# Getting Down to Dollars and Cents:
## What Do School Districts Spend to Deliver Student-Centered Learning?

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# Acknowledgments

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# Executive Summary

In the era of No Child Left Behind and Race to the Top, school districts are under increasing pressure from policymakers to hold all students to high performance standards. With access to performance information and school choices, parents are also demanding more from schools.

In response to these rising expectations, a growing number of schools are embracing the principles of student-centered learning (SCL). SCL is a modern approach that combines progressive and constructivist philosophies with the technologies readily available to today's schools. SCL's principles include:

1. Personalized instruction
2. Authentic instruction
3. Mastery-based assessment
4. Learning that reaches beyond the school walls
5. Learning models that change the school schedule

## How much do districts spend on SCL schools?

As schools and districts make plans to integrate SCL into current schools and create new schools designed around SCL principles, there are real concerns about the level of spending needed to bring about and sustain such ambitious change. Existing research offers little guidance on the practical finance and policy issues associated with redesigning schools around SCL principles.

To address this knowledge gap, researchers at the Center on Reinventing Public Education (CRPE) conducted seven case studies comparing district spending on SCL high schools with spending on traditional schools, as well as a statistical analysis of spending on New York City schools. This research asks three practical questions about the resources required to implement SCL:

1. How do high schools put SCL principles into practice?

2. What resources do high schools need to implement SCL strategies, and how do they compare to the resources required by schools using traditional curricula and pedagogy?

3. Do SCL schools use their resources differently than schools with traditionally structured models?

To answer these questions, we conducted a detailed analysis of district spending on seven public SCL high schools located in six states—Illinois, Maine, Massachusetts, Ohio, Pennsylvania, and Washington—as well as a statistical analysis of New York City's high schools. We compared district spending on SCL schools to district spending on similar schools offering a traditional curriculum that are located within or near the sample schools' districts.

## Key findings

Although the findings from this study cannot be generalized to all SCL schools, the analysis reveals some consistent patterns in spending and offers valuable insights into potential factors that drive spending in SCL schools.

### SCL in practice varies across SCL schools

Schools operationalize SCL principles in a variety of ways. Most of the schools in our sample implemented two or three of the SCL principles at a high level, placing less emphasis on the remaining principles. For instance, a school in Philadelphia delivers authentic instruction through student inquiry and learning beyond the school walls through community-based internships. A school in Chicago pursues mastery-based assessment with software that provides all students with their own learning pathways and modifies them as they demonstrate mastery. Other schools extend learning by lengthening the school day or offering Saturday school.

### District spending on SCL schools is neither consistently higher or lower

Districts don't consistently spend more or less on their SCL schools. In all but one case in our sample, the SCL schools spent between 16 percent less and 13 percent more than the comparison schools. Statistical analysis of spending on New York City's SCL high schools found that the district spent about 5 percent

less on the 79 schools that have implemented at least three SCL principles compared with the remaining 317 high schools in the district, when controlling for other cost factors associated with district spending patterns. One district in our sample spent about 48 percent more on its SCL school than its comparison school, but the additional spending in this case can be explained, in part, by its unique location and district resource allocation practices.

### SCL schools allocate resources differently than traditional schools

SCL schools make creative organizational and resource changes in order to concentrate their resources in classrooms and provide new programs and experiences to their students. To lower class size and increase instructional time, many of the schools reallocated administrative and student support staffing. Schools also optimized teachers' time by dedicating homeroom time to student advising and reducing time spent on hallway monitoring duties and lunch periods. Where necessary, schools negotiated waivers from teacher contract provisions, giving them flexibility in the school schedule and the use of teachers' time.

## Policy recommendations for districts implementing SCL principles

In general, districts spend comparable resources on their SCL schools relative to the traditional schools analyzed in this study. But to keep spending on SCL schools in check, districts should consider the following policy recommendations:

1. Encourage SCL school leaders to think about tradeoffs. When schools begin investing heavily in one area, they should reduce spending in other areas to keep school budgets in balance.

2. Fund all schools in the district equitably, and then enforce a hard budget constraint.

3. Provide schools with resource flexibility that allows them to invest in their model as they see fit, while making the necessary cuts to balance their budgets.

4. Teach principals how to successfully attract resources from the community and give positive recognition to principals who are successful at doing so.

It is important for districts to know that SCL can be delivered with the same funding levels provided to traditional schools. Because SCL schools use their resources differently than traditional schools, district leaders must remove constraints on resource use to allow principles to implement SCL's principles and balance the school's budget.

# Introduction: Can Districts Afford Student-Centered Learning Schools?

In the era of No Child Left Behind and Race to the Top, school districts are under increasing pressure from policymakers to hold all students to high performance standards. With access to performance information and school choices, parents are also demanding more from schools.

Educators are facing greater pressure to perform, at a time when student populations are growing more diverse, and technology is dissolving traditional institutional boundaries and ways of thinking. In response, a growing number of schools are embracing the principles of student-centered learning (SCL). SCL is a contemporary approach that combines progressive and constructivist philosophies, an approach that incorporates real-life experiences into learning, with the technologies readily available to today's schools. SCL broadly refers to pedagogical approaches that emphasize:

1. Personalized instruction
2. Authentic instruction
3. Mastery-based assessment
4. Learning that reaches beyond the school walls
5. Learning models that change the school schedule[1]

More and more districts and schools are making plans to incorporate the principles of SCL. Research, however, offers little guidance on the practical finance and policy issues associated with redesigning schools to embrace these principles.

Real concerns about the level of district spending needed to bring about and sustain such ambitious changes must be addressed if we are to help schools and districts expand SCL programs. In this report we explore these practical questions:

1. How do high schools put SCL principles into practice?

2. What resources do high schools need to implement SCL strategies, and how do they compare to the resources required by schools using traditional curricula and pedagogy?

3. Do SCL schools use their resources differently than schools with traditionally structured models?

We answer these questions through seven comparative case studies of district spending on public high schools located in six states—Illinois, Maine, Massachusetts, Ohio, Pennsylvania, and Washington—as well as a statistical analysis of 79 SCL high schools in New York City. We compare district spending on SCL schools to district spending on similar schools offering a traditional curriculum that are located within or near the sample schools' districts.

