that follows students who attend from outside the immediate area. Conversely, schools that focus on children in their own neighborhoods reduce the time and money spent transporting them and give their relatives and members of the community easier access to the school.

Course Cycles

Limiting the grade range of a school and structuring the course cycles accordingly can reduce expenses. TSOTA decided not to serve ninth-grade students because its classrooms are scattered throughout downtown Tacoma. Because TSOTA was concerned that ninth-grade students might not handle well the responsibility of attending class in widely scattered locations, the school decided to enroll only students in grades 10-12. The school looks for students who are relatively mature and have developed a passion, although not necessarily a remarkable talent, for the arts. Because the school does not serve ninth-grade students, administrators and teachers offer classes in a three-year cycle. This means that students from the three high school grades take classes together. A junior could take the same courses as a sophomore or senior. Students say that they like this arrangement because they learn from the older students, and older students learn from helping younger ones. This system reduces preparation time for teachers and simplifies scheduling. It also reduces the need to have teachers from as many different disciplines. The social studies teacher, for example, teaches courses that repeat every three years as well as electives.

Ordering Supplies

Supplies are expensive, particularly if they are wasted. In small autonomous schools, teachers can order only what they plan to use in their classrooms. At larger schools using a central ordering system, some supplies are never used because they don't suit the purposes or preference of individual teachers. In contrast, at Oak Valley School the three teachers participate in deciding what to purchase, and the school buys supplies a year ahead. Students help save money on paper by using their desktops and erasable markers for solving math problems. TSOTA is frugal about supplies and saves money by having students share whenever possible. WOO provides materials such as paper, pens, and pencils to students who can't afford them, and students understand they must use all supplies carefully.

Services

Services such as transportation, food, athletics, and health care are essential to students, and are expensive. Both small and large schools can increase cost efficiency by offering these services through partnerships in the community. The schools in this study demonstrate great creativity in providing and, in some cases, expanding services, while at the same time containing costs.

Transportation

Busing can be an enormous financial burden on a school or school system. The cost of buses, gas, oil, maintenance, garages, drivers, and parking has made some small schools decide against providing transportation (D&SI, pp. 13-14). At Oak Valley School, parents not only drive their children to and from school – often in carpools – but also provide transportation for field trips. Flagstaff Arts and Leadership Academy (FALA) in Arizona has taken the same approach, and parents or older students drive to school. Several schools give parents a transportation stipend for driving their children to school, so the schools spend less than they would offering a traditional transportation program.

The location of the school can minimize transportation issues. Truman is located by a new transportation center (the nexus for a variety of transit routes in Federal Way) which helps facilitate the transportation of students to and from their learning internships. MATCH has easy access to Boston's public transportation system. The city offers a reduced-cost pass to students, which MATCH supplements when necessary. TSOTA relies on passes for students so they can use public transportation, and they can earn physical education credit by walking to and from classes located in facilities throughout the downtown area.

Saving on Transportation

As noted in *Dollars & Sense* (pps. 14-15), the cost of transporting public school students doubled between 1970-1971 and 1995-1996 to nearly $10.4 billion. The National Center for Education Statistics reports that in 1999-2000 the average per-pupil cost for transportation was $521. Many of the schools in this report spent well below that figure in 2003-2004.

www.ncela.gwu.edu/pubs/seareports/95-96/2enroll.htm

Bronx Small Schools spent on average between $5.45 and $18.64 per year per student.

IDDS spent $35,000 or $72.10 per student.

H.S. Truman High School spent $21,734 or $109 per student.

TSOTA spent $94,500 or $270 per student, based on monthly passes for 10 months at $27 per month per student.

Laurel-Concord Public School spent $134,886 or $314 per student.

The STAR School spent $27,125 or $502 per student, because it is a rural school and most students travel more than an hour to and from school.

The Met spent a total of $100,000 for transportation, including the cost of taking students to internships. The average cost is $228.31 for 438 students.

Food Service

Some schools provide food options, not food service because full food service, with cafeterias and kitchens, is expensive. Schools that eliminate food service avoid the costs of kitchen space and equipment, cooks, kitchen aides, food, storage, utensils and plates, and a separate cafeteria. Many of the schools in this study found creative options for feeding their students.

- Avalon Charter High School has a small kitchen where students can heat water and use a microwave. Students at all three schools in the building can buy lunch and snacks at the food court located in the basement.
- At FALA and High Tech High, students buy meals from private vendors who pull up at lunchtime. Camino Nuevo Charter Academy contracts food service to a catering company that brings meals to the schools.
- High Tech High decided not to have on-site food because it didn't want to give up any of the 40,000 square feet in its building to non-academic purposes. Instead, it has contracted with two local food sellers who set up booths on site. A separately operated mobile food seller (the "roach coach") also comes to the school.
- The Met uses a slightly different approach. There are small warming kitchens in each of the four separate schools, but food is prepared in a centralized kitchen and distributed, with the help of students, to the small schools. The Met spends $330,000 a year on food service.
- Schools in warm-weather cities such as San Diego and Los Angeles can afford not to have an inside cafeteria. High Tech High, for instance, relies on tables under umbrellas in a courtyard and benches in the open air. FALA has no inside cafeteria, but students eat in the open space between the classrooms, or inside the classrooms on inclement days.

Elementary schools, particularly those that serve a needy population, believe that offering students at least one good meal a day is an essential part of their mission. Camino Nuevo Charter Academy serves meals prepared by a catering service in the cafeteria in the middle school and a covered cafeteria in the elementary school. The STAR School has a spacious and handsome kitchen that opens into a dining area with large windows, revealing a view of the mountains surrounding the school. Two parents work full time running the kitchen. The STAR School spent about $538 per pupil on food for 54 students in 2003-2004. Other schools have opened their cafeterias to senior citizens and use their kitchens to train students in food service.

Athletics

Providing athletics is particularly challenging for small schools. Communities committed to competitive sports often don't want to reduce school size because it limits the pool of athletes for competition. Sometimes, state and district policies prevent a small school from offering athletics because requirements are too onerous. Some small schools choose not to offer sports because they want to focus on academics. Many schools omit athletics to avoid the expense of coaches, fields, equipment, gyms, uniforms, and transportation to and from competitions, as well as liability in case of accidents. Whatever the reason, the result is that students don't have easy access to exercise or the ability to develop physical skills.

"Some small schools offer less expensive alternatives to team sports, such as aerobics, dance, kick-boxing, and yoga."

There are ways to pare down the expenses of athletics. Some small schools offer less expensive alternatives to team sports, such as aerobics, dance, kick-boxing, and yoga. Schools may also choose to eliminate some of the spaces for athletics that, after appropriate study, seem unnecessary. For instance, Todd Beamer High School chose not to build separate varsity locker rooms. Rather than spend money on an amenity serving a few varsity athletes, the district decided to allocate funds to the academic program.

Other schools have forged partnerships with organizations that provide athletic programs.

- IDDS has formed a particularly good relationship with the YMCA, and staff from the Y lead a variety of sports activities and an after-school program for students of all ages.
- H.S. Truman High School does not offer an athletic program, but students use the facilities at a nearby park and the Boys and Girls Clubs.

- Students at C.C. Blaney Elementary and R.D. Schroder Middle schools use the playgrounds and fields located between the two schools that were built by the Charleston County Parks and Recreation Department on land given by the school district. The Parks and Recreation Department and the schools share the cost of maintenance and the salary for the athletic director.

The STAR School takes advantage of its land and climate. The school built an outside half court for volleyball and basketball, constructed a straw bale building for wrestling, and laid out a cross-country trail. The STAR School offers competitive teams in wrestling, basketball, volleyball, and cross-country running. All children are involved in one or more sports, and the school's teams have competed with great success in their league.

One school, Laurel-Concord Public School, has discovered a way to make athletic programs help pay for themselves. (See discussion of "selling memberships" on page 14.)

Health Care

Providing in-house health care can be expensive, and small schools find it difficult to have a full-time nurse on staff. Some schools, such as C.C. Blaney Elementary and R.D. Schroder Middle schools, are located near enough to each other to share a nurse. Other schools, such as MATCH, have decided that if a student feels ill, he or she, with parental permission, will go home in a cab. In an emergency, a teacher will take a student to a nearby hospital or call an ambulance. By not having a nurse on staff, MATCH saves between $25,000 and $50,000 a year. Instead of health courses previously offered by a school nurse, MATCH instituted a weekly seminar on health care and illness prevention taught by medical interns and nonprofit health agencies. The Met and Camino Nuevo Charter Academy each have a clinic within their facility that is open to the school community. The clinic in Camino Nuevo serves about four thousand people annually. Though this clinic does not save the school money, it does help keep students healthy, which increases the school's average daily attendance figures – important for reimbursement and fulfilling state and federal requirements.

Sources of Funding

Many of the schools in the study raise funds from sources other than state and local fund allocations. As costs increase, this strategy becomes even more important.[10]

Renting Space

Some researchers estimate that a school facility is used less than 30% of the time.[11] Late afternoons and evenings, weekends, and vacations are all times when the facility could be open to appropriate users. MATCH rents out space to a church group for $17,000 per year. MATCH also rents space on top of its three-story building for a T-Mobile cell telephone tower – a deal that brings in $24,000 annually.

"Many of the schools in the study raise funds from sources other than state and local fund allocations."

At Laurel-Concord Public School, when the local education foundation built a new football field and track for the school, board members suggested including four elevated boxes that could be rented for parties. Each of the boxes, which holds 20 to 24 people, now rents for between $250 and $450 an event, which includes student catering of pizzas and other light refreshments. This activity can bring in up to $900 per night, and yearly revenue is about $20,000.

Business Located in Schools

For two years, MATCH housed a student-run cell phone franchise in its first-floor storefront. The school earned $20,000 for a fund that was usually used to help its students with college tuition. The store has since closed because of the glut in the cell phone market, but the school has solicited students' ideas for a new retail enterprise.

Club SOTA at the Tacoma School of the Arts serves non-alcoholic beverages and music to students and members of the community, but it does so without charge to increase its involvement with the community and give students a venue for performing. Nevertheless, it would be feasible for other small schools to adopt this strategy as a money-making proposition.

[10] For more examples of partnerships, see Nathan, J. & Febey, K., 2001, and Lawrence, B.K., 2004.

[11] Lyons, J.B., personal communication, June 2002.

Trading Spaces

From 2001 until 2003, TSOTA paid a total of $27,000 to use space at the University of Washington. Now, though, the university trades space rather than renting it, exchanging it for use of TSOTA's sculpture studio. FALA swaps space with the Museum of Northern Arizona. In the summer, the Museum uses FALA's photography lab, four classrooms for its art and dance programs, and two other classrooms for tribal art. In exchange, the school can use the museum's meeting hall, the gardens, and the darkroom without charge. IDDS trades space at the YMCA and YWCA for space in the school in which the Y's hold computer classes.

Building Shared Space

With help from the city, Laurel-Concord Public School built its library and fitness and computer centers with the understanding that city residents could use the facility. C.C. Blaney Elementary and R.D. Schroder Middle schools built the playground and athletic fields with help from the parks department, and students and community members use the facilities.

"With help from the city, Laurel-Concord Public School built its library and fitness and computer centers with the understanding that city residents could use the facility."

Selling Memberships

During the day, community residents can use the fitness center at Laurel-Concord Public School for free. The school sells memberships for after-hours and weekend use. At these times, members enter the well-appointed club using their personal credit card, which is keyed with an individual electronic code. In 2004, 160 families paid $10 per month to use the club, and fitness center memberships typically raise $15,000 to $20,000 per year.

Renting Computers

Laurel-Concord Public School uses PowerSchool, a web-based student information system (see box on page 8). Parents and students with access to a computer can check important school-related information – everything from lunch menus to a student's exam score. Many families in this rural area did not have computers so the board and superintendent turned that problem into an opportunity. Like many schools, Laurel-Concord Public School receives donated computers, but these older machines are hard to maintain and upgrade, and operating the same software programs on so many different machines is almost impossible. Laurel-Concord students recondition the donated computers, and the school rents them at $15 per month to parents and students. This computer rental system raised approximately $100,000 between 1992 and 2004, income sufficient to purchase all the software the school needs.

Grants

Many schools search for grants to supplement tax dollars and other sources of income. WOO's finance committee has recruited and trained board members, staff, and students to help research and write grants, conduct site tours of the facility, and request donations from potential donors. This effort has produced more than $80,000 in direct funding and grants. In 2004, The STAR School received a grant of $220,000 for a well so that it will no longer have to buy water. That year it also received an $85,000 grant to purchase solar panels, which will double the school's capacity to produce electricity. Both were emergency grants from the federal Impact Aid Discretionary Fund. IDDS received a grant of $50,000 from the State of Minnesota Department of Energy for a demonstration project in solar energy, and MATCH received a Green Schools grant of $400,000 from the Massachusetts Technology Cooperative that made it possible to install passive solar panels.

Donations

As private schools already know well, alumni are a good source of donations. The four small schools within a school at Morris High School in the Bronx have received help from Colin Powell, the most famous graduate of Morris High School, and Caroline Kennedy Schlossberg has adopted the new small schools and worked on their behalf – both making a donation and helping the schools raise funds. Corporations, philanthropies, and businesses that either support the academic focus or are located in the neighborhood are also potential donors. The Miller Wire Works, Inc. in Birmingham leases space to WOO but also supports it with a monthly donation. Hewlett-Packard contributed 25 laptops to MATCH, and Atamai in Cambridge, MA, gave MATCH a donation of $100,000 to support the math program, to be used for professional and curriculum development. Laurel-Concord Public School has a "Giving Tree" sculpture in the front hall honoring donors to the Community Learning Center, and High Tech High displays a "donor tree" to honor residents and businesses in the community that have contributed to

the school. Several schools, including tiny Oak Valley School and WOO, raise money through their own non-profit 501(c)(3) corporations. WOO receives contributions annually from approximately 116 community donors totaling more than $80,000.

Financial Benefits of Good Relationships with the Community

Because the local constituent board for C.C. Blaney Elementary and R.D. Schroder Middle schools has developed close relationships with local businesses and government agencies, it has been able to develop strategies that save taxpayers money and improve the quality of life for students, teachers, and members of the community. It has helped forge partnerships between the schools and the Charleston County Parks and Recreation Department to build, operate, and staff athletic facilities. Similarly, it has fostered a partnership between the schools and the town to build sidewalks and a sewer system to serve the school. Much of this work would have been impossible without good working relationships between local board members and the larger district.

Many schools have discovered the benefits of involving the community and allowing local residents to use the school facility regularly (D&SI, pp. 15-17). Laurel-Concord, for example, found that the community supported a tax override in a year when other school districts were not as well funded by their communities. The school credits the community's support to two things: first, the work of an intermediary hired to work with the community after a previous attempt failed; second, the goodwill built through residents' regular use of the school library, computer center, and fitness center. This strategy works because residents – even those without children – become attached to the school and want to support it financially.

Sharing Space

Some schools rent space in their facilities, while others offer space as a community service. Laurel-Concord Public School is open seven days a week so the community can use the school. Half of one staff person's time goes to scheduling community events in the school, and the community pays half of her salary. Every day, five or six groups meet at the school well into the evening. The Met is also generous in welcoming community use of its facility because it believes this fosters strong relationships that serve the school and its students in a variety of ways, some of which save money.

Creativity Pays

Laurel-Concord Public School has employed a variety of creative financing strategies to raise money. After a restaurant across the street from the school closed its doors, the site was vacant for many years. The school approached the bank holding the mortgage and asked whether, if the assessed value were high enough, the bank would donate the building to the school for a tax deduction. The bank agreed, so people from the school cleaned up the building and found a buyer – a business person who agreed to pay $55,000 over 30 years so he could convert the building into a hardware store. This arrangement provides income to the school and manageable cash flow for the storeowner, and at the same time has contributed to the sustainability of the community.

To fund its library and learning center, Laurel-Concord attracted donations from a variety of sources. Over five years, the city paid $100,000, an education foundation contributed $100,000, and the school paid $175,000. In addition, the school received a distance-learning grant for fiber optics and a conference room. The person in charge of the distance-learning program works half time for the school and half time for Wayne State University.

Recruiting Students

Schools in states and districts that allow parents to select a public school have found ways to attract students and the per-pupil allocation that comes with them. Nebraska allows parents to send their children to any school in the state, and Oak Valley School now draws 22 of its 30 students from outside its immediate area. FALA spent $2,000 on a brochure to tell parents and prospective students about its programs. This effort helped attract 36 new students, who brought $225,000 in additional income. C.C. Blaney Elementary School in lowland South Carolina is working to draw students from its large district of Charleston by becoming an arts magnet school, using the mission itself to attract students. Avalon Charter High School sends representatives to local church meetings, the Saint Paul School Fair, and some local middle schools to recruit. The STAR School encourages its families to recruit new students. TSOTA has teams that include students, teachers, parents, and school administrators to interview prospective students and be sure that the school is a good match for them, saving money by preventing attrition.

Federal Funding

Although the federal government provides only a small percentage of the money for public schools, this funding can be enormously beneficial to schools that receive it. The paperwork may be daunting, but the rewards are great.

Title I

C.C. Blaney Elementary and R.D. Schroder Middle schools receive $575,330 in Title I funds per year. More than 98% of families with children at C.C. Blaney Elementary School are eligible because they received free or reduced-cost lunch. Ninety-five percent of families with children at R.D. Schroder Middle School, which draws from a larger area, are eligible. The elementary school uses its Title I money for a program based in the arts that has changed how the school looks and works, the way teachers teach and kids learn, and the way its students measure themselves and their possibilities.

"Students at MATCH appreciate the tutoring they receive because it is vital to their success in the rigorous courses at MATCH."