In general, we found district spending on SCL schools to be similar to district spending on the matched comparison schools we studied. But for districts to keep spending on SCL schools in check, they will need to provide schools with resource flexibility; impose hard budget constraints to incentivize decision-making about preferred resources, possibly including co-location of small SCL schools; and enlist the support of the community to contribute both in-kind and non-district financial resources.

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1. David H. Jonassen, "Objectivism Versus Constructivism: Do We Need a New Philosophical Paradigm?" *Educational Technology, Research and Development* 39, no. 3 (1991) 5-14, and Jennifer R. Pieratt, "Advancing the Ideas of John Dewey: A Look at the High Tech Schools," *Education and Culture* 26, no. 2 (2010).

# Student-Centered Learning and Its Implications for Resources

Based on the premise that learning should be more relevant to students, SCL can be characterized by the following principles:

1. **Personalized instruction.** SCL proponents assume that all students have unique interests, experiences, and abilities and, therefore, require differentiated learning. Learning activities, focus, and curriculum pacing are all differentiated. Frequently, differentiated learning is supported through adaptive software that provides individualized curriculum pathways and assessments based on real-time student work.

2. **Authentic instruction.** More than just personalized, the learning should be authentic—that is, it engages higher-order thinking, seeks depth of knowledge, builds connections to the world beyond the classroom, forges substantive conversation, and offers social support for achievement.[2] In addition, teachers facilitate—rather than drive—this learning. When teachers facilitate authentic instruction, students discover learning while teachers serve as a guide to the discovery process.[3] As facilitators, teachers design projects that set students' discovery in motion. These projects present students with a problem that they must solve using the principles teachers hope to instill.[4]

3. **Mastery-based assessment.** Instead of simply assessing how well students understand their lessons and then moving on regardless of aptitude, SCL emphasizes assessing for and revisiting content until students demonstrate mastery. As such, SCL typically forgoes the use of rigid pacing guides. Formative assessments with individualized feedback are emphasized over high-stakes end-of-term exams.

4. **Learning that reaches beyond the school walls.** An SCL school recognizes the richness of learning through real-world experiences, especially those that include "meaningful tasks that build skills in critical thinking, problem solving, and communication," as one analysis explained.[5] As such, SCL embraces community resources through "meaningful exposure to a variety of workplaces, role models, career pathways, community leaders, peer teachers, apprenticeships, internships, college courses, and [authentic] projects."[6] Internships that take students off campus for part of their day, collaborative projects with outside experts, or even efforts to embed students in the field by locating the school at a place of business or museum are all strategies for creating a learning environment with permeable walls.

5. **Learning models that change the school schedule.** The flexible use of time allows for differentiated instruction, mastery-based assessment, and authentic learning experiences in and outside the school.[7] Loosening the rigid constraints of the 50-minute class and inflexible pacing guides allows instruction to be adapted to students' interests and needs, and presents students with opportunities beyond the school day and calendar, making full use of community resources.[8] Loosening the constraints on the school day also provides students with extra enrichment or instructional time before and after school to further advance their learning.

2. Fred M. Newmann, *Authentic Achievement: Restructuring Schools for Intellectual Quality* (San Francisco: Jossey-Bass Publishers, 1996).

3. Judith Haymore Sandholtz, Cathy Ringstaff, and David C. Dwyer, *Teaching with Technology: Creating Student-Centered Classrooms* (New York: Teachers College Press, 1997).

4. David H. Jonassen and Susan M. Land, "Preface," in *Theoretical Foundations of Learning Environments,* ed. David H. Jonassen and Susan M. Land (Mahwah, NJ: Lawrence Erlbaum Associates, 2000), 240.

5. Susan M. Land and Michael J. Hannafin, "The Foundations and Assumptions of Technology-Enhanced Student-Centered Learning Environments," *Instructional Science* 25, no. 3 (1997), 167-202.

6. Nellie Mae Education Foundation, "The Nellie Mae Education Foundation Announces its New Strategic Focus," press release, March 24, 2010.

7. Nellie Mae Education Foundation, 2010.

8. Ibid.

But what does SCL look like in a school? In reality, schools embrace these five principles in a variety of ways. For example, schools may seek authentic instruction by developing and delivering curricula through long-term, integrated, hands-on projects, while others may expand class time to allow for rich discussions that are structured around the Socratic method. Some schools may use software that provides all students with their own learning pathways and modifies these pathways as they demonstrate mastery on assessments. In other schools, teachers might determine the standards for and oversee the assessments of mastery. And, some schools may facilitate learning beyond the school walls by developing community internship programs, while others may partner field experts with teachers to guide students through a project.

Variations in what SCL looks like can be seen among the nation's leading SCL models. Over the last 30 years, educators developed and honed several whole-school models that embrace the principles of SCL. Two leading examples are the Coalition of Essential Schools (CES) and Expeditionary Learning (EL). Each takes a different approach to schooling. CES emphasizes school culture and creating an organization where all participants have a deep respect for learning, critical thinking, each other, and every person's responsibility to the communities in which they live. CES does not prescribe a particular school design but recommends organizational strategies that concentrate resources in the classroom, foster deep learning, and forge strong relationships. EL, like CES, emphasizes building a culture of respect for learning and critical thinking but is more explicit about delivering curricula through long-term, complex learning projects, referred to as "investigations."[9]

Schools may take different approaches to bring SCL to students, but all will in some way alter one or more of the following: (1) how students are organized into classes or instructional activities in the school, (2) how students use their time in and out of school, (3) how teachers are assigned and use their time, (4) instructional materials, (5) building infrastructure, and (6) technology infrastructure. These differences translate into new ways of using school resources. Of course, SCL schools will still need teachers, administrators, instructional materials, and facilities—all of the major budget categories found in most schools. Within these categories, however, SCL schools will likely look very different from their traditionally designed counterparts. Our analysis of spending in SCL schools, therefore, focuses not only on how much is spent overall but also on how schools use their resources.