Impact Aid

Schools that serve children from military bases or Native American reservations are eligible for Impact Aid. The STAR School received $196,360 in 2003-2004 because 85% of its students are Navajo. This funding, in addition to the per-pupil allocation from the state and grants the school has won, help make the school viable.

Work Study

MATCH can afford to have tutors who spend 10 hours a week working with each of its ninth- and tenth-graders because the federal Work Study program pays most of their salaries, a contribution worth $405,000 a year. Work-study students at Boston's 66 colleges are delighted to earn money by helping younger students rather than doing clerical work. Their colleges and universities are pleased because federal law now requires that receiving institutions spend a percentage of their work-study money on outreach to their neighborhoods. Students at MATCH appreciate the tutoring they receive because it is vital to their success in the rigorous courses at MATCH.

Emergency Repairs and Renovations

This federal program didn't last long, but it was a real opportunity for schools on the alert for facilities funding. FALA received a $94,000 grant that allowed the school to build a wide deck that connects all its modular buildings. The deck gave the modular units a sense of permanence and presence, and also provided space for people to study, eat, and socialize.

Qualified Zone Academy Bonds

The Qualified Zone Academy Bonds (QZAB) program made $400 million available annually in credits to lending institutions for offering no-interest bonds to schools for facilities projects. MATCH used a zero-interest QZAB of $2 million to help fund the purchase of its building. The program was re-authorized for 2004-2005. MATCH's QZAB funding demonstrates that it is wise to be alert for new federal programs. The application process may be onerous and the chances of success may seem small, but schools that receive funds from federal programs such as QZAB can benefit substantially. (See: www.qzab.org)

Carl D. Perkins Vocational and Technical Education Grants

These grants support vocational education and training. Funds may be used for equipment, curriculum materials, staff development, and other purposes relating to vocational education and training. For more information, see: www.ed.gov/offices/OVAE/CTE/perkins.html. The Met received a Perkins grant of $189,000.

New Market Tax Credit

The New Market Tax Credit Program gives taxpayers a credit against their federal income tax for investing in qualified Community Development Entities (CDEs). The CDE must invest the equity in projects that benefit low-income communities. Camino Nuevo Charter Academy secured a New Market Tax Credit of $900,000 through its parent organization, Pueblo Nuevo, to help finance the renovation of its facilities. After one year, Pueblo Nuevo refinanced the loan and now estimates that it pays $750 per student annually in debt service. For more information on this program, see: www.cdfifund.gov/programs and www.nationaltrust.org/community_partners.

State Programs

Some states offer programs that can help enterprising schools. For example, Arizona offers an innovative tax credit of up to $250 for married couples, which allows taxpayers to deduct that amount from their personal taxes

for contributions made to public schools. The money goes directly to the schools, and the credit is available to any state resident, regardless of whether he or she has a child in the public schools. Schools often use the money to support extracurricular activities and field trips that might not otherwise be possible. Taxpayers simply write a check to the school and can even specify the program or activity they want to support. FALA in Flagstaff and The STAR School located in a rural area outside the city encourage parents to donate $250 to the school for field trips and extracurricular activities. Because the amount of the donation is deducted from the amount taxpayers owe, it directly benefits both them and the schools. In 2003, these donations resulted in a contribution of $26,000 to FALA and about $2,000 to The STAR School. For more about this program see: www.flagstaff.k12.az.us

"Too often, large schools are built in isolation outside the communities they serve."

Facilities Design and Construction

School facilities require enormous investment on the part of districts and taxpayers. The perception that large schools are necessary for cost effectiveness is one of the most deeply held misconceptions about small schools. Together these two realities pressure communities to build large school facilities (D&SI, pp. 3-4). Providing facilities is a particularly daunting challenge for people who want to start new small schools in states that give them no funding for facilities and where policy promotes large schools. Nevertheless, the successful small schools in this study have found a variety of ways to work within these constraints. These schools offer innovative strategies for securing sites and then renovating, building, and maintaining their facilities.

Site Selection

The site is usually one of the most expensive items in a school's facilities budget, and obviously one of the most important. Access to roads, public transportation, and utilities is crucial, and building connections to those services is expensive. Proximity to local community resources, both public and private, also is important. Too often, large schools are built in isolation outside the communities they serve. This isolation can make large schools more expensive to build, operate, and maintain than they need to be and make it very difficult for the school to serve students or the community effectively.[12]

Smaller School Sites

Besides the enormous cost of large sites, there are many good reasons to locate schools on small, in-town lots. Until recently, however, most districts assumed that they needed a large site to accommodate a new school. State policy promoted large sites and often followed guidelines about size offered by the Council of Educational Facilities Planners International (CEFPI). In 2004, these guidelines were revised substantially to be more flexible. (See box, page 18.)

Schools are powerful agents of sprawl, and several states are reconsidering the implications of large sites for schools: the cost of infrastructure to serve such sites, the decimation of open and natural land, and the costs of transporting students long distances. Such states have begun to change their requirements about school site size (D&SI p. 6).[13]

Several of the schools in this study stand on relatively small to very small lots. Todd Beamer High School, with a capacity of more than 1,500 students, is located on 38 acres; C.C. Blaney Elementary and R.D. Schroder Middle schools occupy 31 acres, including the common recreation facility the schools share with the community. The Met site includes four separate schools on approximately eight acres, each housing no more than 120 students. The site also houses amenities such as the fitness center, performance center, TV studio, recording studio, health/medical/dental center, and commercial kitchen, that also serve the two other Met schools located on a separate campus nearby. Bronx Small Schools at Morris High occupy 1.38 acres. High Tech High has 1.35 acres; Avalon Charter High School shares its site of one acre with two other charter schools; and IDDS has one acre. MATCH has no land at all, and the building is 10,000 square feet on each of three levels.

[12] For more information on the issue of sprawl and schools, see "Schools for Successful Communities: An Element of Smart Growth," Council of Educational Facility Planners International and the U.S. Environmental Protection Agency, September 2004. See also: Beaumont, C. & Pianca, E., *Historic Neighborhoods in the Age of Sprawl: Why Johnny Can't Walk to School*, November 2000.

[13] CEPFI & US EPA, September 2004, pp. 27-29.

SITE SIZES – New guidelines

The Council of Educational Facility Planners International (CEPFI) recommended specific site sizes in its 1953 guidelines that remained in place until the organization revised them in 2004.

The old guidelines suggested a minimum of 10 acres for elementary schools, 20 acres for middle schools, and 30 acres for high schools, plus one additional acre per 100 students. Many state policies still reflect these recommendations. For a review of state policy on acreage requirements for schools facilities see: www.cefpi.org/pdf/state_guidelines.pdf.

In its new guide, CEFPI suggests a more open and site-specific approach: "The site must be large enough to support current and future educational programs. … [The traditional] rule of thumb does not take into consideration variations in educational program or the difficulties of obtaining sizeable tracts of land in densely populated areas."[14]

How can schools function on such small lots? The schools in this study use a variety of strategies, from forming partnerships with diverse organizations, to sharing facilities and functions. They also require that every element of the facility serve multiple functions:

- Todd Beamer High School – the athletic field is located right next to the school, not at a distance as is the more common practice.
- IDDS and MATCH – use space in partner institutions.
- H.S. Truman High School – uses space in Boys and Girls Clubs and an adjacent park.

The four small schools in the Bronx occupy most of the former Morris High School, which was built on a small urban site in the early 1900's. The schools will eventually share the entire space when the large high school is phased out. Students in all of the schools share the gyms, fields, two cafeterias, and a theater. Though in some ways they are forced to function as one large school, the small schools seem remarkably adept at sharing the space amicably and retaining their individual identities.

On the Met's eight-acre campus, the four buildings, one for each of the four schools, are separated, but the schools share a kitchen, an athletic field and a well-equipped athletic facility that includes a climbing wall and basketball court. Each of the schools has a warming kitchen and a large space that serves as a cafeteria as well as the place for meetings, presentations, studying, and socializing.

Donated Sites

Donated land can save money, but school boards must carefully consider gifts of land. Often the expense of bringing infrastructure to the site erases any savings from "free" land. This is particularly true when a developer donates land near his or her new residential community and hopes to benefit from services brought to the site by taxpayers.

Donations can take a variety of forms. The founders of The STAR School, for example, literally mortgaged their ranch to buy 40 acres for the school and to develop the site. The school leases the site and buildings from the founders. Oak Valley School sits on land donated for its use when the school was first built. If the school ever closes, this land will revert to the owners of the surrounding land. This same strategy would work for other groups hoping to start a school.

Schools may be able to buy land below market rate with the excess value credited to the seller as a tax deduction, as Laurel-Concord did when it received donated property from the local bank that had foreclosed on the previous owner.

Design and Construction

Some states and school districts promote the use of a pre-approved architectural plan sometimes referred to as a "cookie cutter" as a way to lower design and construction costs. This approach may not actually save money, however, and certainly won't result in a building that maximizes its site or reflects the history and culture of its neighborhood. Using the same design again and again probably doesn't save money for several reasons. Adjusting the land to the design is usually more expensive than designing a building that fits the contours of the site and maximizes natural light and cooling breezes. A creative and attentive architect can design a school that is less expensive to build, operate, and maintain than a school patterned on a generic design. A good architect will listen to the people who will be using the building so

[14] CEFPI and US EPA, September 2004, pp. 7-19,10.

the facility also reflects their needs, preferences, local culture, and history. An architect who understands the school and the community will be able to suggest cost efficiencies that do not compromise good design.

The architects of H.S. Truman High School held focus groups with students and learned that many of them lived in dark, cramped apartments and craved space and light. The architects incorporated the students' desires for space and light into their plan. By choosing unfinished plywood as the final ceiling cover and omitting expensive window trims, they saved money that they then put into soaring ceilings and large, light-filled rooms. The floors are concrete, which is easy to install and maintain; a barn door announces passage from each school's common area into its more intimate learning spaces; garage doors open the building to its surroundings. Light streams through clerestory windows, and exposed heating and ventilation systems work effectively and inexpensively. No school facility based on a template could serve the needs of the school and students so well, and few could have been built so cost-effectively.

"In addition to saving money, the use of smaller contractors offers opportunities to local, minority, or female companies."

Other schools and their architects have used similar inventiveness to save money and create workable spaces in aesthetically pleasing schools:

- The architect used cost-effective materials and made spaces flexible at Avalon Charter High School.
- The architects of Todd Beamer High School designed a facility that can serve multiple purposes and scenarios.
- The parents and teachers at STAR School covered the exterior walls of its modular units with a stucco-like substance to make them look as if they were built for the site.
- The architect for MATCH used as much as possible of the existing structure and detail of the former car dealership that was renovated to house the school.

Free Design

Some schools have found architects who are willing to donate their time and expertise. TSOTA found an architect to donate time, and FALA plans to use a retired architect who lives in the senior community with which the school shares the site.

Construction Bidding

The bidding process may be more competitive and result in cost savings for smaller schools, because relatively few contractors are bonded for or willing to take on big projects. Sometimes policies and regulations limit the ability of small contractors to compete in local school construction projects, but more contractors are able to compete for smaller building projects.

In addition to saving money, the use of smaller contractors offers opportunities to local, minority, or female companies. The Met, for example, is proud that 42% of its contractors were minority or female. Constructing a school is an opportunity to invest in a community, but large projects usually must use not only labor but also materials from outside the area, often at greater cost.[15]

Renovation

Some state policies make it more difficult to renovate a building than to build a new one.[16] (D&SI, pp. 5-6) In fact, though, building infrastructure to serve a new location is expensive, as is hauling the debris from a demolished school to a landfill. Using existing buildings, on the other hand, saves materials and preserves the culture and history of the area. Often older schools, constructed at the turn of the 20th century, were built better than those that were built later to serve what was expected to be a bubble in school population. Architects familiar with renovation can evaluate a building to determine whether it is feasible to renovate it to serve 21st century needs.

Buildings that never served as schools can also be adapted, and structural elements can be incorporated into the new school design. The entrance hall, metal staircase, and Corinthian columns at MATCH, for example, are architectural elements that no one would include now because to do so would be prohibitively expensive. These features give the space in this 1917 building that was once a dealership for luxury cars an enviable elegance and a sense of the past.

[15] For more information about the ways in which a school construction project can benefit its community see: Weiss, J. 2004.

[16] Beaumont, C. & Pianca, E., 2000.

The buildings that serve the Burlington Street sites at Camino Nuevo Charter Academy were once a mini-mall and a warehouse. It was more cost effective to remodel them than to build a new school. Existing spaces, such as the open courtyard at the elementary school, provided design opportunities that would have been unlikely in a new space. The middle school facility, the former warehouse, features an interior atrium with walls that lean slightly in, creating the feeling of a small village. This enclosed courtyard, like a village plaza, serves as a hallway and a gathering place for students, parents, and teachers.

The High Tech High facility seems ideal for the school, and it is hard to believe that it was actually designed to be a naval training and storage area. The school wanted a facility that looked like the offices of a successful business yet could serve the school's needs. The architect kept as much of the original structure as possible, saving ribbon windows that run high along the walls and brighten an expansive entrance hall leading to the "great room."

"Many of these schools would not have been able to find a facility if they hadn't initially leased space."

Laurel-Concord Public School maximized space while minimizing expenses. The addition for the library and computer center was funded through partnerships with the town and a local education foundation. The old library became a second media center, and the space between two wings of the school was enclosed to create a fitness center. Although the facility reflects a number of styles from different periods and can be confusing to people unfamiliar with its layout, it serves its constituency well and has been adapted to meet changing needs. In 1978, shortly after construction, the open plan in the elementary wing was modified slightly to reduce noise. It may, however, be one of the few school facilities that still functions as an open school in the way its designers intended.

TSOTA renovated two buildings, one for visual arts, the other for performances. The first was built in 1906, the second in 1908. Both offered a historic context that could be enhanced to support the TSOTA program.

Additions

Building an addition onto an existing facility can be a cost-effective way to add space. Both C.C. Blaney Elementary and R.D. Schroder Middle schools needed a larger facility. The site permitted construction of an addition that was much cheaper than relocating the schools. Laurel-Concord Public School has expanded by constructing walls that join wings. At Oak Valley School, parents constructed two additions at minimal cost. The first addition provided bathrooms and locker space, and the second added another classroom and computer room. Parents also built a small playhouse for students. Students and teachers at WOO built a roof that joins the leased building to a trailer, which houses additional classroom space and the school's library.

Leasing

Leasing space can be a cost-effective alternative to buying or building. WOO leases space inexpensively from Miller Wire Works, Inc., its supportive neighbor and landlord that assists the school and welcomes its impact in diminishing crime in the area. Avalon Charter High School leases space and kept renovations to $8.47 per square foot, in part because it does not own the improvements. FALA leases some of its buildings and has kept improvements to a minimum.

TSOTA leases spaces in two facilities with five-year options to buy, which helps to protect its investment in the buildings and gives time to raise funds. MATCH leased space before it was able to buy a building and used the time to define its program and needs before investing in a facility. Many of these schools would not have been able to find a facility if they hadn't initially leased space.

Adapting Existing Space Within a School

Another way to maximize space cost-effectively is to adapt existing space. This strategy can work if done judiciously in conjunction with remodeling or building an addition. Unfortunately, too many schools are forced to do this on a nearly continuous basis. To find space for increasing numbers of students and services, they find themselves converting closets into offices or basements into classrooms – a practice that is not recommended. Turning the unfinished third floor of MATCH school into dormitory space for tutors is a positive example of adapting previously unused space to benefit students.

Using Students and Volunteers

The school "family" often includes people with wide-ranging skills. Inventorying these talents and interests through a survey and compiling the results electronically may provide a useful resource to students, teachers, and even members of the community as long as there is a way

to assure privacy. For example, the Met and its parent, the Big Picture Company, inventory the auxiliary skills and interests of everyone associated with its schools. The inventory of parents, faculty, and staff should not only include current talents, but also identify skills people want to learn. Not only can schools find volunteers with skills in the building trades, but they may also uncover expertise that can help with individual student interests. For example, adults who play the dulcimer, speak fluent Swahili, or collect artifacts from the Civil War can be matched with students who want to learn more about music, language, or history. And not all volunteers need to bring a skill. They can learn on the job, provided they have expert supervision so people can do the tasks safely and successfully. Schools that employ volunteers of any sort should, of course, be sure that their insurance policies cover their liability for these helpers.

Many of the schools in this study have joined students with local community volunteers to help build skills in the immediate community. For example, at The STAR School, parents and teachers covered the modular buildings with stucco and built a straw bale structure for science classes and wrestling. Parents, students, and staff at FALA created cinder paths and built wide decking to connect the school's modular buildings. Laurel-Concord Public School students did all the wiring for the new computer lab. They worked under the supervision of their instructor, and a licensed electrician checked all their work. They not only saved the school money, but also learned an important skill. WOO students helped build a carpentry shop and the roof that connects two buildings.

"Not only can schools find volunteers with skills in the building trades, but they may also uncover expertise that can help with individual student interests."

Flexibility/Adaptability/Multiple Uses

One of the best ways to save money is to design and construct spaces for multiple purposes. Creating successful multi-purpose space requires careful planning. Todd Beamer High School can house one large school or as many as eight small schools, with only minor adjustments, because planners designed the building to be flexible. Burying waste lines deeper than normal was more expensive initially, but allows for easy and inexpensive plumbing changes, including adding sinks if necessary. Non-load-bearing walls can be removed easily to create new spaces. Offices can be centralized or dispersed to separate schools. Thanks to thoughtful planning, Todd Beamer High School can relatively easily and cost-effectively adapt to new styles of teaching and learning.