9. Coalition of Essential Schools, "The CES Common Principles" and Expeditionary Learning, "Expeditionary Learning Core Practices."

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# Research Design, Data, and Methods

To determine the extent to which resource use differed in high schools embracing SCL principles, we conducted a detailed expenditure analysis on a purposeful sample of seven high schools. We then compared the expenditure patterns in these seven schools to similar schools offering a traditional comprehensive high school curriculum and model. The comparative analysis uses financial data sets that are consistently prepared across both sample and comparison schools within each case study. The comparative case study method provides a means of controlling for geographical, environmental, enrollment, and performance differences that can confound the results of cost studies in education. Unobservable differences between SCL schools and their comparison schools, such as differences in operational efficiency, could influence the cost of educating students and are not directly controlled for by this design. Although the findings from this comparative spending analysis cannot be generalized to all SCL schools, the seven cases presented here reveal some consistent patterns in spending and offer valuable insights into potential factors that drive spending in SCL schools.

## Selecting a sample of SCL schools

We selected our sample from a pool of national school models (e.g., Expeditionary Learning) and independent models that espouse SCL principles. We generated a list of SCL schools by combining three data sources: a database of known SCL programs generated by the Nellie Mae Education Foundation, a nonprofit organization committed to the research and implementation of SCL models; a list of member schools provided by each of the national SCL networks; and schools recommended by our contacts in districts across the country.

From this pool of more than 200 schools nationwide, we reduced the sample to schools serving relatively high populations of low-income students, because one goal of this work is to determine whether this model is a viable option for schools and districts with high-needs

students. We then shortlisted 12 schools that represented a range in geography (rural and urban) and SCL emphasis (e.g., project-based learning, personalized learning, technology-based personalized learning, and theme-based small schools). After evaluating the 12 schools using a common survey of SCL practices, and attempting to capture a range in geography and emphasis, we selected seven schools to include in our study. These schools are described briefly in **Box 1**.

## Box 1. Sample student-centered learning schools, diverse in geography and mission

| School | Description |
|---|---|
| **City Blended Learning High School\* (City Blended)**<br><br>**Chicago, IL**<br>**Urban locale** | City Blended opened its doors in September 2008 as part of Chicago Public Schools' Renaissance 2010 initiative to replace low-performing schools with smaller ones. City Blended is one of three schools that occupy a former comprehensive high school. City Blended utilizes a blended learning model, in which each student is assigned a laptop and spends 75 percent of the time online and 25 percent interacting with teachers. This school offers an optional Saturday school for students who need to make up work and do not have an internet connection at home. |
| **Federal Hocking High School (Federal Hocking)**<br><br>**Stewart, OH**<br>**Rural locale** | Federal Hocking is located in central Ohio, in rural Appalachia. In 1992, Federal Hocking began its transformation from low-performing, struggling school to award-winning, high-performing school. A Coalition of Essential Schools (CES) mentor school, Federal Hocking emphasizes three SCL features: personalized instruction, student engagement, and authentic instruction. The hallmark features are block scheduling (four periods a day), a daily advisory program led by teachers, an internship program, and rigorous graduation requirements (additional required credits, senior project, and portfolio). |
| **Global Connections High School (Global Connections)**<br><br>**SeaTac, WA**<br>**Urban locale** | Global Connections opened in 2005 as part of a district secondary school reform initiative. As one of three small schools to occupy a former comprehensive school, Global Connections espouses personalization and student engagement. A recipient of a CES small schools grant and a Washington State small learning communities grant, the school features block scheduling, a daily advisory program, student-led conferences, and an inclusion model that mainstreams all students. |
| **MC$^2$ STEM Academy (MC$^2$)**<br><br>**Cleveland, OH**<br>**Urban locale** | MC$^2$ is a four-year-old, year-round school focused on science, technology, engineering, and math (STEM). It is one of 13 innovation schools sponsored by the Cleveland Municipal School District. The school is housed in three separate facilities, including the Great Lakes Science Center (9th grade), General Electric Nela Park Campus (10th grade), and a shared district building (11th and 12th grades). The school emphasizes hands-on applications and an integrated project-based curriculum, including capstone projects and a field internship. |
| **Noble High School (Noble)**<br><br>**North Berwick, ME**<br>**Rural locale** | Noble opened in a newly constructed building in 2001. A member of CES, Noble operates three academies within its large complex. Each academy is assigned a heterogeneous group of students. Because of its rural locale, Noble offers online Advanced Placement and college-level courses. The school also operates a restaurant to invite community participation and expose students to the food service industry. All students are encouraged to visit colleges and complete a graduation portfolio. |
| **Science Leadership Academy (Science Leadership)**<br><br>**Philadelphia, PA**<br>**Urban locale** | Science Leadership is a public magnet high school founded in 2006 in partnership with the Franklin Institute. The school employs an inquiry-based STEM curriculum. Science Leadership is a selective school that chooses approximately one student for every six interviewed. The school's unique features include extended periods, community-based learning, and project-based graduation requirements. |
| **Springfield Renaissance School (Springfield Renaissance)**<br><br>**Springfield, MA**<br>**Urban locale** | Identified as a Massachusetts Department of Elementary and Secondary Education Innovation School in 2011, Springfield Renaissance is a magnet school focused on building strong internal relationships, engaging students in the field, and utilizing a college preparatory curriculum. An Expeditionary Learning affiliate, the school emphasizes standards-based learning objectives and community-based, experiential, project-based learning. The school features flexible uses of time, a daily advisory program, and student-led conferences. |

**Source:** Communication with school leaders and a review of school websites.

**\*** The school name is a pseudonym.

As the descriptions suggest, SCL looks different at each school. Some schools emphasize the use of technology for personalized instruction, while others emphasize project-based learning. Moreover, the degree to which they emphasize these strategies varies as well. To get a better understanding of the types of SCL strategies used by our sample schools, **Table 1** presents the strategies employed by each school, as well as the degree to which they emphasize them.