Schools can also save money by sharing space. Students need access to a variety of spaces, but it is usually less expensive to build or renovate and maintain a cafeteria, gym, or auditorium that serves multiple small schools than to construct separate spaces for each school. The Met and the Bronx Small Schools at Morris High School use this strategy effectively. Admittedly, however, sharing space can be challenging. Some schools have decided that it is necessary to have some redundancy in facilities even when they share the building. The small schools at Morris High School, for example, received a grant in 2005 to create separate science laboratories. Even superb scheduling and gracious working relationships may not always surmount conflicts over use of the space, and, in any case, it is important to give students and their teachers their own space so they can build relationships within their small school.

Sharing Academic Work Space with Partners

Using space in the community is one of the most effective ways to reduce the amount of space a school needs to construct. As the quantitative research in this report demonstrates, schools of all sizes reduce construction costs by reducing the number of square feet per student in the facility. Sharing facilities expands the amount of space available to students and teachers without increasing construction costs. For example, IDDS uses local theaters for drama classes and the facilities and personnel from the nearby YMCA for gym classes. In return, IDDS lets the YMCA use space in its facility at the end of the school day for computer classes. IDDS has also traded space with the MacPhail Center of the Arts to reduce fees for its Saturday Suzuki program and other music lessons. FALA uses a lab for photography classes that is owned but not used by its host, the Museum of Northern Arizona. Laurel-Concord Public School shares its library and computer room with members of the community because the town and a local education foundation contributed to funding these facilities. TSOTA uses space in several downtown locations in exchange for space in its facilities. These space-sharing agreements help schools and communities avoid duplicating functions and share not only space, but the resulting savings.

TIPS FOR DESIGNING AUTONOMOUS SMALL SCHOOLS

That Share a Site

Plan enough distance between the small schools to discourage students and teachers from spending much time out of their own school.

Create a welcoming common area in each school in which students, teachers, visitors, and parents associated with that school can socialize, study, meet, attend presentations, eat, and relax.

Design small comfortable nooks in which individuals and very small groups can study, relax, and socialize, as well as space for larger groups to meet, work together, and socialize. (From Elliot Washor of The Big Picture Company)

That Share a Building

The school's educational program, vision, and values should drive facility design.

Each school must have its own space and physical identity.

Each school should have a separate entrance, lobby, graphics, color scheme, and furniture style.

Flexibility is a particularly important principle for small schools that share a building. Staggered schedules and pairing schools with students of different ages can help make it easier to share facilities such as the cafeteria, gym, auditorium, library, and athletic fields.

Schools must be truly autonomous to be truly small. The physical structure must support the social structure to promote small schools.

Adapted from *Facilities Design Considerations for Schools that Share a Building*, KnowledgeWorks Foundation, 2003. www.kwfdn.org

Reducing Square Footage per Student

Students at schools such as Avalon Charter High School, The Met, High Tech High, and H.S. Truman High School require less space per student because students spend part of many days outside the school. Avalon Charter High School, for example, allocates 118 square feet per student, but the space does not seem cramped or crowded, because many students are in seminars or working on projects at any given time. By contrast, large, public suburban high schools, with full athletic and performance facilities, generally build 160 to 200 square feet per student. Similarly, MATCH built classrooms that average 500 square feet rather than the more usual 700 to 800 square feet, because it intends never to have more than 20 students in a class. The number of square feet that is appropriate in a small school reflects the needs of the academic program and the number of students the school anticipates will be in a class.

Sharing Space for Athletics and Extracurricular Activities

Athletics can require significant and customized space. Many schools take advantage of the athletic fields, gyms, and pools in their community, saving space and money while providing important outlets for students. H.S. Truman High School uses the adjacent park and Boys and Girls Club for athletics and other activities, while C.C. Blaney Elementary and R.D. Schroder Middle schools share their common playground and athletic fields with the community. IDDS provides space for its 475 students through partnerships with local institutions, including the YMCA and YWCA, MacPhail Center for the Arts, Orchestra Hall, the Guthrie and Orpheum theaters, and Minnesota Center for Book Arts. IDDS runs all of its athletic and extracurricular programs through the Y's. Laurel-Concord Public School runs its swimming program in a pool adjacent to the school that is owned by the Rotary Club. MATCH students use the nearby Y for athletics and other programs. The school hopes to develop its relationships with Boston University so students can use more of the university's facilities.

Partnerships in Construction

Schools can reduce construction costs by finding partners to share their initial expense, as well as the cost of staffing. C.C. Blaney Elementary and R.D. Schroder Middle schools formed a partnership with the Charleston County Parks and Recreation Department to construct the playground, athletic fields, and courts, and they now

share in the cost of maintenance and staffing. The district persuaded the town of Hollywood, SC, to install a new sewer line, and a sidewalk over it, in an area where neither of these basic amenities had been available.

Green Construction

Although it is difficult to eliminate utility costs, three schools have reduced their dependence on electricity by using a solar alternative. The STAR School purchases no electricity; it is solar-powered with a back-up generator to supply additional power on cloudy days. IDDS in Minnesota got a grant to install a trombe wall and heat-air exchange system that warms air before it gets to the boiler, reducing the school's heating cost. MATCH also received funding from the Massachusetts Technology Collaborative Green Buildings Program for solar panels on its flat roof, which it uses to supplement electricity from the local utility company.

SAVINGS FROM SOLAR POWER

Alternative energy allows a school to be environmentally sound and cost-conscious.

Using supplementary solar power saves MATCH an estimated $12,000 to $15,000 annually.

The STAR School, which is entirely "off the grid," estimates it saves $2,400 to $3,000 per year. In order for The STAR School to be on the electrical grid, it would have had to pay the utility company to run the power to the school at $20,000 per mile (for 1 to 2 miles). The cost per month for using the power line was estimated at the time to be about $200. The solar panel and later upgrades and additions cost about $30,000. The investment, therefore, was recouped in no more than one year.

In 2004 STAR received a second grant to double the number of solar panels, which means that the school will almost never need to use the back-up generator.

Architects can save money on electricity by orienting a building to receive maximum sunlight through ample windows and skylights. Good siting, design, and landscaping can also utilize the sun's heat as well as prevailing breezes. The STAR School faces south so that the sun helps heat the buildings in the winter, while overhangs protect the interior from over-heating in summer when the angle of the sun's rays are more direct. Deciduous trees provide shade in summer, but allow the sun to help heat buildings in winter.

Furnishings, Fixtures, and Equipment

Schools have found many ways to reduce the high cost of furnishings, fixtures, and equipment (FF&E) by encouraging donations and recycling, and using the help of volunteers and students.

Furnishings and Furniture Donations

Just like small startup companies, new small schools should take advantage of used furniture and discarded items, so long as the items do not adversely affect the educational program. For example, schools can encourage area businesses to donate used furniture and equipment. In many cases, these donations are of a higher quality than the school can afford to purchase. There is a potential downside to this strategy, however. The architect for the renovation of Avalon Charter High School, for example, designed work stations that fit the space and needs of the project ideally. When a major corporation was able to donate work stations, however, the school couldn't afford to turn it down. The donated furniture suits neither the physical layout nor the students' needs quite as well as a customized system. Still, it works and the savings were substantial.

In many cases, corporate FF&E donations exceed a school's expectations. MATCH opened its doors just as some area dot-coms were closing and a major Boston corporation was getting rid of a lot of quality office furniture. MATCH's conference room rivals that of many big-business facilities thanks to corporate donations

Another strategy to get usable equipment, furniture, and furnishings at little or no cost could be called "scavenging." One of the co-directors of TSOTA had excellent contacts in the Tacoma school system so when existing public schools were refurbishing they were able to obtain free furniture and equipment.

Build It Yourself

Using simple but effective designs, students, teachers, and parents built much of the furniture at TSOTA, including tables, work stations, and storage units. Similarly, parents built bookcases, wall dividers, and desks for the computer stations at Oak Valley School, and at The STAR School parents, teachers, and students built furniture, storage systems, and playground equipment.

Sharing Internally

To make the most of available FF&E, particularly equipment, the answer is simple: share. At TSOTA, people expect to share. Because the community is small and has established a deep sense of trust, students leave their work out, and the school doesn't need lockers. Equipment, desks, work stations, and other furnishings are rotated among many students. The same ethos exists at WOO, where the only items students do not share are their personal notebooks, which contain their work, assessment scores, and journal entries.

"One of the most cost-effective ways to maintain a school facility is to establish a proactive maintenance plan."

Flexibility/Mobility

The same principle of flexibility that maximizes the potential and minimizes the costs of a facility can work for FF&E. Tables and some chairs at Todd Beamer High School are on casters, so they can be moved easily to create different configurations. Teachers have storage space in movable metal cabinets that allow them to lock up items, but also to move them easily when necessary. A dumbwaiter makes it easy for science teachers to move delicate and expensive equipment between floors. At The Met, food prepared in a central kitchen is transported quickly and easily on carts to serving kitchens in the four schools. These techniques save money because equipment can be used almost constantly throughout the school day and often into the evening for after-school and adult education programs.

IT Built or Rebuilt by Students

Ideally, schools should have the best computers and programs available to give students the training they need to succeed in today's workplace, yet often IT equipment is dated and works poorly. With a little training, students can provide the necessary knowledge and skills to maximize computer resources. Several schools in this study use students to service computers and other IT equipment. Laurel-Concord Public School students rebuild donated computers that the school then leases to local families who need them. Students gain experience and training in computer repair and servicing, while the school gains income and families get computers at home.

IT Serviced by Students

Students at The Met staff a call center, answering requests from anyone on the campus for technical help and computer repairs. Students gain work experience, and the school reduces the number of computers that are out of service. This system also allows the head of campus IT to devote his attention to more complex issues.

Maintenance

Although the school facility is a valuable asset, too often the pressures of funding salaries, new textbooks, and other necessities take precedence over building maintenance. Schools that put off investing in their facilities undermine the structural integrity of their buildings and increase the amount of money they will have to put into future repairs. In some cases, deferring maintenance can even force the closure of a building and the loss of a school.[17]

Investing in Preventive Maintenance

One of the most cost-effective ways to maintain a school facility is to establish a proactive maintenance plan. Emergency repairs are always more expensive than routine maintenance. The Laurel-Concord Public School board has a sensible and cost-effective approach to maintenance; it reviews needs with the head custodian on a regular basis and has a 10-year plan for renovating or refurbishing every section of the school. The head custodian can order materials ahead of time, thus saving money, and plan work for when it is cheapest. If maintenance problems arise that have not been scheduled, the plan can, of course, change. This disciplined approach has saved the school considerable money.[18]

[17] Lawrence, B.K., June 2003.

[18] NCES, February 2003.

Reducing Trash and Graffiti

All the schools in this report have remarkably few problems with trash or graffiti, despite the fact that many of them are surrounded by neighborhoods where both are common. One of the benefits of being a small school is that people identify with the school and take pride in the campus. As a result, small schools save money on upkeep.

Maintaining the Building

Every morning a parent stops by Oak Valley School and asks the head teacher if anything needs fixing. If it does, the parent fixes it. One FALA parent is a plumber, and fixes any of the school's plumbing problems. Parents at The STAR School also contribute to maintaining the buildings and grounds, and students, teachers, and volunteers clean and maintain the buildings at WOO. Parents at Camino Nuevo supplement the work of regular staff in the cafeteria and assist with some maintenance work. Students at Laurel-Concord are responsible for some of the cleaning and maintenance at their school. Students have an opportunity to learn skills while gaining pride in their school. As a result, there is no graffiti in the building and maintenance costs are lower. Relying on volunteers for essential services, however, requires continuous investment in recruiting new people and maintaining good relationships with those who donate their services to the school.

"Designing, planting, and caring for the landscape can increase the involvement of students, teachers, and members of the community, as well as teach them about the local environment. "

Maintaining the Grounds

Schools under financial pressure may not think they can invest in landscaping, but landscaping is important. Landscaping anchors the building visually to its surroundings and can reduce energy costs. Designing, planting, and caring for the landscape can increase the involvement of students, teachers, and members of the community, as well as teach them about the local environment. At FALA, students working with a graduate student renovated a greenhouse and built gardens near the school, and the music teacher tends to the gardens around the school because he enjoys it. Students at The STAR School build their own gardens using the techniques of the people who lived in the same area about 500 A.D. They also built a straw bale greenhouse to show the community that it could be done inexpensively, yet yield vegetables and greens almost year-round. At Laurel-Concord Public School, the agriculture classes are responsible for planning and maintaining the landscaping.

Using Computers Effectively for Maintenance and Operations

IDDS uses a computerized system to monitor temperature, lighting, and other mechanical functions throughout the facility. Any of the four engineers on staff can instantly see how the systems are functioning and make necessary corrections.[19] This kind of sophisticated system works well when people in the building know why it exists and do not undermine it by overriding the automatic light and heat sensors. Indeed, continuous training may be necessary to make faculty and administration aware of its advantages. The furnace, cooling system, and electricity are used only when needed, so the school saves money.

At Laurel-Concord Public School, the PowerSchool software helps the administration manage many of the aspects of building operation, including tracking cleaning supplies, utilities, and breakdowns. By managing these functions locally, rather than through a central office, the software avoids inefficiencies and saves money.

Facilities Operations

Because small schools have less space, fewer people, and close relationships and easy interaction between people, they are able to use several strategies to reap additional savings that are not available to large schools.

No Janitorial Staff

TSOTA's janitorial staff works only at night. During the day, teachers and students are expected to care for the building. Until the fall of 2004, FALA had no janitors; students and teachers were entirely responsible for cleaning classrooms. Until 2004, the head of the board of Oak Valley School picked up the trash. The STAR School leases a trailer on site to a family whose members serve as the school's caretakers.

[19] The head engineer helps the director in planning, purchasing, and many other responsibilities. The other three engineers, a title assigned by the union, perform work more usually thought of as custodial. The K-12 school always has two engineers on duty, but there is little overlap in the shifts so all four are at the school at the same time for less than two hours a day. The director thinks that a K-12 school requires more such staff than one serving fewer grades.

Camino Nuevo Charter Academy parents help staff with janitorial duties, as do volunteers, students, and teachers at WOO, Oak Valley, and The STAR School. Students at Avalon Charter High School, FALA, and High Tech High do much of the janitorial work. Not only is this work free to the school, but it builds camaraderie, contributes to a sense of ownership, and reduces litter.

Reduced Security Staff and Equipment

One of the many strengths of small schools is that the best security results from personal relationships among students, parents, teachers, and staff. Many small schools spend very little on security. In general, rural schools are usually less concerned about security than urban schools. The small urban schools in this study are able to spend relatively little on security because people in the schools know each other, an intruder would stand out quickly, and people in the neighborhood help protect the school (D&SI, pp. 8 -10). Small schools in this study demonstrate ways to save money while maintaining a safe school.

- C.C. Blaney Elementary and R.D. Schroder Middle schools share the services of a deputy sheriff paid by the county. The deputy sheriff is on campus at all times, working primarily as a community liaison and role model – counseling students much more often than correcting them.

- Although students enter Morris High School in the South Bronx through a metal detector, the security staff has been reduced since the introduction of small schools. The assistant principal who oversees security says there are far fewer problems than in the previous large school. Students in several of the small urban schools seem to feel much safer in the school than they do on the street. In fact, safety is one of the elements of a small school that students and parents at all of the schools in this report value most highly.

- Children in Camino Nuevo Charter Academy, located in one of the highest crime rate areas of Los Angeles, say they love their school because there is no fighting. Parents appreciate the school because it has brought a sense of peace and safety to the neighborhood.

- The Met has no security fence but has security personnel on campus who are family members of students and members of the community. Good relationships with the community are a critical component of the Met's security system.

- When WOO suffered a series of break-ins that damaged windows and doors and resulted in the loss of two small televisions, the school appointed a local homeless man as the volunteer building security officer, posting his picture with the new title. The job helped raise his self-esteem, and, in exchange for food, clothing, and a daily newspaper, this man watched over the building. There have been no problems with vandalism or theft since he took over this duty. WOO has also helped him find housing in the public apartments four blocks away and hires him occasionally to help with clean-up projects.

"Natural light – which is free – creates a healthier work environment than fluorescent or incandescent lighting."

Utilities

Utilities are a necessary and constant expense, but many schools have found innovative ways to save money. The schools mix complex systems with common sense to cut utility costs.

Natural Lighting

Natural daylight, cooling breezes, the heat of the sun – all can be used to reduce utility costs. Windows in many of the schools in this study are larger than designers of school facilities would have recommended in the late 1970s and 1980s, when the cost of fuel soared and its availability plummeted. Natural light – which is free – creates a healthier work environment than fluorescent or incandescent lighting.[20] At High Tech High, skylights and windows provide enough ambient light so that many classrooms and common spaces almost never need electric light. Furthermore, schools without adequate ventilation become dangerous because they foster toxic molds; some that were built or remodeled at the end of the 1970s have had to be abandoned because of the health risks resulting from the lack of airflow. High Tech High, Todd Beamer High School, H.S. Truman High School, MATCH, The Met, IDDS, and C.C. Blaney Elementary and R.D. Schroder Middle schools are all notable exceptions, with ample windows that provide light and allow air to circulate.

[20] Lyons, J.B. November 2001, p. 3-4; Schneider, M. 2002

Dual Fuel

Oak Valley School has two furnaces, one that uses oil, the other gas. Not only does this provide the school with a back-up for emergencies, but it also allows the school to switch to whichever fuel is more cost-effective at the time. The same is true for the Morris High School facility in the Bronx, which is heated by four dual-fuel gas and oil boilers installed in 1997.

Automatic Light Sensors

Several schools use automatic sensors to turn off lights after a room has been unoccupied for a set amount of time. Such sensors are in classrooms at MATCH, the bathrooms at The STAR School, and throughout The Met.

Solar Power

As mentioned in the previous section on green construction, IDDS, MATCH, and The STAR School all use solar power to augment, or in the case of The STAR School, to provide electricity. Each is a good example of how solar power can lower a school's utility costs. The STAR School is located in a rural area in the cool, mountainous area of northern Arizona, MATCH in Boston, and IDDS in Minneapolis. None of these places seems the ideal location for generating solar power, yet each is doing so successfully.

Keeping Cool

Keeping school facilities cool in hot weather is expensive. Air conditioners came with The STAR School's portable units, but they would have drained the solar-powered electrical system. The STAR School replaced the units with "swamp coolers" that cool the air by diffusing a fine mist into the air. They are much less expensive to operate, can also be used to heat the buildings, and are much more efficient than traditional heating, ventilation, and air-conditioning (HVAC) systems.[21]

Automatic Water Shut-off

In arid places such as Arizona, using water carefully is obviously important, so it is no surprise that The STAR School has invested in automatic water shut-off for its bathrooms. It is more of a surprise to find a similar system at MATCH in Boston, but the devices conserve water, reducing water and sewer bills at both schools.

Wind Power

Wind is a potential source of energy not fully exploited by any of these schools. The STAR School is, however, exploring the use of a wind-powered generator to supplement its solar panels.

Computerized Control Systems

Using a computer to monitor and adjust temperature and lighting makes a lot of sense because it saves dollars. IDDS saves on utility bills because the computerized system gives engineers and custodians information 24 hours a day, seven days a week.

Retrofitting

During the energy crisis of the 1970s and '80s, many schools blocked expansive windows, either partially or completely. Now windows that insulate more effectively could replace those installed in the 1970s and '80s, restoring natural daylight and breezes, reducing dependence on energy, and saving money. Architects recommended that all the windows at Morris High be replaced with ones that conserve energy. Many local gas and electric companies offer home owners the chance to have an inspector visit their house and make recommendations for conserving energy. The same service is available for schools.

[21] Schools could also use storage systems that draw power during off-peak times to heat bricks and make ice. Air forced over heated bricks distributes heat, and, conversely, air forced through ice cools the facility.

Profile Avalon Charter High School: An urban high school

St. Paul, MN • Grades 9-12 • 125 Students

"We, the People of Avalon, in order to provide for a safe and productive learning environment, promote the obtaining and usage of knowledge for the benefit of those around us, and ensure general happiness, do ordain and establish this constitution of Avalon High School."

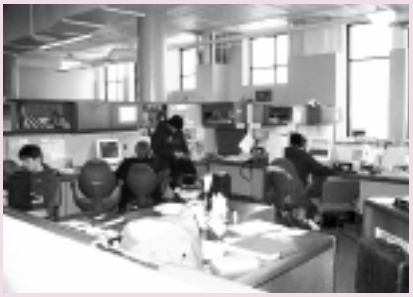
— From the Constitution for Avalon School written by students and their advisor.

Avalon Charter High School floor plan

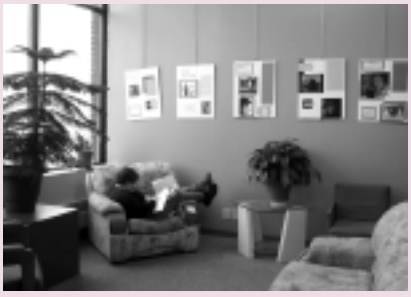
Avalon Charter High School shares a 1916 brick building with two other charter schools; it occupies the third floor, the previous home of a charter that failed. Like its sister school, New Country in Henderson, MN, Avalon Charter High School is affiliated with EdVisions Cooperative and is owned and run by its teachers.[22] Teachers share administrative duties, as well as the responsibility for teaching and planning, which gives the school a strong sense of collegiality. Of course, these multiple roles can at times burden educators who are already trying to fit a project-based curriculum into state academic requirements.

"Teachers share administrative duties, as well as the responsibility for teaching and planning, which gives the school a strong sense of collegiality."

The school cost-effectively renovated its space to include areas along the perimeter for each teacher and the students he or she works with throughout one or more years in a group called an "advisory." These high-ceilinged spaces open onto a more intimate interior courtyard known as The Café, with tables and chairs and a kitchenette for simple food preparation. Advisories are paired in this arrangement. Two teachers work at corresponding desks, and their advisees use individual work stations arrayed behind half-walls that separate the advisories from the central courtyard.



Students work at their own stations in configurations they and their advisor arrange.



A student studies in the entrance hall to the school, which also serves as a gallery for student projects.

The school uses a variety of means to stay within its budget. The Pillsbury Company donated work stations, which – though not as ideal for the space as those originally designed by the architect – had the enormous advantage of being free. Students use public transportation to reach the school, and most buy lunch in the basement from a private food service that serves all three schools in the building.

Low walls separate advisories, which are grouped in pairs, from the central circulation areas, the large interior café, and classrooms. High ceilings and large windows give a feeling of space and let in ample daylight.

The café offers a comfortable place to study, have lunch, and socialize.

The curriculum is based on projects that students define and execute with the guidance of their advisors. Avalon Charter High School has no traditional classes and teaches through a combination of independent projects and seminars open to all students that fulfill graduation requirements, as well as seminars to cover material that will be on state tests. As often as possible, it uses the community as a classroom, and students visit nearby sites including places such as Root River Trail in Minnesota, the site for a recent seminar in alternative transportation that they reached on bikes.

"The student congress, open to all students, is remarkable for its level of discussion and the fact that the views of the students are taken seriously by teachers."

Avalon Charter High School combines a college preparatory program with project-based learning and creates, as its website notes, "a context-rich curriculum with a global emphasis stressing depth over breadth and drawing upon the passions and interests of its students." It succeeds remarkably well in this.

What is most striking about this school is the maturity of its students, the depth of their self-knowledge, and their concern for each other and their teachers. The student congress, open to all students, is remarkable for its level of discussion and the fact that the views of the students are taken seriously by teachers. Students seem to feel that what they think and want to have happen at Avalon Charter High School is important, and they take the opportunity to be a part of forming their school.

[22] For more information about EdVisions Cooperative, see: www.edvisions.com.

Profile

C.C. Blaney Elementary School and R.D. Schroder Middle School: Rural elementary and middle schools

Hollywood, SC • C.C. Blaney: Grades PK-5 • 190 Students
R.D. Schroder: Grades 6-8 • 380 Students

The successful renovation and new construction project as shown in this rendering of the C.C. Blaney Elementary School has transformed the facility so that it now supports the arts-based program and has become a center of its community.

"I invite you to share in our learning."

— Student

A first-grade girl at C.C. Blaney Elementary School pops up from her seat and walks confidently towards the visitors. She extends her hand and gives each one a firm handshake and a smile as she looks directly at them and says, "My name is Taisha and I am our Class Ambassador. I want to welcome our visitors to our classroom. Today we are studying math, and I invite you to share in our learning."

"These schools are bright with color, laughter, activity, warmth, and a sense of order and purpose."

Ninety-eight percent of the children at C.C. Blaney Elementary School are eligible for free or reduced-cost lunch. The percentage at R.D. Schroder Middle School, which draws from a larger geographic area, is only slightly smaller. Yet, these schools are bright with color, laughter, activity, warmth, and a sense of order and purpose.

The schools serve a rural African-American population in the very large and diverse district of Charleston County. Until recently, both were severely under-funded. As a result, they lacked supplies, good teachers, and sufficient facilities. As the gifted head of the local constituent board, Leroy

The Kindergarten room is a welcoming place for students and teachers alike.

Elementary students and their teacher work together on math problems.

Seabrook, puts it, "There was a time we weren't seen as family."

An exchange teacher from Jamaica enjoys working with a group of students.

The middle school building had four windows, and many people referred to it as "the dungeon." After a facilities evaluation revealed unacceptably poor conditions, the district allocated funds to renovate the elementary and middle schools. Costs to remedy the district's facility problems were estimated at $600 million, a large sum even for this relatively affluent school district. Yet officials committed to upgrading district schools, starting with the worst facilities. C.C. Blaney Elementary and R.D. Schroder Middle schools were two of the first to benefit from this decision to right old wrongs.[23]

"This renovation has brought parents back to the school and given people pride in their community."

This renovation has brought parents back to the school and given people pride in their community. It has forged partnerships between local government and the community. The Charleston County Department of Parks and Recreation bought land between the two schools from the Department of Education and turned it into a recreation facility for students, as well as for the community. The parks department pays part of the salaries of maintenance personnel and a full-time coach, and the school pays the balance. During the school day, children use the playground, fields, and courts almost constantly; later in the day, adults in the community play league games with teams from surrounding communities. The Department of Public Works built a sidewalk over the new sewer system that serves the school, which makes it easier for students, family members, and people from the community to get to and from the school. Results? For the first time, there was standing room only at the elementary and middle school graduations. People look to the school as the center of their community, and test scores are rising.

"For the first time, there was standing room only at the elementary and middle school graduations."

The school is eligible for Title I money because it serves a very poor population. It has used that money to hire art and drama teachers to create a curriculum centered in the arts. The school hopes to become a magnet in its district for the arts, but the benefits of investing funds this way are already evident. Improving the schools is beginning to bring white families back to public education – one of the school's goals. Student art enriches the walls of hallways and classrooms, and students are growing more articulate and confident, and learning to enjoy school. This is why, without prompting from the teacher, Taisha bounces up out of her seat and welcomes four unknown adults into her world.

Elementary students are eager to answer the teacher's question.

[23] These two schools serve a slightly different population. C.C. Blaney draws elementary students from the immediate area while R.D. Schroder serves middle school students from villages in a wider geographic area.

Profile

Bronx Small Schools: Four new small urban high schools within a school: International, Leadership, Excellence, Violin and Dance

Morris High School • The Bronx, NY • Grades 9-12 • Students: International: 300 • Leadership: 340 • Excellence: 330 • Violin and Dance: 170

"Usually a principal's job is lonely, but it is good to share and learn and here we principals all talk. We have to trust each other more than anything and not lobby for ourselves in the building with the other principals."

— Shael Polokow-Suransky, Principal, Bronx International High School

The Bronx Small Schools' building, constructed between July 1901 and January 1904 and restored by the city in 1997, is both beautiful and intimidating.[24] It sits on a hill in the South Bronx overlooking the poorest congressional district in the continental United States. In recent years, to anyone in the South Bronx, the words "Morris High School" evoked images of crime, drugs, violence, apathy, racial division, over-worked teachers, and angry students.

"Though the new schools occupy space next to each other with little physical differentiation between them, the extent to which people have already imprinted an identity on their school is remarkable."

In the early 1900s, however, Morris High School was innovative – the first high school in the developing residential area known as the Bronx and the only co-ed high school in New York City. Built at a cost of $469,383, the 2,679,500-cubic-foot facility had electricity, telephones, and an excellent ventilation system, then still a novelty. Classrooms with large windows maximized daylight.[25]

C.B.J. Snyder, superintendent of school buildings at the time, designed the facility to house 2,500 students, but when it opened three years later it had to accommodate 2,630 because the population of the Bronx had expanded so quickly. With the approval of his board of education, Snyder, a Bronx resident, created the school as a testament to the new borough and its pride in education.[26]

The auditorium was restored by the city of New York to its original elegance and can be available to the community when used by students in the small schools that now share the Morris High School facility.

Much has changed in the intervening century. The South Bronx and Morris High have been through difficult times, as is demonstrated by the school's elaborate security system. Even so, students in the small schools are comfortable enough to smile and greet visitors. Teachers are laughing and talking with their students, and kids are lounging comfortably on desks and tables in the halls as they wait for classes to begin. And when given a chance, they say, "I love this school." "We are family." "Here we are safe."

What is different now? The answer is that New York City has made a real commitment to small schools. In the fall of 2002, Morris High began phasing out the large high school and replacing it with four small schools: International, Leadership, Violin and Dance, and Excellence. A new principal assumed leadership of

Morris High to promote the transition and watch over the demise of the old Morris High School. Many students and teachers joined the new academies, but others wanted to graduate from Morris High School. Once these students graduate, Morris High will cease to exist.

Though the new schools occupy space next to each other with little physical differentiation between them, the extent to which people have already imprinted an identity on their school is remarkable. Lots of student work is exhibited on the walls. Students are enthusiastic about their teachers and the opportunities they see ahead of them if they work hard. Other changes are occurring as well. Since the small schools opened, the custodian reports a 20% decrease in vandalism within the building, and the security staff was reduced from 36 to 12. The community is beginning to see the school as a safe place and a resource. Between 3 and 6 P.M., 50% of the building is used for tutoring, after-school programs, and clubs, including the Police Athletic League and the Explorers Club. A volunteer liaison to the community organizes events and works to bring the community into the schools.

Still, significant challenges exist – one simply the result of success. There is a waiting list of students who want to enroll in the four small schools. For generations, the Department of Education has counted on – and budgeted for – serving less than a full complement of eligible students because of low attendance and high drop-out rates. Now attendance is high at the small schools, and fewer students drop out – so the city wonders how it will fund seats for students who come to school more often and longer than

An interior hallway of the renovated school is bright and airy with high ceilings, handsome woodwork, and period lighting.

© The Bronx County Historical Society, New York City

The exquisite detail and grace of the façade reflects the skill of its designer C.B.J. Snyder, who was also superintendent of school buildings for New York City. Snyder and members of the school board wanted Morris High School to be a focus of the developing community's pride in education.

students who attend large schools. Teachers say they have too little money for supplies, and some complain that they are exhausted because they work late and are expected to be in touch with students' families in the evening and on weekends. A student told us, "You can reach the teachers anytime. They give you their e-mail and phone numbers. That tells you they care." Students appreciate this effort – but it does take a toll on their teachers.

"Students are enthusiastic about their teachers and the opportunities they see ahead of them if they work hard."

Here, teachers and administrators find a real opportunity to work together for better results for their students. That is why principals enjoy their work, why students feel they matter, and why teachers now like working in a place that for too many years felt hopeless.

[24] The cost was more than $50 million, but the vast majority of this money was spent renovating the historic auditorium and making repairs on the exterior stonework and the heating system. Less than $2 million went to updating the building to accommodate the small schools.

[25] Hermalyn, G., 1995, p. 90

[26] Hermalyn, G, 1995, pp. 81, 84.

Profile Camino Nuevo Charter School: An urban elementary and middle school

Los Angeles, CA • Burlington Street Elementary • Grades PK-3 • 257 Students
Burlington Street Middle School • Grades 4-8 • 294 Students

"In other schools, when kids don't listen they throw spitballs."

— Camino Nuevo Elementary Students

MacArthur Park has the highest population density in Los Angeles. Four families may share an apartment intended to serve one. In the shadow of expensive, high-rise buildings, the edges of most streets are littered with detritus, men vivisect cars for parts, and drugs change hands. The corner of Burlington and West Seventh streets was a center for drugs and crime until Camino Nuevo Charter School reclaimed it for the community. The school purchased and renovated a failed mini-mall, turning it into an elementary school, and then renovated a nearby warehouse into the middle school.

Students use the protected exterior corridor to move between classes, which saved the expense and space of internal hallways and is possible in the temperate climate of Los Angeles.

Now an older woman who lives in the small house between the two schools has planted a rose garden in her front lawn. Children, supervised by parents, and teachers walk safely from the schools along the sidewalk to the playground. After school, ice cream vendors wait on the street, and people congregate around the carts to talk and enjoy a treat.

Students studying Egyptian history are attentive and knowledgeable, working together purposefully yet with excitement.

In 1999, former Episcopal priest Philip Lance started Pueblo Nuevo Development (PND), an outreach organization. PND's mission is to serve its neighborhood by creating self-reliant, community-based organizations. PND began by creating jobs for people in the community, but branched into education as it realized the community's children were under-served in local public schools, and that education and proficiency in English were essential to getting better jobs. Pueblo Nuevo created Camino Nuevo Charter Schools, a PK-8 school divided into elementary and middle schools, and starting in 2004, a high school.

"Parents sign an agreement with the schools that they will contribute 15 hours of work a year per family, meet three times a year with teachers, and ensure their child has a clean uniform and does his or her homework."

Camino Nuevo Charter School traded diversity for serving its immediate neighborhood, but the students are not as homogeneous as it first appears. Students come from many countries in Mexico, Central and South America. This cultural unity serves the school and students well. Parents, teachers, and administrators share expectations for behavior and

care for each other's children. Many of the school's children are related to one another. The school is attentive to local culture; children meet in same-sex advisories to discuss more easily matters traditionally divided along gender lines.

The children wear uniforms. They laugh and talk quietly, together and with their teachers, as they line up in the hall waiting to go to their homerooms, but they are not subdued. Almost all are Hispanic; some speak indigenous dialects, so English often is their third language, after Spanish. Many come to the school speaking almost no English, but a carefully orchestrated bilingual program, with a lot of supportive tutoring, assures that almost all students will be fluent in English and Spanish by fifth grade. Two trained people monitor student progress and help teachers understand results so they can help children individually as well as work more effectively with entire classes. As a result, test scores are improving.

The middle school at Camino Nuevo Charter Academy occupies a former warehouse and has helped the community of MacArthur Park reclaim its neighborhood.

Students gather on the steps in the courtyard of the elementary school to celebrate Black History.

Throughout the day, the open courtyard is full of children enjoying recess or eating lunch, and then later demonstrating dances they have learned to an enthusiastic audience of teachers and parents. The principal says, "All the moms help out," adding that each day about 30 parents come to the school to help. Some parents come every day. Parents sign an agreement with the schools that they will contribute 15 hours of work a year per family, meet three times a year with teachers, and ensure their child has a clean uniform and does his or her homework. Parents and the school take this agreement seriously. Parents get a report card on the way in which they are fulfilling their obligations under the agreement. Parents who fail to fulfill these obligations receive counseling and support from the outreach coordinator, and, while this has not yet happened, if parents do not help educate their child, the school could say the school might not be the right fit for the family.

"Students and parents deeply appreciate the school because they know children are learning."