## Selecting a comparison school

In every case, we located at least one comparison school that served a similar student population but operated a traditional high school model. We identified a traditional model as one in which a comprehensive catalog of courses is delivered in roughly 40- to 50-minute periods in a six- to seven-period day on a quarter or semester basis. In addition, teachers, organized into academic departments, deliver the comprehensive curriculum and assess students based on performance with minimal requirements for student mastery before advancing. Where possible, we drew comparison schools from within the same district. Where not possible, such as in districts with just one high school, we found a comparison school in a neighboring district that served a similar tax base.

Our comparison schools offer the best possible match, but in several cases they are not perfect. In particular,

we had a difficult time matching on total school enrollment. SCL schools are generally intended to be small schools. When our sample schools were located in larger districts, we often found that comparably sized high schools also presented with features of SCL models.[10] As a result, some of our comparison schools are appreciably larger than our SCL schools. Because scale is often thought to be a significant cost driver, we pay particular attention to these resource categories, including administration, facilities, and operations. Summary statistics on our seven sample schools and their respective comparison schools are presented in **Table 2**.

## Collecting data on expenditures

High schools emphasizing SCL often differ from traditional comprehensive high schools in organization and operation, but they still spend in all the major budget categories, such as teachers, administrators, instructional materials, information networks, central services, and facilities. While these common expenditure categories provide some insight into how resources are used, they do not provide the detail

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10. We found that larger districts often created small schools in order to bring a more student-centered environment to the district. As such, all of the small schools reflected principles of SCL, while the remaining large schools retained a more traditional model.

## Table 1. SCL schools emphasize different strategies

| School | Personalized instruction | Authentic instruction | Mastery-based assessment | Field-embedded learning | Innovative use of time |
|--------|--------------------------|-----------------------|--------------------------|-------------------------|------------------------|
| **City Blended** | ● | ✪ | ● | ○ | ✪ |
| **Federal Hocking** | ✪ | ● | ✪ | ● | ● |
| **Global Connections** | ✪ | ✪ | ✪ | ○ | ✪ |
| **MC²** | ● | ● | ● | ● | ● |
| **Noble** | ● | ✪ | ✪ | ○ | ✪ |
| **Science Leadership** | ● | ● | ✪ | ● | ✪ |
| **Springfield Renaissance** | ✪ | ● | ✪ | ● | ✪ |
| **Emphasis legend: Low ○   Medium ✪   High ●** | | | | | |

**Source:** Authors' classification of school mission, pedagogy, and curriculum.

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## Table 2. Characteristics of SCL sample schools and comparison schools

| Characteristics | SCL school | Comparison school |
|---|---|---|
| **Name**<br>**Location**<br>**Grades**<br>**Enrollment**<br>**Primary ethnicity**<br>**Economic disadvantage**[i] | City Blended Learning High School<br>Chicago, IL<br>9-12<br>366<br>97% black<br>97% | City Comparison High School<br>Chicago, IL<br>9-12<br>485<br>98% black<br>98% |
| **Name**<br>**Location**<br>**Grades**<br>**Enrollment**<br>**Primary ethnicity**<br>**Economic disadvantage**[ii] | Federal Hocking High School<br>Stewart, OH<br>9-12<br>321<br>92% white<br>52% | Alexander High School<br>Albany, OH<br>9-12<br>486<br>96% white<br>48% |
| **Name**<br>**Location**<br>**Grades**<br>**Enrollment**<br>**Primary ethnicity**<br>**Economic disadvantage**[iii] | Global Connections High School<br>SeaTac, WA<br>9-12<br>342<br>34% Hispanic, 21% Asian/Pacific<br>77% | Highline High School<br>Burien, WA<br>9-12<br>1,362<br>33% Hispanic, 32% white<br>50% |
| **Name**<br>**Location**<br>**Grades**<br>**Enrollment**<br>**Primary ethnicity**<br>**Economic disadvantage**[iv] | MC2 STEM Academy<br>Cleveland, OH<br>9-12<br>298<br>77% black<br>100% | John Marshall High School<br>Cleveland, OH<br>9-12<br>1,103<br>50% black; 29% white<br>100% |
| **Name**<br>**Location**<br>**Grades**<br>**Enrollment**<br>**Primary ethnicity**<br>**Economic disadvantage**[v] | Noble High School<br>North Berwick, ME<br>9-12<br>1,005<br>96% white<br>31% | Massabesic High School<br>Waterboro, ME<br>9-12<br>1,115<br>98% white<br>35% |
| **Name**<br>**Location**<br>**Grades**<br>**Enrollment**<br>**Primary ethnicity**<br>**Economic disadvantage**[vi] | Science Leadership Academy<br>Philadelphia, PA<br>9-12<br>482<br>46% black; 33% white<br>49% | The Academy at Palumbo<br>Philadelphia, PA<br>9-12<br>564<br>50% black, 22% Asian<br>73% |
| **Name**<br>**Location**<br>**Grades**<br>**Enrollment**<br>**Primary ethnicity**<br>**Economic disadvantage**[vi] | Springfield Renaissance School<br>Springfield, MA<br>6-12<br>701<br>61% Hispanic, 22% black<br>61% | Average comparison school<br>Springfield, MA<br>6-12<br>924<br>58% Hispanic, 23% black<br>83% |

[i] Eligible for federal free or reduced-priced lunch as reported by the 2010-11 School Report Cards from the State of Illinois.

[ii] Reported as economically disadvantaged by the 2010-11 School Report Cards from the State of Ohio and defined as eligible for federal free or reduced-priced lunch.

[iii] Eligible for federal free or reduced-priced lunch as reported by the 2011-10 School Report Cards from the State of Washington, OSPI.

[iv] Reported as economically disadvantaged by the 2010-11 School Report Cards from the State of Ohio and defined as eligible for federal free or reduced-priced lunch.

[v] Eligible for federal free or reduced-priced lunch as reported by the State of Maine.

[vi] Eligible for federal free or reduced-priced lunch as reported in the 2010-2011 school report cards and National Center for Education Statistics, Common Core of Data, 2010-2011.

needed to understand the unique resource requirements of an SCL model.