Students and parents deeply appreciate the school because they know children are learning. Many students at Camino Nuevo Charter School commented that they like being in school, they like learning, and they appreciate the good behavior expected by "the Camino Nuevo way." Their gratitude is touching. As one boy said, talking about the rectangle of dirt with a few climbing bars and a sandbox the students use for recess, "Our playground is perfect, and our school is too."

Profile FLAGSTAFF ARTS and LEADERSHIP ACADEMY: A charter high school

Flagstaff, AZ • Grades 9-12 • 160 Students

"We'd lose the FALA magic with more kids."

— Kirk Quitter, FALA Director

Flagstaff Arts and Leadership Academy (FALA) shares 400 acres with its host, the University of Northern Arizona, and a neighboring senior-living center, The Peaks. FALA was born in 1996 out of a gifted art teacher's frustration with the decline of the arts programs in Arizona schools. FALA has weathered some difficult times, and it is now poised to realize the opportunities of its location and the potential for partnerships with its neighbors.

The school buildings are ordinary portable units leased from a bank. But students, parents, and staff members have transformed them into vibrant showcases for a thriving academic culture rooted in the arts. Students have painted classroom doors with designs that announce the subjects being covered inside, and student art enriches the walls of classrooms and offices. Minor graffiti in the bathrooms led the student council to suggest that students cover the stalls with intricate and colorful laminated collages, which are easy to clean and fun to look at. Using federal Emergency Repair and Renovation Grant funds, the school bought a new modular classroom, and, as part of their 30 hours a year of community service, students assisted by parents and staff built a wide deck that connects all of the units and provides a place for socializing, eating, and studying. Working with a graduate student, FALA students renovated a donated greenhouse and built gardens and an amphitheater of straw bales that is remarkably simple and cost-effective, but which offers a welcoming space for small audiences and performers.

"FALA was born in 1996 out of a gifted art teacher's frustration with the decline of the arts programs in Arizona schools."

When there was a minor problem with graffiti in the bathrooms, students decided to create laminated collages on the doors of stalls. The result is delightful – colorful, funny, interesting, easy to clean – and it deters graffiti.

Not "just" an art school, FALA prepares students for college with rigorous courses, many of them project-based and multi-age. In its Young Playwright Series, ninth graders write a play; Theater 1 students, most of whom are in tenth grade, perform it; and Theater 2 students, who are older, direct and produce it. This year's play, Romeo and Juliet, was set in a half-eaten sandwich and featured a forbidden romance between bacteria and fungi. The play was a smash success. Another success: FALA students' scores on state and national tests, which are consistently high.

A "do it yourself" spirit helps make this school possible. There is limited busing, no sports or cafeteria, and, until the fall of 2004, the school had no custodial service. The music teacher still waters the gardens, many students and parents drive, the food vendor pulls up at lunchtime, and students clean classrooms and do service projects such as covering pathways with crushed volcanic cinder. A parent provides free plumbing expertise, but as the director says, "When toilets clog, I'm out there with a plunger."

There is a culture of ease and acceptance at FALA; in one classroom, a student lay sprawled on the floor between the tables. "Man down," another joked as visitors walked in, but no one minded, because all of the students are engaged in exciting intellectual work. A dog comes to class every day with her master, the algebra teacher, because, as the instructor points out: "Algebra is everything a teenager isn't: logical, sequential, and with one solution. The dog helps humanize it." The algebra classroom almost pulses with energy, and the graphics on the walls pull students into a subject that is usually less than enticing to teens focused on the arts.

Though outward indicators might suggest a lack of structure – no dress code, students lounging in the courtyard between classes – the school's success stems from a clear set of expectations about academic purpose and a code of behavior that was developed by the student council. Four students were expelled in the middle of the year for smoking marijuana because,

Bales of straw arranged in a semi-circle create a small amphitheater for readings, rehearsals, and even classes and informal performances. With the help of a graduate student, students at FALA built a greenhouse nearby that they painted and gardens that welcome visitors from The Peaks.

as the director explains, "We just can't tolerate that kind of behavior." Most issues, though, are discussed informally or at student council and resolved in ways that are possible only in small schools where everyone knows everyone else.

There is a warm feeling of mutual respect and partnership between students and the adults at FALA. This is evident in the way they talk comfortably with each other, and when students say, "I love this place." The student council is an impressive group and has real power to affect policy and find solutions to everyday problems. The student representative to the board of directors says, "The board asks me to talk first. They really listen. They are proud of us." And they should be.

Though still developing, the school's partnerships with the museum and senior-living center are important to students and to the future of all three institutions. The museum allows the school to use its auditorium, grounds, darkroom, and classrooms. Students have interned at the museum and worked with its professionals. In the fall of 2004, the social studies teacher introduced a class about the culture, history, and ecology of the Colorado Plateau. The teacher's wife, who heads the museum's educational outreach program, helped prepare the class. With a grant from the Arizona Heritage Foundation, students visited a Hopi community to repair bread ovens and will build one at the museum. Students also have painted sets for a museum fundraising event. Students volunteer regularly at The Peaks senior residence, giving concerts, talking with residents, painting residents' portraits, and socializing. As one student reported, "Their faces brighten up when they see us." Everyone seems to hope that these partnerships will deepen, and the school director and the new director at the museum are working to make this happen.

SCHOOL CODE:

(Defined by students, and displayed in each classroom on posters painted by students.)

Respect individuality

Be responsible for yourself

Listen to everyone's voice

Respect others' personal property

Be mindful of gossip

Avoid classism

Have an open mind to learning

Support each other's passion

Have respect for teachers

Profile High Tech High: An urban high school

San Diego, CA • Grades 9-12 • 368 Students (2002-2003) • 454 Students (2004-2005)

"Our accountability is to the students. We owe them that. They aren't going to let us get away with anything."

— High Tech High Teacher

High Tech High occupies what was once Building 49 on a site used by the navy. For several years, the school was the sole occupant of a 480-acre, mixed-use development project that was designed to include an education core, retail space, cultural center, office buildings, two hotels, and 470 units of predominantly high-end housing. Now that families and businesses are finally moving in, the school is well situated to attract students. Because the school's founders had the foresight to assume its lease early in the project's development, they were able to find space cheaply and could afford to remodel to suit the school's needs. Eventually, they were able to establish two new schools (High Tech Middle and High Tech High International) in facilities adjacent to Building 49. From this base, the project has grown into a network of schools around the nation and in other countries – an impressive accomplishment.

"Older students attend core classes together, but they can take electives offered to 10th- through 12th-graders and work on individual and group projects with mentors in businesses and other private organizations."

High Tech High offers a project-based curriculum that emphasizes technology, although not to the exclusion of other fields. Ninth-grade students grouped into clusters and teams have an advisor and take their classes together. They occupy four

Extraordinary art by students and working artists hangs throughout the school, turning walls into a gallery. Because High Tech High hallways contain no lockers, there is plenty of wall space available for exhibitions.

classrooms, two on each side of a corridor called the "fishbowl" because of the glass cubicles that serve as offices for the advisors. These spaces give the adults a private place to talk and plan, while making it easy for them to supervise their students. Older students attend core classes together, but they can take electives offered to 10th- through 12th-graders and work on individual and group projects with mentors in businesses and other private organizations. Students appreciate the independence and responsibility; they thrive by working on projects that interest them with knowledgeable professionals willing to share their expertise. Finding, monitoring, and maintaining relationships with such people, many

of them from the business community, is a full-time job for a coordinator with lots of energy and experience in such work.

But it is the facility that is most remarkable. The renovation left the basic structure intact and took advantage of such details as ribbon windows that lace the upper reaches of the walls and saw-tooth skylights that run much of the length of the building, providing light and a sense of space. High Tech High wanted the school to feel like a professional work space, and it does, with the added feature of exceptional art by students that enlivens the space. The reception area opens to a "great room" where students display their work and make presentations. There are some traditional classrooms, but also "project rooms" where different sorts of work can take place. In one room a team is building a submarine, which the students will later test. All walls above 53 inches are made of glass, so the school seems very open, but noise is not the factor it can be in a totally open school plan. The thoughtfully renovated facility provides an ideal setting for this project-based small school. It offers spaces that support the program, and embodies the mission and goals in its design, creating a professional but open and exciting place in which to teach and learn.

"High Tech High wanted the school to feel like a professional work space, and it does, with the added feature of exceptional art by students that enlivens the space."

Students work in small groups on projects – this one involving model cars.

Biology students check out an experiment in the High Tech High Biotechnology lab.

The Great Room with soaring ceilings provides a dramatic space for presentation and displaying completed projects. Classrooms line the perimeter and advisories use the spaces between the central area and the classrooms.

Profile INTERDISTRICT DOWNTOWN SCHOOL: An urban K-12 school

Minneapolis, MN • Grades K-12 • 500 Students

"How can you put a price tag on knowing a kid for three to four years?"

— IDDS Teacher

The roof offers a place to play and enjoy the view of downtown Minneapolis.

It doesn't make sense to locate a school downtown because no one lives there, right? Wrong. As Interdistrict Downtown School (IDDS) demonstrates, it makes very good sense. This K-12 school, which opened in September 1999, draws students from 10 districts around Minneapolis. The school was originally conceived to bring together children from different races and cultures. Founders also realized that downtown Minneapolis offers resources unavailable in outlying areas: libraries, theaters, a university, public transportation, and a wealth of employees at local businesses and organizations.

"IDDS was designed to fit into its neighborhood, the theater district, and make maximum use of its surroundings. "

IDDS was designed to fit into its neighborhood, the theater district, and make maximum use of its surroundings. The five-story, red-brick, 102,500-square-foot school, located on one acre, reflects the tone and scale of nearby buildings. Architects searched for cost-saving opportunities – including the idea of setting the school on the foundation of a city-owned parking garage, thus eliminating the need for a new foundation, and using space in neighboring facilities. The MacPhail Center for the Arts, the Orpheum and State theaters, Orchestra Hall, the Minneapolis Public Library, the University of St. Thomas School of Education, the YMCA and the YWCA all provide services and space to the school, and the school offers its own space in return when possible. The Y's hold athletic and after-school programs because IDDS has no gym, and the Y's use the school in the late afternoons and evenings for computer training.

The air is remarkably clean at IDDS, thanks to the careful selection of building materials and the use of efficient heating, ventilating, and air-conditioning systems. For example, recycled glass tile, sealed concrete floors, and linoleum are easy to clean without toxic chemicals. Using paint with little or no volatile organic compounds, avoiding solvent-based adhesives, and selecting emission-free particleboard result in a much lower level of toxicity than is common in many schools.

Using concrete instead of carpeting for floors reduces the expense of cleaning and maintenance, although it does increase noise. The school has had to employ some simple sound-abatement procedures and has carpeted high-traffic areas to reduce noise. The

facility incorporates such energy-saving technology as solar panels and a perforated metal black trombe wall,[27] which heats air against the building before it is drawn in through a heat-air exchange system. Computerized monitoring shows that these techniques save money over the long term, though initial investment may be higher than traditional systems.

IDDS's location allows the school to develop partnerships with an astounding number of local businesses and organizations. The walkway connection to the University of St. Thomas School of Education allowed the architect to create a teachers' lounge shared by teachers at IDDS and the university. The same system of walkways connects to local corporations, which encourages employees to volunteer at the schools. IDDS Director Lee Fertig, a passionate and articulate spokesman for multicultural education and the energetic coordinator of the volunteer program, helped recruit more than five hundred volunteers for the school. Wells Fargo and Target employees, for example, walk to the school through the enclosed walkway to tutor students. Some volunteers work with teachers and classes, including a retired accountant who assists the math classes for an hour each day. Other mentors correspond regularly with their students through e-mail.

Students work on an art project that also teaches skills in manual arts.

Volunteers at IDDS

Volunteers gave more than 5,450 hours to IDDS in 2003-2004. Valuing their time at the amount MATCH pays its work-study students means IDDS volunteers contributed at least $73,575 to the school that year. But IDDS students benefit from these volunteer relationships far more than dollars can demonstrate. Below is a sample of how local organizations support IDDS with volunteers.

Target provides approximately 160 K-3 reading buddies for 24 half-hour one-on-one sessions throughout the year.

Wells Fargo supplies approximately 20 math tutors for 12 one-hour small group sessions with eighth graders.

American Express assists second through fifth graders with 160 pen pals and with approximately 30 math tutors for 30-minute one-on-one sessions over a 20-week period.

Various organizations provide approximately 50 "e-mentors," each of whom spends approximately 20 hours per year working with sixth- and ninth-grade students.

Public Achievement supplies second and third grade with approximately 15 coaches for 12 one-hour sessions.

The University of St. Thomas provides 10 tutors who spend 25 hours each with various grade levels and in different subject areas.

Twenty-five Big Brothers and Big Sisters serve as community mentors for grades K-6, volunteering one hour for 30 weeks.

[27] For more information about trombe walls see: www.allanstime.com/SolarHome/Trombe_Wall/.

For more information about sustainable design see: www.develop.csbr.umn.edu/msdg2/

Profile LAUREL-CONCORD PUBLIC SCHOOL: A rural elementary through high school

Laurel, NE • Grades PK-12 • 193 Students – elementary • 195 Students – high school

"The school and main street connection are vital. If a rural school and community are going to survive, it will be by surviving together."

— Superintendent Dan Hoesing

Cornfields surround Laurel-Concord Public School in rural Nebraska. Many of its 388 students in grades K-12 have been at the school since kindergarten, and many have relatives who attended the school as well as others who are current students. The facility, anchored by a 19th century traditional brick building, is a stylistic hodgepodge reflecting the eras in which it was remodeled. Although the exterior looks dated, the school is anything but old-fashioned. The school melds technology and traditional values with foresight, enthusiasm, and realism.

"The school melds technology and traditional values with foresight, enthusiasm, and realism."

The board and its superintendent, Dan Hoesing, are guided by several goals:

1) Infuse the curriculum with the most advanced technology available.

2) Use technology to simplify the day-to-day tasks of running the school.

3) Improve and maintain the physical plant.

4) Retain extracurricular activities that other schools are eliminating.

5) Share the costs and benefits with the community.

One of the first decisions the board made was to have the superintendent learn PowerSchool, a web-based student information system, and then let this computer resource handle much of the administrative work. For example, teachers use PowerSchool to enter grades. After that, students, parents, and school advisors need only a password and an Internet connection to gain access to the information.

The new Community Learning Center was made possible by sharing costs between the school city, and community. Residents use the library, computer center, and fitness center during and after school, which has helped make the school a center of its community, and perhaps not coincidentally has made residents more supportive of school funding initiatives.

The school takes academic achievement seriously. If a student is doing poorly, he or she cannot participate in sports or other extracurricular activities. Parents, advisors, and coaches can use PowerSchool to check grades and determine whether a student has turned in assignments on time. PowerSchool not only allows advisors and coaches to pull students off a team if they are behind in their academic work, it also allows them to reinstate those students as soon as their teachers have entered passing grades. This immediacy of response is a strong incentive for students to get their work done. Parents like PowerSchool because they can check their child's progress, and advisors appreciate that parents come to conferences well informed about their children's lives at school.

PowerSchool requires that parents, teachers, and students know how to use and have access to a computer and the Internet. The school does an excellent job of training teachers and students, and advisors work with parents who are unfamiliar with computers. As noted earlier, the school leases donated,

student-reconditioned computers to parents who lack computer access. Because the school provides space to the local telephone company, that utility offers free service and Internet hook-up to the school, students, and their parents. PowerSchool and the school's capabilities for "distance learning"[28] give students a chance to study a wide variety of subjects. The school sets aside a room, and teachers are available to help students in distance-learning courses.

Laurel-Concord is part of a 26-school consortium that shares online resources and training. The school is a wireless facility, so students and residents easily use both desktop and laptop computers. PowerSchool has helped Hoesing run his school so efficiently that he has accepted the superintendency of a neighboring district, which means that two districts now share his salary – another cost-effective strategy.

Partnerships between the school and community made it possible to enclose the space between two wings of the school and create this fully equipped fitness center, which is open to students and residents.

As originally intended, the school and the community share costs and the school facility. The community and the school shared the cost of the most recent facilities projects: a library, computer center, and fitness center. Some "extras," such as a microfilm printer, were affordable only because people in both the school and community would use them.

This reciprocal arrangement is not without its challenges. Because the community and school share the library, some people were concerned about students having access to inappropriate reading material. The family reading center is located next to the entrance for easy access by members of the community. The area includes play equipment for toddlers, and families use it regularly. The library also offers a computer center that is open to students and people from the community. The reading areas and books for students are located in the large open room furthest from the family section. During the school day, students may not use the adult family area, but after school they can go anywhere in the library. Everyone seems to accept and respect this arrangement.

The fitness center, built by erecting a wall to connect existing wings, is equipped with several types of exercise machines. It is open to students and members of the community throughout the day, but for $10 per month per family local residents can use it when the school is closed. In 2004, 160 families had memberships, and each family gained access to the fitness center by using a coded personal credit card.

The board and Hoesing have developed a 10-year cycle for building maintenance. Planning helps reduce project costs, and it also helps prevent emergency repairs, which are always the most expensive way to deal with facilities problems.

Students and their parents appreciate that their school is well run, that students achieve academically, and that they can participate in a wide variety of extracurricular activities that many financially strapped schools have had to cancel. The community appreciates having access to a fine library, computer center, and superb fitness center – assets that often are unavailable in rural areas.

[28] Distance learning, which is more common on the college level, is a method secondary schools can use to increase course offerings. Several terms describe essentially the same thing: "distance learning," "distance education," "distributed learning," "remote education," "online learning," and "open learning." Three common defining elements of distance learning are learning that takes place with:

1. The instructor and student geographically remote from each other.
2. The use of educational media including television, radio, CDs, or Internet technologies.
3. The provision of two-way communication between teacher and learner. Instructional interaction can rely on using the mail, telephone, desktop video and computer conferencing technologies, or the Internet.

www.distancelearn.about.com/cs/glossary/l/aa120202a.htm

Profile MEDIA AND TECHNOLOGY CHARTER HIGH SCHOOL: An urban high school

Boston, MA • Grades 9-12 • 185 Students

"Whisper my name, and I'll find you."

— Alan Safran, Executive Director

The Media and Technology Charter High School (MATCH) grew out of school founder Michael Goldstein's master's thesis. Goldstein assembled a team that included educators, business people, community leaders, and media professionals. Their goal? To create an inner-city school with a small environment where student projects would be closely tied into "the basics." Goldstein recruited codirectors, including Charlie Sposato, an experienced principal, and Executive Director Alan Safran, who had served in the Massachusetts Department of Education. Together they created a school that serves a predominantly African-American and Hispanic population from some of the poorest neighborhoods in Boston. Ninety-five percent of MATCH's students qualify for free and reduced-cost lunch.

"MATCH provides structure to students whose lives are often chaotic outside of school."

The team was determined to help all MATCH students achieve at high levels. When MATCH's first ninth-grade students had sixth-grade reading levels and fifth-grade math scores, the school took advantage of its agility and autonomy as a small school to adjust its program. To achieve the team's high standards, Goldstein, Safran, and Sposato added one-on-one tutors, additional study time, and set clear expectations and boundaries.

MATCH provides structure to students whose lives are often chaotic outside of school. Students must wear uniforms, follow firm rules, and be prompt. If a student is more than two minutes late to school, he or she must serve detention, even if the cause is a delayed subway train. MATCH expects students to behave well, to participate in class, and to work hard. Almost a quarter of the students have repeated a year since coming to MATCH. Their willingness to stay in school and repeat a year, rather than drop out or go to a less demanding school, demonstrates their determination to learn and their conviction that at MATCH, they do learn.

The renovated car dealership located on Boston's public transportation service, "The T," gives easy access to students and tutors from area colleges.

MATCH relies on tutors to give students the extra time and support they need. In 2000-2001, MATCH logged four thousand volunteer hours, including tutors' and mentors' time. In the next year, that number rose to six thousand hours, and in 2002-2003 the school benefited from more than ten thousand volunteer hours. Intensive tutoring provides many benefits beyond its impact on student learning. Students and teachers have time to know each other, and adults are accessible to students and their parents. Teachers frequently call parents at home to tell them how their children are doing.

Joking that at one time they thought they should rename the school "Mentoring and Tutoring Charter High," the founders can now look on proudly as MATCH students rank first in the state on the Massachusetts Comprehensive Assessment System (MCAS) among schools with a predominantly minority population. In addition, MATCH students outperformed students from the other 22 schools in Boston that don't require an examination for entrance, and 89% of the class of 2005 passed both sections of the test on their first try. As the school website states

"…despite the fact that just 4% of our students had scored in the top two MCAS levels (proficient and advanced) in math before coming to MATCH, after 2 years here, 73% have scored proficient or advanced."[29]

MATCH does nothing without careful analysis – and its research showed that the school should be located along easily traveled public transportation to give easy access to students from throughout the area, as well as volunteers and paid tutors. Using funds from the federal Qualified Zone Academy Bond (QZAB) program,[30] MATCH was able to buy a 90-year-old, three-story brick building with 10,000 square feet per floor located directly on a subway line. The site is on the fringe of Boston University and close to Boston College, where students are just a short train ride away from the Boston Museum of Fine Arts, the Boston Symphony, the Boston Public Library, and other cultural, historic, and medical assets. They also are within easy access to businesses and private organizations. In short, the school's location offers a wealth of opportunities for internships, mentoring, field trips, and projects.

Victoria Bergsagel for Architects of Achievement

Tutors work one-on-one with students for ten hours a week either after school or on Saturdays. This intensive support has helped MATCH students pass the Massachusetts Comprehensive Assessment in record numbers.

Careful and frugal renovation created a two-story school that includes a spacious front hall with a handsome grand staircase, a reception room, limited and shared office space, and a large room (once a luxury car showroom) that serves as a study hall, assembly room, dining hall, and a gathering place for students. A conference room directly off the large room (to save space, there is no hall separating the two) offers a handsomely furnished area for meetings. Because dot-coms were folding (and liquidating their assets) while MATCH was under construction, the school's classrooms and meeting rooms were well and cost-effectively furnished. MATCH recently renovated space on the third floor as dorms for AmeriCorps volunteers.

Elegant columns grace the large hall, once the showroom for the auto dealership, and now a multi-purpose room where students study, work with their tutors, eat lunch, and gather for presentations.

The school's small size provides flexibility and attention to students. Being small allows the school to function with less formal structure than is necessary in a large school. And, as founder Goldstein points out, "If you have good people, don't impose structure." The good people will help develop a structure that is responsive.

The MATCH students are doing well academically, as documented by their test scores, but perhaps the best indicator of MATCH's success was observed by one of the study's researchers while she was going to MATCH on the subway. Instead of a conversation that might have been sprinkled with expletives and references to boyfriends and pop stars, five teenage girls talked about how they did on the last test, how they could help each other understand an assignment, and where they were applying to college. When they all got off the train and walked in to MATCH, the researcher knew she was visiting a remarkable school.

[29] See www.matchschool.org.

[30] For more information on Qualified Zone Academy Bond (QZAB), see: www.qzab.org.

Profile The Metropolitan Regional and Technical Center: An urban high school

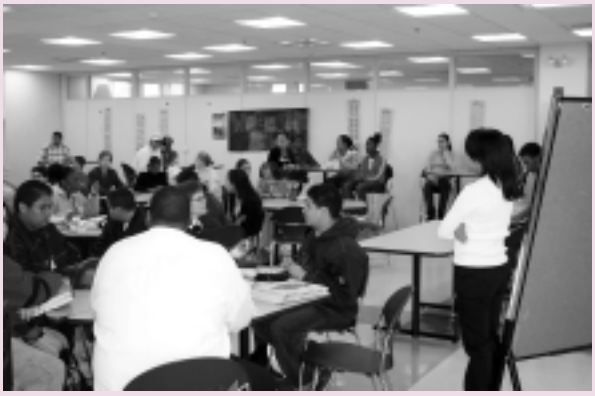
Providence, RI • Grades 9-12 • 438 Students

"One student at a time."

— School Motto

The four buildings of The Met's Public Street campus were designed to blend into the neighborhood. Each of the four schools (Liberty, Unity, Justice, and Equality – named by the neighboring community) occupies a corner of the rectangular site and echoes the architecture of the surrounding two- and three-story apartment houses. Paved streets crossing the campus are visual extensions of the city streets that border the school, but automobile access to the school is limited. Only a low wooden rail, easily jumped by a lanky teenager, separates the schools from the neighborhood.

How do you create small schools within a larger organization and give them the autonomy to develop their own character? Elliot Washor, cofounder of The Met and cohead of its umbrella organization, The Big Picture Company, believes such schools must be set apart from each other – by as much as two hundred yards. This, he suggests, is close enough to share amenities yet far enough away to encourage each school to develop its own identity. Students also should have nooks in their own facility in which individuals and very small groups can gather to talk or study. Without these physical spaces, the relationships that are the bedrock on which a good small school is founded cannot develop.



The principal of a small school at the Public Street campus of The Met addresses her students and their advisors at the morning "Pick-Me-Up," a school-wide meeting.

Exterior shot of one of the four small schools at the Public Street campus.

The Met and The Big Picture Company's philosophy of project-based learning is grounded in the founders' experience in vocational education. They believe that hands-on work chosen by the students provides the best way for them to assume responsibility for their own education. The Big Picture Company believes that students quickly become alienated from a course of study in which they have no interest. They're convinced that building on students' interests is a way to involve them in the wide range of study they need to be effective students, pass state tests, and get into college.

"Students work in groups of 14 with an advisor who stays with them throughout their time at The Met."

The Met serves a diverse student population from Providence and the nearby communities. Although the school is located in one of the poorest neighborhoods of the city, its students make the journey because they are alienated and fed up with the traditional system. As

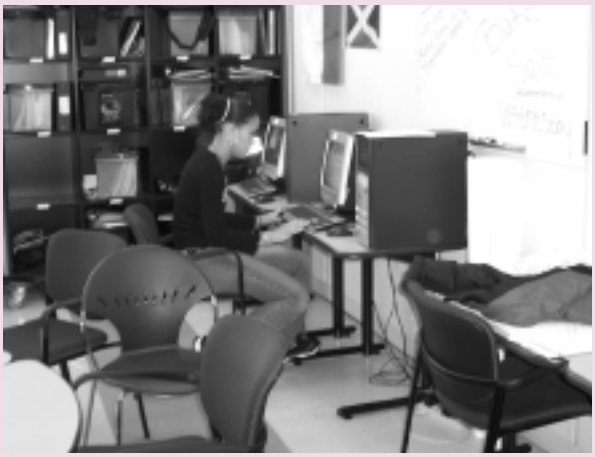
one student put it, "When I went to other schools, I hardly ever went. Like I missed 80 days. Last year, at The Met, I missed five days."

What's different for this student? The four schools on the Public Street campus and the two others that together form The Met are limited to 120 students each. Students work in groups of 14 with an advisor who stays with them throughout their time at The Met. This relationship allows time for real friendships and trust to flourish. This is critical for teenagers, many of whom have been alienated from adults. As one student explains, "I think if you don't have teachers who actually care about you – and actually care about what you are doing, then why should you care? My advisor really cares. I was on the phone with him for an hour and a half yesterday, and we were talking about different projects and things like that. And he cares, and that makes me want to care about my work because I have somebody who cares and who's willing to help me. And I can trust him. I can tell anything to my advisor. He's the person I run to when I have a problem. That's why I love my advisor." She says this with such feeling that tears come to her eyes.

Students take some classes with their advisors and peers, as well as with specialists at The Met. Students design projects that focus on internships based in their areas of interest. One girl works at an organic farm, while a boy studies electronics with an electrician who has mentored many Met students over the past several years. With the guidance of their advisors and mentors, students work their way through levels of responsibility and accomplishment. Every quarter students develop and carry out unique projects, each of which culminates in a presentation or exhibition. Some might wonder how it is possible to have students select their own projects and still fulfill academic requirements, but students at The Met report that they are working harder than they ever did in previous schools and are accomplishing much more. They add that their friends are astounded when they see the presentations and portfolios Met students are required to make before passing to the next level of work.

"Students who previously had dropped out, avoided school, or been passive about their lives are now engaged in learning."

At The Met, students pursue their interests with the support of advisors and are led back to core subjects such as history, math, reading, and writing in their attempts to better understand their discipline. A student studying electronics was eager to learn the history of the field and the science of how electricity works. Eventually this extended to the history of the industrial revolution, as well as advanced math. Of course, this method takes a well-developed system of support to succeed: students, advisors, a head of advising, a weekly newsletter, and continuous training and meetings run by The Big Picture Company. But the results are exciting. Students who previously had dropped out, avoided school, or been passive about their lives are now engaged in learning. A very small percentage fail to handle the freedom and responsibility The Met offers, but for the 97% who succeed and graduate, life will never be the same. Now they see themselves as lawyers, surgeons, teachers of special-needs students, electricians, and professors.



A student works at her own station within the advisory. Advisors and advisees decide how to use the space, and may change it throughout the year. Many of the walls between advisories and other rooms can also be moved.

Profile OAK VALLEY SCHOOL: A rural elementary school

Oak Valley, NE • Grades K-8 • 30 Students (2004-2005)

"Here we really care about our school. Our parents care. At public school it's embarrassing to have your parents around. Here it's great. Parents really help. We're all equal. We're a family here."

— Oak Valley Students

Oak Valley School, founded in 1868, has occupied a simple building tucked between cornfields at the end of a long dirt driveway since the original building burned down in 1920. In the 1970s, parents added 300 square feet for bathrooms and lockers, and, in the summer of 2001 "the dads" added a 700-square-foot space for a second classroom and a computer room at a cost of $50 per square foot. The school grounds include a memorial garden given by the parents' association in memory of a student, a playground with a metal merry-go-round that has been in use since the 1950s and a jungle gym. When Mrs. Jean Nabity, the lead teacher, rings her bell and children line up in front of the door, the scene is complete – a typical rural school.

"Students also have the chance to learn from and with their peers in multi-aged classes and to work with three full-time teachers who are resourceful, engaging, and determined to offer their students a fine education."

What is atypical about this school, however, is that it attracts two-thirds of its students from outside the district. Parents who live in the university city of Lincoln bring their children here, as do farmers who have home-schooled their children. Although homogeneous racially, the student body is diverse economically. Why do they bring their children to this small rural school? Because this school offers individual attention and a family atmosphere. Students also have the chance to learn from and with their peers in multi-aged classes and to work with three full-time teachers who are resourceful, engaging, and determined to offer their students a fine education.

The small white school house is located at the end of a long dirt road in the middle of cornfields.

"Every day when we are planning we ask ourselves, 'What can we do to make this fun?'" says Jean Nabity. Her students' smiles and the excitement buzzing around the rooms suggest, "a lot." Younger children laugh as their teacher squirts strawberry-scented shaving cream on their desks as they prepare for a spelling bee. The students write the words in the

Younger and older students read to each other each day over several weeks. By the end of the year each child will have read with everyone in the other age group. Teachers monitor each student's progress and note that reading to a younger or older student is very helpful to both.

cream, wiping the cream with their hands to prepare a clean "slate" after the teacher has checked each word. No one misbehaves, and everyone has a good time. Meanwhile, older students in the next room work in pairs, sticking the names of bones on the appropriate body part of their partner. Later, older and younger students gather, some sitting at desks, others on couches or easy chairs, to read to each other. And after reading, older students gather for math, working complex problems on their desks with erasable markers, and then work in the new computer room. The spirit of play infuses everything they do.

The principal is a practicing lawyer and part-time school administrator with lots of experience. He and the three-person school board have created a nonprofit organization to supplement basic public funds for the school, but the school has never solicited or received any money from outside organizations and does not see itself as experimental or even particularly innovative.

Before school starts a parent volunteers to lead a popular chess club in which students of all ages participate.

Spelling is fun when students write words in shaving cream with their fingers and erase them with their hands after the teacher checks their work.

The school provides a solid and imaginative curriculum at a cost that is about $600 below the average per-pupil cost in the area. To keep costs down, students clean the rooms, parents do most of the maintenance, and the school provides no transportation. Instead, parents drive their children to and from school and on field trips – as they did on a recent visit to the home of author Willa Cather, after the older children had read some of her books. Teachers order only the supplies they need, avoiding a centralized ordering system because they consider it wasteful. The school has a furnace that can be fired either by oil or by gas, so it can take advantage of whichever fuel is cheaper. And they employ such small innovations as putting tennis balls on the feet of all chairs so they don't scrape the floor and make it harder to clean.

"Oak Valley School proves that it is possible to have a very good and very small school that offers students access to an excellent education grounded in family and community."

Oak Valley School proves that it is possible to have a very good and very small school that offers students access to an excellent education grounded in family and community. Teachers have autonomy over what they teach and how they teach it, and they offer parents and members of the community ways to participate in the education of their children – all at a cost below that of educating children in much larger schools.

Profile THE STAR SCHOOL: A solar-powered rural elementary school

Flagstaff, AZ • Grades K-8 • 65 Students

"Service to all relations."

— STAR motto

The school nestles against a low hill at the end of a dirt road off a rural highway outside the city of Flagstaff. Arrayed behind inviting playgrounds, adobe buildings form a rough circle. At the center of that circle, a bright blue wing of canvas arcs over a wooden deck called "the shady." The cloudless sky stretches behind the dormant volcanic range, and the greens and grays of desert vegetation soften the dusty land. Purple iris unfurl under rain spouts, and small, rock-encircled gardens dot the land around the buildings. There is such harmony and such a sense of permanence here that it is surprising the school opened in August 2001, the buildings are modular, everything runs on solar power, and the area is going through its worst drought in 1,200 years.

The main buildings are modules covered with an adobe-like stucco that make them fit well with the landscape and culture of the area.

The STAR School is the product of a vision shared by Dr. Mark Sorensen and his wife Kate, developed from working with the Navajo Nation and using only solar power for more than 12 years at their ranch. To start STAR School, the Sorensens mortgaged their ranch, and bought 40 acres previously used for dumping cars and debris. The first contribution the school made to its community was restoring this land and making it a safe place.

Modeled after traditional Navajo structures, the Shady is a raised platform with picnic tables protected from the sun by a blue canvas canopy. It was built over water storage tanks.

The name STAR, an acronym for "service to all relations," suggests the sun and solar power, as well as the goal of being exemplary. The school's vision centers on the Navajo ideal of finding and sustaining harmony with all people and with the land – everything that lives on, beneath, or above it. Some of the academic programs at the school reflect Navajo tradition, such as its strategy for conflict resolution, the native science curriculum, and classes in the Navajo language. Students also learn reading, writing, and quantitative and critical skills.

"The first contribution the school made to its community was restoring this land and making it a safe place."

The STAR School opened with 23 students in grades 1-6. In the fall of 2004, the school served 65 children in grades K-8, about 85% of them Navajo, most of whom live on the nearby reservation. It has added a grade each year since it opened but plans never to exceed one hundred students. Sorensen points out that while most charters want to increase enrollment, The STAR School intends to stay small to retain the close connections that nurture children and families.

Children living on the reservation have to travel more than 45 minutes to reach The STAR School. Nevertheless, students choose The STAR School because they feel safe and know that they are cherished. The curriculum is rooted in Navajo culture, but the school values diversity. The Sorensens believe that children learn to appreciate each other by playing and working together, so they hope to welcome more children from various backgrounds.