To identify differential district-spending levels on SCL schools, we first collected detailed school-level expenditure reports for the most recent available year (2010-2011 for six of the schools, and 2011-2012 for one[11]), as well as any centrally allocated resources.[12] In addition, we obtained information on teacher contracts and contract waivers (which allow for alternate schedules), staffing levels, and student enrollment. We also collected detailed information on the school's instructional program and the amount and use of non-district resources. SCL school principals reviewed drafts of our case studies to ensure accuracy.

After collecting the data, we coded and aggregated per-pupil spending into standard budget categories for both SCL and comparison schools, including total district spending on operating costs, spending on teachers, educational assistants, school administration, and student support.[13] We then compared these expenditures to identify variations. Where variations occurred, we drilled down to explore their causes, and to determine whether the differences could be explained by the existence of SCL.

## Limitations

As with any large-scale research study, data challenges prevail. In this study, differences in accounting standards and reporting methods across the sample schools made uniform data difficult to obtain. For example, some school districts report facilities and central service expenditures at the site level, while others do not. Some states, districts, or schools made school-level audited expenditure reports available, while in other cases budgeted

figures were used to approximate actual expenditures—though in those cases, modified budgets were often used. In cases where the reporting differed between the sample schools and their comparison school, we made every effort to ensure consistency by either adding in budgeted values, estimating expenditures (as in the case of missing benefits data), or excluding expenditures that did not have equivalent data available. Although we made every effort to reconcile expenditure data across all seven schools, full parity across the sites was not always possible.

A second and important limitation of this study, and any study of expenditures, is that schools will typically spend whatever they are given, so it is difficult to say that they spend more *in order to deliver* the SCL model. In fact, to suggest that schools actually "spend" the resources is itself a misnomer, because often schools are issued resources in the form of staff, books, supplies, or furniture and have very little control over exactly how resources are spent. That said, many schools manage to move resources around within the school, negotiate different resource allocations with their districts, or obtain other resources that are independent of the district allocations. In addition, some districts explicitly make the choice to give schools additional resources in order to implement a different model.

Throughout our analysis we pay close attention to resource allocation differences—differences in both total dollars and use of dollars—between the SCL schools and their local comparison schools. We report how much the schools spend, what they spend it on, and in what ways this spending serves the SCL design. In so doing, our analysis tells the reader how schools marshal their resources to provide SCL.

However, we cannot say with certainty that any of the schools have to spend what our sample schools spend in order to deliver their SCL model. Certainly some of the expenses may have been particularly large because the resources were available. For example, we will describe a school that spent over $40,000 for a unique off-campus field experience for students, paid entirely by a private donor. Although this school spent $40,000 on the field experience, it does not mean that field experiences necessarily require such high expenditures. By the same token, our analysis cannot refute that more money in any of these schools would help them deepen their SCL work. All we can say is that these schools delivered a version of SCL with the resources (district-allocated and fundraised) they had available to them.

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11. MC[2] is the only school for which we collected 2011-2012 data.

12. Centrally allocated resources are those that are managed and reported at the district level but are shared among the schools. Examples include utilities, administrative support, and professional development. In some comparative case studies, when the comparison school was operated by a different district or when district-wide analysis was conducted, state-level data was used, because it is collected and reported under a single set of policies and procedures. Examples include Springfield Renaissance School and Noble High School.

13. We identified and, in some cases, excluded special education costs, due to the fact they are driven by federal regulations, are exogenous to the SCL model, and can be responsible for substantial spending variation between schools. That is particularly the case where high-cost special needs, like autism spectrum disorder and other developmental disabilities, are involved.

# Districts Don't Necessarily Spend More (or Less) on SCL Schools, but Schools and Districts Must Make Smart Choices to Keep Spending in Check

Our analysis shows that implementing SCL activities does not necessarily imply that districts will spend more (or less) on an SCL school than on a more traditionally organized school. But our sample demonstrates that SCL schools use resources differently from traditionally organized schools and need flexibility to optimize resources for their model. SCL schools also benefit significantly from entrepreneurial leaders who find ways to supplement the resources they get from their districts. This is particularly true for schools with a deep commitment to embedding students' learning in the field by establishing strategic institutional partnerships. The main lessons we can draw from the case studies are listed below.

## Finding 1: Sustaining an SCL model can cost districts about the same as a traditionally structured school if spending is kept in check

All but one of the SCL schools in our sample spent between 16 percent less and 13 percent more than district spending on comparison schools (see **Table 3**). Three spent less than their comparison schools, while four spent more. One SCL school, MC[2] in Cleveland, spent substantially more—44 percent.[14] In addition, a statistical analysis of spending on high schools in New York City in 2008-2009 found that schools identified as practicing three or more SCL principles spent about 5 percent less per student than schools that practice two or fewer SCL principles, when controlling for school size, student characteristics, and other factors that influence spending variation across schools.

Overall, these results suggest no necessary relationship between SCL schools and district spending, as there is an equal chance that a district spends more or less on its SCL schools than on other similar schools that practice a traditional approach. But the results also suggest that when a district spends more on an SCL school, the spending difference can be sizable, as was the case in Cleveland.

14. The additional spending can be explained, in part, by the unique school location arrangements and will be discussed in detail later.

## Table 3. Percent difference in district spending on SCL and comparison schools

| SCL school | Percent difference in per-pupil spending[i] (A negative implies that the SCL school spent less than its comparison school) |
|---|---|
| City Blended | -11.7% |
| Springfield Renaissance | -6.2% |
| Noble | -3.8% |
| Global Connections | 0.1% |
| Federal Hocking | 5.2% |
| Science Leadership | 12.7% |
| MC[2] | 43.7% |

**i** Excludes $100,000 facility rental charges for MC[2].

**Source:** Authors' calculations based on budget and/or expenditure data.

## Finding 2: Districts incur expenses from start-up and conversion to SCL schools

As would be expected, there are unique costs associated with the start-up or conversion to an SCL model. Our sample included two schools that were less than five years old (MC$^2$ and City Blended) and two schools that were less than five years from conversion (Global Connections and Springfield Renaissance). Each of these schools received resources devoted to the new SCL initiatives. On the high end of the spectrum, MC$^2$ received $470,000 in private grants to launch its STEM-focused school. On the low end, City Blended received just under $212,000 from the district for start-up expenses to open its program in an existing school building.