"The school's vision centers on the Navajo ideal of finding and sustaining harmony with all people and with the land – everything that lives on, beneath, or above it."

While many larger schools cut athletic programs because they are expensive, The STAR School offers wrestling for boys and girls, volleyball, soccer, cross-country, and basketball. Of the 55 children in the K-7 program in 2002-2003, 20 ran cross-country, 20 played volleyball, and more than half wrestled.

Recycled tires were used to create a raised area in the playground that can also be used as an informal amphitheater.

The STAR School came in second in its league of nine schools in soccer and second out of nearly 60 schools in cross-country. The climate makes basketball and volleyball possible on an inexpensive outdoor court. The area is ideal for cross-country, and wrestling requires only a small space and little equipment. A gifted coach, who is a highly respected member of the Navajo Nation, makes The STAR School's athletic program possible and serves as the liaison between the school and the community.

Three boys study together in a quiet corner of the classroom for older students.

Many of The STAR School's challenges are specific to its location and culture. Absenteeism is high because the Navajo expect children to be home during times of celebration or crisis. Sometimes children are out of school for weeks, but The STAR School is working with students and their families to keep them connected to the school through the Internet and with home visits by the coach/community liaison.

The extent to which everyone and everything works together at The STAR School is extraordinary. Teachers and parents transformed the modular buildings with adobe-colored stucco that makes it seem as if they grew out of the desert. Children, using the agricultural techniques of their ancestors, are gardening in the desert with rocks to retain water. In the summer of 2004, parents helped build a straw bale house that serves as a science building and mini-gym. Parents work part time at the school as bus drivers, cooks, and assistant teachers. The coach, outreach coordinator, and facilities director are all parents. Together they have transformed a dumpsite into a center of community.

Profile TACOMA SCHOOL OF THE ARTS: An urban high school

Tacoma, WA • Grades 10-12 • 348 Students

"We share everything."

— Jon Ketler, TSOTA Director

What do Tacoma Art Museum, the Museum of Glass, the Washington State History Museum, the Rialto Theater, the Broadway Center for the Performing Arts, the School of the Arts Performing Arts Center, the buildings at 1950 Pacific Avenue, and the building at 1818 Tacoma Avenue in Tacoma, have in common? They all offer classrooms for students attending the School of the Arts in Tacoma (TSOTA).

When Tacoma high school teacher Jon Ketler thought about the recent renovation of public buildings in his city, he saw an opportunity for a new school, perhaps even a new type of school. He saw a school dedicated to teaching students who were passionately focused on the arts. He saw a school that allowed them to explore that passion with qualified teachers and working artists throughout the downtown area. He envisioned students using the newly renovated public buildings dedicated to the arts: the museum, library, university, symphony hall, and theaters. Using his knowledge of local and school politics and real estate, Ketler was able to craft a school that uses nine different buildings within a one-mile radius. A combination of hard work, ingenuity, luck, and good will allowed him to make his bold idea for a good small school a reality.

Overhead doors are a cost-effective way to open and separate spaces for different classes.

Constructed between 1906 and 1908 the New York & Ted Brown building previously housed a department store, music store, and dance studio. Now as the Performing Arts Center it again hosts recitals and classes. The jazz cabaret, Club SOTA and a 105-seat theater enrich the cultural life of the downtown for students and residents alike.

Students use public transportation as well as their own feet to get to and from classes. They can earn a half credit in physical education for walking to and from classes for the three years they attend and are allowed 20 minutes between classes. The school offers a three-year program, and accepts students only as sophomores, because they have to be mature enough to take responsibility for getting themselves to classes in different locations in downtown Tacoma.

The school uses a variety of strategies to be cost-effective. Teachers and students built much of the furniture, including shelves, work tables, and desks. Instead of installing plumbing lines to serve science work stations, they use large buckets that they empty into a central sink. Ketler, a consummate scavenger, got a lot of the equipment from other public schools

that were getting rid of it. For example, he got large pieces of slate previously used for blackboards, which the science teacher and students turned into science tables. TSOTA has created a culture of sharing that fully maximizes resources. Students and teachers trust each other; they leave their work out in the open and share books, equipment, and supplies.

"TSOTA has created a culture of sharing that fully maximizes resources."

TSOTA spends most of its money for faculty on core teachers, but supplements core faculty with adjuncts who teach their specialty, including jazz and print-making. These adjunct teachers are delighted to share their expertise, yet do not require benefits. Without them, the Visiting Artists program that offers a wide variety of classes in studio and performing arts would not be possible. Ketler and his codirector and faculty continue to build creative learning experiences for TSOTA students through partnerships with the community.

Kevin Veatch for Architects of Achievement

Students at TSOTA use professional quality facilities including a large and well-equipped theater with a box office where they learn the "behind-the-scenes" arts of staging performances.

Students practice together before auditioning for a concert. The music rooms are constructed with double sheetrock wall, acoustical ceiling clouds and soundproofing glass panels to isolate and control sound. Musicians can practice without being heard in the adjacent recording studios, practice rooms, and classrooms.

TSOTA shares its space. For example, a university sculpture professor uses a room in the arts building to teach a college-level sculpture class, which is also attended by some TSOTA students. TSOTA's performance space is available to the community, and, after school, the chorus practice room becomes Club SOTA, where students and the community can attend performances by local artists free of charge.

"Using his knowledge of local and school politics and real estate, Ketler was able to craft a school that uses nine different buildings within a one-mile radius."

TSOTA invests in a full-time community-outreach coordinator who is in charge of finding people who might offer internships and special projects, or teach as adjuncts. She coordinates appeals for donations, oversees recruiting, and directs interactions with the media. Because of her energy and dedication, and because she has a great school to talk about, TSOTA is getting a lot of positive attention.

Profile

Todd Beamer High School: Three academies in a new school within a school

Federal Way, WA • Grades 9-12 • 1,350 Students divided into three academies (2003-2004) • 1,550 Students divided into three academies (2004-2005)

"On time and on budget. He's the most enlightened facilities manager one could ever hope to meet."

— Architect Lorne McConachie, Bassetti Architects, about Rod Leland, Facilities Director for Federal Way

The district of Federal Way on the doorstep of Seattle wanted to build a new high school, in part to realign the arrangement of grades in schools within the district. While district administrators knew that small schools made sense for students, teachers, parents, and the community, it seemed everyone in these groups wanted a large high school. The educators tried but failed to convince parents and community members of the benefits of small schools. A team of planners, led by Victoria Bergsagel, the director of educational design, and Rod Leland, the facilities director for the district, decided to honor the wishes of the public. But they did so in such a fashion that the facility can accommodate a number of different ways to organize academies, with the hope that the community will grow to understand and accept small schools.

Using different material and heights breaks the mass of the building into sections that make it seem smaller and well-integrated into its setting.

To design a facility that reconciled the conflicting ideas of the administrators and community, planning teams met over three years for rigorous discussion of different scenarios – from one large institution to eight smaller schools housed in the same facility. They discussed the need for different types of spaces – not only classrooms, but also nooks and niches set off from the hallways where students could gather to socialize or study, yet still see and be seen, important considerations for teenagers and the adults who supervise them.

Kevin Veatch for Architects of Achievement

Comfortable seating in the library invites students to study and talk quietly. Note the chairs at the library tables that accommodate rocking.

In the fall of 2003, Todd Beamer High School opened to serve 1,350 students in three academies. The school sits at the edge of its football field like a village on a green. The varied shapes and sizes of the joined buildings echo the architecture of the older houses in this growing suburb. The field and a high berm separate the school from a busy highway, muffling the noise of cars and trucks yet providing easy access.

The facility's furnishings, even the walls, are movable and can be adjusted to fit many configurations. Many spaces serve multiple purposes. The "great hall" works along the lines of a baronial banquet hall – a place where music, theater, dancing, and dining often occur simultaneously. Its small kitchen and service areas, located across the hall from the central kitchen to reduce the odor of cooking, are also easily accessible by students and guests at events. The great hall serves the entire student body and functions as the gym, cafeteria, and auditorium. It has a bank of comfortable theater seats that, at the touch of a button, unfold to provide seating for 320 or slide back into a neat stack on the back wall to conserve floor space. Tables and chairs are on casters so they can be quickly reconfigured, and the stage is movable. At the touch of another button, an acoustic curtain on a

track about the height of the basketball nets circles around the wall above to brighten or dim the sound. The facility is a marvel of technology and thoughtful planning for multiple contingencies.

To save money in future reconfigurations, gas and water lines extend the length of the wings, as well as vertically in the two-story building. Labs located along a spine with utilities serve the present arrangement of three academies, but could easily serve a larger number of separate schools. A dumbwaiter allows teachers to move fragile science equipment and supplies safely between floors. Waste lines lie deeper than normal so sinks can be added anywhere in the building yet drain well. Mechanical and ventilation systems were oversized to allow for future capacity. Small bathrooms located throughout the building can serve small academies and clusters of students.

"The facility is a marvel of technology and thoughtful planning for multiple contingencies. "

Even the library, the main office, and counseling spaces can be reconfigured easily with movable walls into separate, smaller academies. The school's furnishings are remarkably adaptable. Teachers use cabinets on casters to store their own supplies and can open walls between rooms to create large shared spaces.

The building is handsome, inviting, and functional. Stained concrete floors wind down hallways in an interesting pattern of blues, rusts, and greens. Natural daylight floods the hallways and classrooms through large windows that draw the landscape into the building. Wide rock stairs visible from the interior beckon teachers and students to impromptu classrooms and performance areas outdoors. But the person who may appreciate the building most fully is its head custodian, who says, "I love the building because it is easy to clean."

All this was accomplished for $26,640,735 – less than the $27,930,000 maximum allowable construction cost for the project and less than almost all other high schools built in the region. Square foot costs:

- $36.47 for the primary building system, including steel frame, floors, and exterior and bearing walls
- $52.63 for the secondary building system, including mechanical, electrical, and interior walls
- $51.86 for the tertiary building system, including doors, cabinetry, interior finishes, and specialties.

The risk in building a large facility, as educators well know, is that students and parents will identify themselves as part of a large high school, not the smaller academies, and that the large high school will never grow into autonomous and distinct small schools. Some danger signs are already apparent, but the school's leadership team has made it possible for small schools to coexist successfully in this remarkable facility. The possibilities at Todd Beamer High School are almost limitless, thanks to the foresight of a handful of administrators and planners.

Kevin Veatch for Architects of Achievement

Although the school easily houses over 1,500 students, the facility does not overwhelm the site. Instead, the attached buildings reflect the style of older houses and fit in well with the neighborhood.

Profile H.S. Truman High School: A suburban alternative high school

Federal Way, WA • Grades 9-12 • Students: • Forum School: 99 • South School: 98

"The greatest impediment to change is fear."

— Tom Murphy, H.S. Truman High School superintendent

When the two small schools that make up H.S. Truman High School moved to their new facility in March 2003, they left behind a 50-year-old structure and a dropout rate twice that of other high schools in the district. The new space offered soaring ceilings, natural light streaming through large windows, garage-style doors that open wide to the outdoors, and an expansive "great room" for each school. The new program is modeled after The Big Picture Company's philosophy of learning through internships.

"When students said that they lived in cramped apartments and craved space, air, and light, the architects made these qualities central to the design."

Pam Morris-Stendall, who had been principal for 12 years before the move, served as the catalyst for this change at H.S. Truman High School. She could no longer tolerate the high dropout rate and was determined to find a better way to help not only her students, but also those who had dropped out of other programs and needed a real alternative. Together, she and her team created a new facility and a new program.

Garage doors open easily for access to an outside space that students and advisors enjoy together for discussions and meetings.

The simple exterior of H.S. Truman High School is functional and attractive. Note the clerestory windows that run the length of the central building and provide natural daylight for the interior.

Ten of her 12 teachers left when Morris-Stendall said they were going to change the school from a traditional to an internship-based program. But she found new teachers – with a deep commitment to this type of teaching and learning. Students participated actively in planning for the school and making those plans work.

The architects really listened to students. When students said that they lived in cramped apartments and craved space, air, and light, the architects made these qualities central to the design. High ceilings are not always cost-effective to build, but the architects found ways to create space on a budget, using plywood to cover ceilings and omitting window trim, for example. The school feels larger than its dimensions would suggest and students and their advisors have personalized their own spaces to reflect their interests and accomplishments.

By forming partnerships, H.S. Truman High School expanded the space available to its students. Students can use the land and athletic equipment at the park adjoining the school, and soon, they will also use the adjacent facilities of the Boys and Girls Club. A Head

Start program on the same site provides a place for Truman students to have internships.

What do kids at H.S. Truman High School like about their school? They love the building, and they love the principal and their advisors. They like each other and the feeling of safety they have created at the school. One student said, "There are no fights here. Well, maybe one or two, but nothing like my old school." They appreciate that the district thought enough of them to build a new facility, and that the principal created a program based on internships that allows them to pursue their own interests and interact positively with people in the community. They want to be sure that they and their school make a good impression on the community, and, through internships, and the support of their advisors, they are learning to do that.

Moving to the new facility has lifted spirits and scores. In 2004, 100% of the graduating class was accepted into college. What started as a school for "throw-away" children is becoming a place where students feel valued, grow to care about each other, their advisors, and themselves, and are learning more than they or anyone else thought they could.

Kevin Veatch for Architects of Achievement

Students in an advisory share a lot of time together and with their advisor and develop close relationships.

In fall of 2004, several valued teacher/advisors left to assume more responsibility in the district and in other schools, and Morris-Stendall retired. But H.S. Truman High School found a compassionate and articulate new leader. She is determined to continue to offer a caring community and challenging academic opportunities to children who might otherwise have lost their way.

Students, many of whom live in cramped dark apartments, told architects they craved light and space. Working with a limited budget and unlimited imagination and ability to innovate, architects delivered a design with clerestory windows and soaring ceilings.

Profile

WORLD OF OPPORTUNITY: An urban community-based, civil rights, social justice, educational and job readiness program.

Birmingham, AL • Ungraded • 35-65 Students per day

"Other people try to limit you by telling you what you can't do. WOO tells you what you can do. It feels like family here."

— WOO Student

In 2000, 522 students in schools throughout Birmingham, AL, were told to leave school between February 15th, when they were counted for state reimbursement, and April 15th, the date for administering state achievement tests. The common denominators: they were all African-American, many had just turned 16, and all were asked to leave because of "lack of interest." Many of these "disinterested" students turned up on the doorstep of the city's alternative adult education program run by Steve Orel. When he protested their dismissal, the city locked the doors of the adult education program and fired him.

"WOO doesn't charge tuition and receives no state or federal assistance. Instead, it is funded by donations made to its 501(c)(3) non-profit corporation and supported by the work of volunteers."

Orel and Brother Charles Todel, a Salesian monk who worked with the Catholic diocese, founded World of Opportunity (WOO) to help students who had been pushed out of city schools earn their General Educational Development (GED) credentials. Though the school board locked the door, it didn't own the building. WOO was able to lease the windowless 25-by-50-foot cinder block facility in one of the poorest neighborhoods in Birmingham from the sympathetic owner who runs a manufacturing plant next door. Later, the school added a trailer, and students built a roof to connect it to the main building. Crime, drugs, disillusionment, and hopelessness crippled the community, but WOO staff, volunteers, students, and members of the community are changing that. WOO doesn't charge tuition and receives no state or federal assistance. Instead, it is funded by donations made to its 501(c)(3) non-profit corporation and supported by the work of volunteers.

The facility includes a trailer, and behind it, a small building leased from a sympathetic neighbor, Miller Wire Works, Inc. But World of Opportunity has created an oasis of hope in Birmingham, Alabama for students in the Adult Education Program, and residents.

The neighborhood is rundown, the building drab, but when the school opened its doors a world of opportunity opened as well. People ranging in age from young teenagers to grandmothers sit at desks in front of computers or at tables in three small rooms. Students work at their own pace, some with tutors, some individually. Often students help each other. The walls are papered with announcements of students' achievements: passing the GED or the test to be a certified nurse's aide, or getting a job. Though poor by some measures, the people at WOO have an extraordinary capacity for giving – to each other and to their community. They share their resources; volunteer as tutors at an elementary school; assist the local food pantry; collect mittens, hats, and toys for an "Angel Tree"; and without hesitation collected supplies after 9/11 to send to each of four schools near New York's World Trade Center towers.

WOO recognizes that its students have many responsibilities to balance: care of children and sick and aging relatives; problems with transportation; money for food, rent, and clothing. WOO serves the whole student: getting a donated car for a woman who had to move out of the area and couldn't get to

The rooms have no windows, and spaces are cramped, but WOO students, tutors, and teachers work together as a community, sharing their talents and resources.

A teacher, students, and volunteers work together in the central room at World of Opportunity. The leased building has no windows, but that doesn't stop students from studying independently and with tutors to pass exams including the GED and CNA.

school, finding funds to pay for housing for a woman who suffered a stroke and was caring for her granddaughters while earning her GED, providing clothes for job interviews, obtaining food when people are going hungry, and offering babysitting so students can attend classes. Students set their pace of

The director of WOO and two students enjoy a moment together as they stand in front of the binders in which students record their work and journal entries.

"Though poor by some measures, the people at WOO have an extraordinary capacity for giving – to each other and to their community."

study, and those whose studies are interrupted can return whenever they want.

WOO is a safe haven for its students and people from the community. Located deep in an African-American ghetto, it has created a culture that attracts people of all backgrounds. One student said, "I've had my bad times. But these people here are my family. I go home, and I can't wait to get back. I've never been with so many cultures, and everyone gets along. There are no fights."

WOO has never turned any student away, and despite enormous odds it is making a difference in the lives of its students and its community. Since it started, WOO has helped more than 50 students earn their GED and has more than 25 former students in college. Most important, it has revived the heart and dreams of a community that was dying. Today WOO students look ahead to earning college and graduate degrees and aspire to being artists, doctors, lawyers, scientists, teachers, and social workers.

Suggestions for Further Work

Inevitably, answers to one set of questions reveal where further study is needed. *Dollars & Sense II* is no exception. The quantitative and qualitative research in this report has raised additional issues that demand examination. Among them:

- Very little peer-reviewed research literature exists on school construction costs and their relation to school size. This fact is particularly surprising given the amount of money being spent on school construction. Why is there so little credible research on school facilities, and how do we fill this information gap?
- One way large schools "save" money is by allocating much less space per student than small schools do. But how does space affect students, and what types of space are increased in small schools and decreased in large schools?

Another area of further study is the sustainability of volunteerism and the role of volunteerism in making small schools cost effective, as well as in creating vital communities.

The particular schools in this study also warrant additional research. How will they adapt to new conditions and remain cost effective? In short, there is much more to learn, and we hope to continue this work.

Conclusion

This report offers the results of research conducted over two years and gathered with three distinct methods: site visits to schools that met specific criteria by a team with diverse experience, analysis of the budgets of those schools, and analysis of a large database of school construction projects. The *Dollars & Sense* team used both quantitative and qualitative methods to learn about the cultures, educational programs, and costs necessary to construct, maintain, and operate good small schools. Yet the results of these separate analyses all point to the same truth: Good small schools are being built, maintained, and operated throughout the United States so efficiently that they spend less per student than the average amount spent per student by their districts.

The small schools in this report are models of cost effectiveness as demonstrated by the fact that as a group they are operating at almost 17% less than the per-pupil expenditure for their districts. The strategies they have created can inspire people in other schools and communities. Furthermore, analysis of more than three thousand school facilities construction projects shows that smaller schools are not more expensive to build than larger, reasonably sized schools. This is exciting and dramatic information because education research over the past 30 years shows conclusively that small schools benefit students, teachers, parents, and communities. The schools that have the best chance to improve students' academic achievement – good small schools such as the ones in this report – are actually affordable.

The good small schools in this report vary in location, grades, and populations served, and in their form of governance, yet they share fundamental characteristics. Each is grounded in relationships – relationships between teachers, students, parents, administrators, and members of the community. Each has enough autonomy to define its mission and to determine the best ways in which to accomplish its goals. Each has created a caring environment and programs based on high expectations for achievement and conduct. Furthermore, the facilities that house these schools support the educational program rather than block or distort it. Each school also is cost-effective; proof of that lies in the fact that as a group these schools spend less per student than the amount spent by their districts.[31]

By their very existence, these schools prove that good small schools are operating cost-effectively. The justification for closing and consolidating schools – that economies of scale reduce the expense of public education to taxpayers – is simply untrue.

Moreover, the schools visited for this study are not serving affluent students; many work predominantly with populations that have long been under-served and all include such students. It is to their great credit that they are teaching poor and marginalized students how to read, write, compute, and think critically, and to trust adults and enjoy school. Many of these schools are also working closely with families and other members of the community. By doing so, they have become community centers and centers of community.

[31] Note: The four small schools at the Met's Public Street campus exceed this amount but they are not yet, by their own choice, at full enrollment. MATCH School also exceeds the per-pupil expenditure, because the school has received grants and donations, while Boston has had to reduce its allocation because of budget cuts.

It is important to note that this report does not promote replication. Rather, schools and communities should adapt good ideas to meet the particular needs of their situation. Rarely can a school lift an idea or practice and graft it whole even onto an entirely new school. The challenge is more subtle and difficult. To succeed, schools must tailor new ideas and practices to fit their unique situation.

It has been more than 30 years since any credible researcher in education has recommended large schools. The burdens of large schools are now well documented: higher drop-out rates, lower rates of graduation and postsecondary enrollment, more violence and vandalism, alienated students, and higher costs for security, administration, and transportation than in smaller schools. The cost to society of students who drop out, get in trouble with the law, or become dependent on welfare is enormous, and it correlates closely with the lack of a high school education (D&SI, pp. 8-11).

These costs are literally incalculable. Perhaps even more important is the loss to individuals, families, communities, and our nation of what might have been accomplished and contributed by students if they had not dropped out of school. We cannot afford large schools because we cannot afford to lose the contributions of well-educated high school graduates. The high percentage of students who are disaffected or drop out in large schools is simply unacceptable and unnecessary. The power of good small schools is that they engage their students. They let their students dare to dream, show them the steps they must take to realize their dreams, and help them become contributing members of their communities and their nation.

The research in this report shows that small schools can be cost-effective and offer the elements of a good education: close relationships with caring adults; programs that are deep, diverse, and engaging; and environments that motivate students to come to school, work hard, and graduate. The good news is that what works best for students, particularly those from poor families, and for their parents, families, teachers, and communities – good small schools – can be cost effective. As a nation, we must invest in small schools. The costs of large schools are simply too great.

The Dollars & Sense Team

Barbara Kent Lawrence is an educational consultant specializing in small schools and school facilities. Her academic background includes a BA in anthropology from Bennington College, an MA in sociology from New York University, and an Ed.D. from Boston University. She has taught students from middle school through college level, and headed the history and guidance departments in a high school. For many years she ran a real estate brokerage and construction company in Maine, where she started an environmental education program for children (Grades K-9), and a foundation for a local school. She was a policy analyst for The Rural School and Community Trust and is the author of many articles and two books. Lawrence is an adjunct professor at Lesley University where she teaches writing, research methods, and an introductory course in sociology, and is currently finishing a third book.

Paul Abramson is president of Stanton Leggett & Associates (SLA), an educational consulting firm specializing in analysis of long range needs, program change, facilities development and revision, administrative, faculty and support staffing, and the organization of the educational process. SLA helps clients explore ideas and opportunities that open up new directions and provide successful and sometimes unique solutions to school management problems with a particular emphasis on developing facilities to support the educational program.

Mr. Abramson has been editing publications serving school administrators and teachers since 1957 and worked as a consultant and writer for Educational Facilities Laboratories. Since 1974, he has provided an annual study of school and college construction throughout the United States. Data from that study forms the basis for analyzing the cost of large and small schools as shown in this study. Abramson writes a monthly column on planning issues – A Final Thought – for *School Planning & Management* magazine for which he also serves as education industry analyst.

Abramson is a member of the Council of Educational Facility Planners International and was president of the organization's Northeast Region. He is a graduate of Reed College, Portland, Oregon.

Victoria Bergsagel is an educator passionate about designing schools where all students achieve. Harvard-educated, Bergsagel has been a teacher, counselor, principal, community relations director, school district administrator, and adjunct professor. As the director of educational design in a large public school district, Bergsagel led the educational program planning upon which the construction of new schools was based. She has also served as the director of educational partnerships at Talaris Research Institute. Working collaboratively with teams of researchers and educators to conduct, integrate, and interpret some of the world's leading brain research, her team helped connect relevant research findings to practical applications – combining the science of learning with the practice of learning.

Bergsagel is a creative thinker with an unrelenting advocacy for children and a vast knowledge of educational research. She founded and directs *Architects of Achievement*, a group partnering with the University of Washington Small Schools Project to help educators and architects across the nation integrate the work of facility design into school reform.

Steven Bingler is the founder of Concordia LLC, a community planning and architectural design firm. Concordia's award-winning designs have appeared in national publications, including *Architectural Digest, Progressive Architecture, Architecture, Interiors, the Los Angeles Times,* the *New York Times, USA Today,* and the *Wall Street Journal.*

Concordia has extensive experience in the planning and design of a wide range of community-based environments for living and learning. The firm's planning and design process employs the Concordia Model, a comprehensive community engagement and systemic planning tool that integrates physical, cultural, social, educational, organizational and economic assets and needs. Research alliances include the MIT Media Lab, Harvard University's Project Zero, the University of

New Mexico, the National Aeronautics and Space Administration, the Thornburg Institute, the Appalachian Education Lab, and the West Ed Lab. Bingler's papers have been published in a wide range of books and journals in the fields of urban planning, architectural design, education, public health, and smart growth.

Mr. Bingler is a frequent speaker at national symposia and conferences related to systems thinking and innovations in community-based planning and design. He served as a special consultant to the Office of the Secretary of the U.S. Department of Education for policy related to the design of schools as the centers of the community.

Barbara Diamond is the vice-president responsible for one of KnowledgeWorks Foundation's major program areas – Communities and School Facilities planning and design – and for its public policy work. The Foundation is Ohio's largest education philanthropy, with a mission to increase access to education throughout Ohio. Its other major program areas are College and Career Access, and School Improvement.

Diamond received her bachelor's and J.D. degrees from Harvard University. She has been admitted to the bar in Minnesota, Massachusetts, and Ohio and has extensive experience as an attorney and policy analyst. She has served as staff attorney for the Education and Higher Education committees of the Minnesota House of Representatives, and for the committees on Criminal Justice and Ways and Means of the Massachusetts Senate. Before moving to Cincinnati in 1999, she served as Counsel for Policy Development for the Massachusetts Supreme Judicial Court, where she oversaw statewide master planning for courthouse construction.

Thomas J. Greene, whose background is in finance and accounting, is the budget consultant on the *Dollars & Sense II* project team. He is the CEO, CFO and publisher of Greene Bark Press Inc., and senior consultant for TJGreene Associates, a division of Greene Bark Press Inc. He is the former vice-president of finance and controller of Powerwinch (a Warren Buffet owned company); former business manager of *Fortune* Magazine (a Time-Warner/AOL company); former controller of RR Bowker (formerly a Xerox-owned company); and former senior consultant with Lucas, Tucker & Company CPA's. He holds a BBA in accounting and economics and a MS in industrial relations and economics. He was an adjunct in accounting at Sacred Heart University, Norwalk Community College, and York Community College in New York City. He has recently cofacilitated several budgeting workshops for small school leaders sponsored by KnowledgeWorks Foundation.

Bobbie Hill is the director of planning for Concordia LLC. Through the Concordia Planning Model, Hill works with communities to help them realize their potential through consensus-building and exploring learning opportunities through collaboration. She is committed to public scholarship by helping communities become healthy civil societies that are interconnected – not homogeneous, but integrated. She has directed projects from the rural North Country of New Hampshire to inner city Cincinnati, OH, urban Los Angeles, and Plainfield, NJ.

She has organized many local and statewide networks and associations concerned with issues related to education, the arts, and community advocacy. Hill has served on regional and state task forces such as the Governor's Education First Committee, which developed policy and consensus-building for education reform in West Virginia. Her work on this committee and other organizations has brought about significant change. For example, Hill worked with government leadership to create legislation that supports community-based planning as a prerequisite for requesting state support for school construction.

Craig Howley has researched rural education and published widely in that field. He has taught mathematics at the University of Charleston and has evaluated mathematics professional development projects in rural schools. He is coauthor of *Small High Schools That Flourish* (AEL, 2000) and *Out of Our Minds: Anti-intellectualism in American Schooling* (TC Press, 1995). Howley codirects research efforts of the NSF-funded Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics (ACCLAIM) and is an adjunct professor in the Educational Studies Department at Ohio University. His work for ACCLAIM entails cultivation of research capacity in rural mathematics education. Previously, he directed the ERIC Clearinghouse on Rural Education and Small Schools. His empirical work is mostly quantitative; it investigates the mediating influence of school and district size on academic achievement. Other studies have examined construction costs of smaller schools, rural school busing, and rural principals' perspectives on planning.

David Stephen's professional life straddles the worlds of architectural design and education reform. As a Registered Architect he has more than 18 years of experience in building design and construction. As a teacher and education reformer, he has worked with high schools nationwide to envision, develop, and implement innovative practices in teaching and learning. Increasingly, Stephen's focus has turned to the design of school buildings that explicitly address and support their program's curricular goals. During the past five years, he has facilitated the architectural design process for a wide variety of new and reforming schools.

At present, Stephen works as program officer and director of facilities design for High Tech High Learning, the replication branch of the nationally acclaimed High Tech High (HTH) charter school in San Diego, CA. He led the architectural design effort for the HTH campus's three school buildings: High Tech High, High Tech Middle, and High Tech International. The HTH facility received a 2001 Educational Design Excellence Award from the American School & University Architectural Portfolio, and an Honors Award from the *School Construction News* and Design Share Awards 2002. Stephen also works with Architects of Achievement, a group partnering with the University of Washington Small Schools Project to help educators and architects across the nation integrate the work of facility design into school reform. He received his B.Arch from Rhode Island School of Design, and an M.Ed from Lesley College.

Elliot Washor is the cofounder of The Big Picture Company and The Met. He has been involved in all aspects of school reform for more than 30 years as a teacher, principal, video producer, and developer and director of small school networks. As a practitioner he is particularly interested in real world learning and literacy, from kindergarten through college, in urban and rural settings, and across all disciplines. His work concerns what it means to be "smart" in a given situation, both alone and in a group, and how learning is amplified when hands and mind are used in tandem. He has served as a consultant to schools throughout the United States, Europe, and Asia, and has written on many topics, including leadership to learning. His professional development programs won an Innovations in State and Local Government Award from the Ford Foundation and the Kennedy School of Government at Harvard. In addition, he has been at the national forefront of thinking about small schools and their facilities design within communities, and was recognized by DesignShare (The International Forum for Innovative Schools) with an International Award of Merit for the design of The Met.

The *Dollars and Sense* team wishes to express its appreciation for the contributions of the indispensable **Frances Saad** to this project. She assembled the original data base of schools, made travel arrangements for all the site visits, organized team meetings, tracked the budget, matched captions to photos, proof-read every copy, and performed other tasks too numerous to name – all with grace, intelligence and good sense. Without her, this publication would not exist, and the team's admiration and gratitude are boundless.

Resources

Dollars & Sense: The Cost Effectiveness of Small Schools, www.kwfdn.org.
The first report in the *Dollars & Sense* series summarizes the history of the move to larger schools and reviews the research on the benefits of small schools. It makes the case for the value of small schools and shows that they have been built cost-effectively. *Dollars & Sense: The Cost Effectiveness of Small Schools* has become an essential resource for advocates of small schools.

Education Information

National Center for Education Statistics (NCES)
nces.ed.gov
1990 K Street, NW
Washington, DC 20006
202-502-7300

NCES is the primary federal entity for collecting and analyzing data that are related to education in the United States and other countries. It offers specific information about all K-12 schools in the United States including, size, demographics, and fiscal data.

Facilities Information

Architects of Achievement
www.archachieve.org

Architects of Achievement provides facilities-related services to schools, and offers a website rich in information about and photographs of successful small schools and ways in which their facility supports their program. This site includes floor plans of some of the schools in this report.

Council of Education Facilities Planners, International (CEFPI)
www.cefpi.org

CEFPI is the trade organization for people involved in the planning, design, and construction of school facilities. Though some of the site is open to members only, a lot of information is available to the public.

National Clearinghouse for Educational Facilities (NCEF)
www.edfacilities.org

The NCEF is the primary source for articles and reports about school facilities.

Schools as Centers of Community

21st Century School Fund (21st CSF)
www.21csf.org
1816 12th Street NW
Thurgood Marshall Center
Washington, DC 20009
202-745-3745
info@21csf.org

21st CSF focuses on urban schools, particularly those in the Washington, DC, area, but its innovative approach to forming partnerships for facility planning and financing has earned national respect.

KnowledgeWorks Foundation
www.kwfdn.org
One West Fourth Street, Suite 200
Cincinnati, Ohio 45202
513-929-4777

KnowledgeWorks Foundation empowers communities and individuals to improve education. Its website is a resource on small schools, schools as centers of community, and community engagement.

Schools as Centers of Community: A Citizen's Guide for Planning and Design
Bingler, S., and L. Quinn, Washington, DC: U.S. Department of Education.
Available for download:
http://www.kwfdn.org/resource_library/_resources/schools_as_centers2.pdf

This important publication introduces key elements in planning a school as the center of its community, and outlines a process for stakeholders to use in achieving that goal.

Smaller, Safer, Saner Successful Schools
Nathan, J. and K. Febey. 2001. Minneapolis, MN: Center for School Change and Washington, DC.: The National Clearinghouse for Educational Facilities.
Available through:
http://www.hhh.umn.edu/centers/school-change/reform.htm

This publication offers examples of good small schools and ways in which they are effective.

Small Schools

AEL
www.ael.org
P.O. Box 1348
Charleston, WV, 25325-1348
800-624-9120 or 304-347-0400.

AEL is the former host of the ERIC Clearinghouse on Rural Education and Small Schools, known as ERIC/CRESS. AEL was a major source of information and research on small schools and continues to make this work available.

Rural School and Community Trust
www.ruraledu.org
1530 Wilson Blvd., Suite 240
Arlington, VA 22209
703-243-1487
703-243-6035 fax

Many of the schools in rural areas are small. The Rural School and Community Trust is a source of research and information about such schools that can also be useful for people concerned with urban education.

School Redesign Network
www.schoolredesign.com
Stanford University
School of Education
520 Galvez Mall
Stanford, CA 94305-3084
650-725-0703

School Redesign Network is a resource for people working to improve schools and student achievement, and offers Study Kits on a variety of topics to support this effort.

Small Schools Project
www.smallschoolsproject.org
7900 East Greenlake Drive North, Suite 212
Seattle, WA 98103
206-616-0303
206-543-8250 fax

The Small Schools Project based in Washington State is a resource for information about all aspects of creating a good small school.

Small Schools Workshop
www.smallschoolsworkshop.org
1608 North Milwaukee Avenue, Suite 912
Chicago, IL 60647
773-384-1030
773-384-1226 fax

The Small Schools Workshop provides guidance and expertise particularly to large school systems working to restructure into smaller learning communities.