Our data provide an interesting window into how three schools (MC$^2$, City Blended, and Global Connections) spent their start-up and conversion funds. Of the $470,000 in external grants that MC$^2$ received for start-up, $200,000 was earmarked for building science labs. MC$^2$ had more flexibility over the remaining $270,000. More than $66,000 was used to purchase supplies and equipment during the first year of operation; the school recorded $5,226 for professional development in its start-up phase.

Similarly, City Blended concentrated most of the $211,635 in start-up funds on acquiring materials and equipment. Although City Blended, along with two other small schools, moved into a building previously occupied by a large comprehensive high school, the school spent more than half of the start-up funding (originating in the capital budget) on new equipment and furniture. City Blended also used some of its $80,000 in general fund start-up revenue to pay for laptop leases, supplies, and materials. A small portion, which we cannot account for precisely, was spent on professional development. No additional funding was spent on pre-planning activities, although the principal and some staff served on a school redesign committee for no cost.

Overall, at MC$^2$ and City Blended, facilities and equipment needs took precedence in start-up spending, while staff development was secondary. Principals at both schools explained that getting staff on board with the new model can be done with limited added expense by selecting teachers who already have some familiarity with (or at least strong interest in) the model and by capitalizing on existing professional development time.

### Start-up and conversion funding in sample schools

**City Blended** received $211,635 in start-up funds from the district. More than half was devoted to furnishing the school with furniture and equipment.

**Global Connections** shared $950,000 in planning and implementation funding with two other schools, of which $175,000 was provided to Global Connections for its own planning and development.

**MC$^2$** obtained $470,000 from private funders with $200,000 devoted to building science labs for the school.

Global Connections, by contrast, devoted a large share of its start-up funding to planning and development, because its facilities and equipment needs were met by district-managed grant funds. In total, the district received $950,000 in grant funding to complete the transition of a former comprehensive high school into three small schools. Of that, the district devoted $425,000 (about $140,000 per school) to complete the building renovations and oversee the transition.[15] The district distributed the balance to the three schools for planning and program development; Global Connections received $175,000 for these purposes. Global Connections devoted upwards of 95 percent of its $175,000 start-up budget to program planning and staff development, expenditures summarized in **Figure 1**. Global Connections spent the largest proportion of its school-specific funds (54 percent) on travel and conference fees to attend CES workshops, including Fall Forum, Small Schools Project network meetings, and the Summer Institute, and to visit other schools implementing CES. In-house professional development to deepen teachers' understanding of the cultural and pedagogical approaches in CES schools and collaboration to develop new curricula accounted for another 27 percent of the start-up spending.

These cases make clear that SCL start-up or conversion schools in our sample consumed a nontrivial amount of resources. However, we are cautious to make the claim that all SCL schools require a specific amount of resources, because it is unclear to what degree the

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15. Tyee High School conversion blog post and authors' calculations.

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spending was determined by the amount of available funding versus true need. It is clear, however, that a well-funded start-up or conversion will include spending for facilities and equipment, as well as for planning (both time and staffing) and teacher development. When facilities and equipment needs are substantial and start-up funding is limited, as was the case at MC$^2$ and City Blended, the facilities and equipment expenditures seem to take precedence in start-up spending.

of the schools (Federal Hocking, MC$^2$, and Science Leadership) operated without an assistant principal.[16] Science Leadership went so far as to eliminate all but a part-time administrator and use four uncompensated university interns to perform administrative duties instead. Noble employed one fewer vice principal by naming teachers to academic deanships for each of its three academies. Additionally, evidence from the New York City analysis suggests that SCL schools trade leadership for smaller pupil-teacher ratios. In New York, SCL schools spent about 17 percent less on leadership in order to lower average class size by about 0.4 students per teacher, a 3 percent reduction.

## Figure 1. Distribution of start-up expenditures by Global Connections
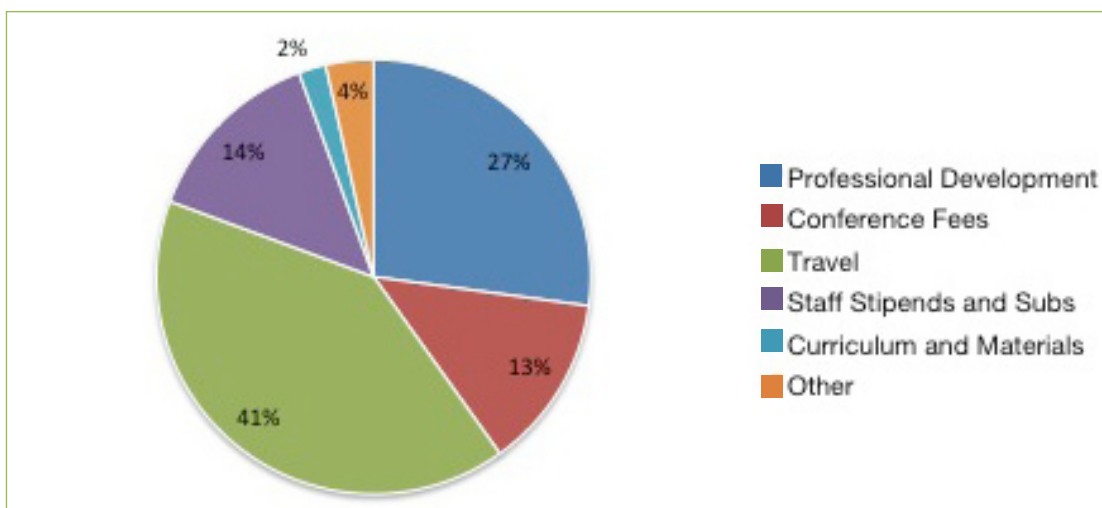


**Source:** Global Connections budget reports for 2005-2006, 2006-2007, and 2007-2008. Projections for 2008-2009 based on conversations with school principal.

## Finding 3: Reallocating administrative and support resources to the classroom intensifies SCL while defraying costs

Most of the SCL schools we examined concentrated their resources in the classroom by employing more teachers to lower class size and increase instructional time. As seen in **Table 4**, all but one of the sample schools outspent their comparison schools in classroom teacher expenditures by as much as $1,100 per pupil.

In many cases, SCL schools compensated for these added teacher costs by shifting administration or student support resources to the classroom. Three

Federal Hocking and MC$^2$ replaced some student support positions (such as guidance counselors and social workers) with teacher-led advisory periods, during which teachers would engage students in small-group discussions to address a range of academic and nonacademic student concerns. Federal Hocking funded its advisory program by eliminating study hall and reducing the amount of release time provided to teachers for department head business. MC$^2$ reallocated homeroom time (already a contracted duty time for teachers) for advisory time.

16. MC$^2$ appears to outspend its comparison school in education administration by almost $300 per student, despite running without an assistant principal. This difference is because the district assigns MC$^2$ three administrative assistants—one for each campus building. Looking only at spending on principals and assistant principals, MC$^2$ spends about the same per student on leadership ($489) as its comparison school ($469).

## Table 4. Per-pupil expenditures (PPE) for instructional, administrative, and student support staff

| School | Students per teacher[i] | | Teachers PPE[i] | | Educational assistants PPE | | School administration[ii] PPE | | Student support[iii] PPE | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SCL | Comp. | SCL | Comp. | SCL | Comp. | SCL | Comp. | SCL | |
| City Blended | 16 | 23 | $4,835 | $4,357 | $0 | $196 | $1,092 | $935 | $334 | $121 |
| Federal Hocking | 17 | 18 | $4,679 | $3,516 | $0 | $112 | $417 | $705 | $881 | $689 |
| Global Connections | 23 | 27 | $3,013[iv] | $3,137[iv] | N/A[v] | N/A[v] | $803 | $513 | $349 | $335 |
| MC² | 18 | 24 | $5,396 | $3,801 | $472 | $228 | $1,039 | $631 | $549 | $349 |
| Noble | 16 | 18 | $2,757 | $2,716 | N/A[vi] | N/A[vi] | $165 | $230 | $2,609 | |
| Science Leadership | 20 | 23 | $4,621 | $4,083 | $133 | $0 | $428 | $634 | $740 | $935 |
| Springfield Renaissance | 16 | 16 | $2,837 | $2,816 | N/A[vi] | N/A[vi] | $863 | $575 | $2,410 | |

**i** Excludes special education teachers because they are a function of the number of special education students in the school.

**ii** Includes leadership and office support staff.

**iii** Includes all certificated student support staff (e.g., guidance counselors, librarians, and psychologists).

**iv** Expenditures on teachers were estimated at 75 percent of total instructional expenditures.

**v** Expenditures for educational assistants are included in the teachers category.

**vi** Educational assistants costs are not separable or identifiable from expense reports.

**Source:** Authors' calculations based on 2010-2011 budget and/or expenditure data.

## Finding 4: Technology investments to personalize learning do not save resources when simply added on to a traditional staffing model

The use of technology in the classroom is a popular trend, especially for its ability to personalize instruction. Technology equipment can range from overhead projectors to personal laptops, classroom smart boards, and iPads for teachers. But it isn't clear whether all of this technology reduces or increases expenses. On the one hand, technology—hardware, software, networks, maintenance, replacement, and training—is expensive, and if added on to what is being spent on classrooms could dramatically increase expenditures. On the other hand, online and adaptive software has the potential to radically increase personalization while reducing staffing and curriculum costs.

City Blended is one of a relatively small number of schools across the country that is attempting what is popularly known as a blended, or hybrid, learning model. In blended learning schools, students are guided through their personal learning paths by content delivered via virtual learning modules. In some cases, schools use sophisticated software that constantly adapts content delivery based on students' progress. City Blended relies primarily on open-source content and tools, including the Khan Academy program. Students spend approximately 75 percent of their learning time working on the computer.

Overall, City Blended spends $1,098 less per student than its comparison school. However, using technology to defray expenses isn't driving down the overall per-pupil spending in this school. As it turns out, lower facility support costs and teacher salaries drive down spending. City Blended spends $1,798 less per pupil

| Expenses associated with field-embedded experiences | | |
|---|---|---|
| **Costs to bring the field to the campus** | Fees to host school in a non-district building associated with learning goals | |
| | Fees to bring field experts to the campus | |
| | Fees to coordinate distance learning opportunities that connect students to others outside the school | |
| | Personnel costs to coordinate on-campus field experiences (e.g., teacher time to plan and coordinate activities) | |
| **Costs to take student off-campus for learning** | Fees to transport and accommodate students off-campus | |
| | Personnel costs associated with arranging off-campus field experiences (e.g., internship coordinators) | |
| | Fees to off-campus organizations to host students on their site (stipends for time to field-based mentors) | |

on facility support services because it shares a building with three other small schools. Its comparison school, however, is underenrolled by 53 percent, so it spends an unusually high amount per pupil for facility support services. If facility operations costs were excluded in both schools, City Blended's per-pupil costs would be $700, or 7.6 percent, higher than the comparison school's.

In addition, City Blended spends much less on its teacher compensation costs than does its comparison school. Although City Blended employs three more regular teachers and enrolls 119 fewer students, it spends $151,755 less for regular education teachers. City Blended can afford more teachers with fewer resources because the school employs a young teaching staff— and salaries are determined in large part by teachers' years of experience. If City Blended paid the district-wide average for teachers (a common accounting method used in urban districts), the relative cost of its technology model would be much higher.

Technology alone doesn't save City Blended money, because it layers technology on top of a tradition-al staffing model. The students still attend small classrooms led by a teacher. By contrast, Rocketship Education and Carpe Diem Schools, national leaders in blended learning, change the staffing model entirely. Rocketship uses only one teacher per grade and relies primarily on a learning lab, which saves an estimated $500,000 per year; these funds are reinvested in the

school.[17] Carpe Diem also uses technology to reduce staff and, according to its founder, spends on average $5,300 per pupil.[18]

## Finding 5: Field-embedded learning requires significant new spending but can also attract substantial non-district resources

Field-embedded learning drives up SCL spending, sometimes costing even more than lowering student-teacher ratios. The costs associated with field-embedded learning appear to include an array of additional expenses that are not easily defrayed and even introduce new areas of spending for schools. The sample schools that emphasized field-embedded learning, especially those that place the learning envi-ronment outside the district, required substantial new resources.

Taking students off campus for learning, via internships or field experiences, can be a costly endeavor. Principals at Federal Hocking, MC[2], and Science Leadership— schools with a strong internship component for at least some students—reported that some staff is required

17. OnlineSchools.com, "School Spotlight: Rocketship Education."

18. Presentation by Rick Ogston at the Washington Education Innovation Forum hosted by the Center on Reinventing Public Education, April 17, 2012.

to identify potential internship opportunities, manage relationship with partner organizations, and oversee students to ensure that they are benefiting from their experiences. At MC$^2$, a state grant paid for an external agency to provide this service. Federal Hocking assigned 75 percent of a certified teacher to this role—a position that is currently funded through a state grant. Federal Hocking also raised funds to provide students with gas cards because its rural location meant that students traveled upwards of 30 miles round trip to their internships—an otherwise prohibitive expense for the school's lower-income students. Science Leadership assigns two full-time internship coordinators, whose salaries are paid through a U.S. Agency for International Development grant won in collaboration with the Franklin Institute, a science museum in Philadelphia.

On the other hand, the principal at Noble— tired of seeking transportation grants, starting relationships, watching the grants dry up, and having to start the cycle anew—has largely eschewed external community involvement. Instead, Noble continues to invest in programs that seek to draw the community to the school, including its restaurant and a new community center constructed in partnership with the United Way.

Science Leadership's partnership with the Franklin Institute provides all 9th grade students with a world-class science education at the Institute, free of charge to the school. Internship coordinators are funded by grants obtained in partnership with the museum. In all, we estimate that the Franklin Institute increases Science Leadership's school level resources by about 10 percent.

Taking students off-campus for field experiences has obvious costs for transportation, meals, and sometimes accommodations. When experiences are far from home, the travel and participation costs rise quickly. MC$^2$ paid over $44,000 (raised from private donations) to take 90 students to live in and assist in research at the University of Arizona's Biosphere 2. This is the only field experience of this scale in our sample. Arguably, rich field experiences do not need to be as involved as this long-distance trip. This is a case in which the school invested in the experience because it had raised funds for the trip and not because it was essential to delivering SCL.

Locating the school facility in a non-district field location introduces a variety of expenses, as the school may be required to pay for rent, security, and food

service in the marketplace instead of simply receiving these services from the school district. In our sample, MC$^2$ and Science Leadership are located (at least in part) in a field setting. Science Leadership leases space near the Franklin Institute; MC$^2$'s 9th grade is housed at the Great Lakes Science Center and its 10th grade is on the General Electric campus in Cleveland. Recall from **Table 3** that MC$^2$'s costs are more than 43.7 percent higher than its comparison school (even though $100,000 in rental charges is excluded). These contracted costs, coupled with the district's decision to duplicate services at this school (as described below) accounts for a large share of this spending differential.

The Franklin Institute donates space, staff time, and memberships to all Science Leadership students, while General Electric donates building space for MC$^2$. However, MC$^2$ pays $100,000 in rent to Great Lakes, must purchase parking for Great Lakes staff, and must contract with vendors for food, security, and janitorial services. In total, these expenses add up to $365,000 ($1,225 per student), which is about 11 percent of the school's total spending. In addition to rent and contracted services, MC$^2$ also pays for district facilities staff, because the school's 11th and 12th grades are housed in a district building. The district also provides a small number of maintenance and food service personnel to the Great Lakes and General Electric locations even though the school contracts with external providers for these services. The combined cost of rent, contracted services, and facilities staff reaches $756,324 ($2,538 per student)— 21 percent of the school's spending. In contrast, the district comparison school spends a total of $799,705 for the same operational expenses but serves almost four times as many students. All of the facilities and operations expenses reported here are paid by the district and appear on the school's expenditure report (including the rental cost).

Similarly, Science Leadership operates in a building formerly owned by the district, under a lease arrangement. We were not provided with a copy of that lease but were informed that the lease costs the district $1.3 million per year.[19] If this spending is treated as an additional cost, then the School District of Philadelphia spends 56 percent more on Science Leadership relative to its comparison school.

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19. The lease starts at $1.2 million and increases to $1.4 million; this analysis reported the average between the two.

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Before these costs strike fear in the hearts of budget-conscious district administrators, it is important to remember that schools located in district buildings incur these expenses as well. District budgets, however, record expenses differently and make some of them invisible. Instead of contracts for food, security, and maintenance services that are listed under purchased services, the expenditure report from MC²'s comparison school included salary line items for food service, security, and cleaning staff. Instead of a rental fee, which reflects the market rate for the facility, utilities, and upkeep, districts rarely "charge" for the use of facilities and often keep utilities and general maintenance budgets centralized. Such is the case with MC²'s comparison school in Cleveland.[20]

## Finding 6: Time is money … sometimes

A core SCL principle is that time should be structured and extended to improve learning; it should not be constrained by the traditional school and class schedules that have dominated high schools for almost a century. The SCL schools in our sample altered the use of time by reshaping the traditional schedule into larger blocks of time, creating more time for teacher collaboration, reducing the number of teacher-student relationships, extending the school day or week, or moving to a year-round schedule. Some of these changes required added resources, but others were accomplished simply by shifting resources. Below we discuss the most prominent examples of changing the use of time and the expenses schools incurred to bring about these changes.

**Block schedules.** One of the most important uses of time is class scheduling. Typically, a high-school day includes six or seven class periods of 40 to 50 minutes each. With block scheduling, schools have fewer classes for longer periods. Block scheduling is a hallmark feature of Federal Hocking's program and the basis for the school's transformation. Concerned about frequent transitions, heavy workloads for teachers, and low student engagement, Federal Hocking increased class time to 80 minutes and reduced the number of classes to four. The first hurdle in promoting this change was financial. Could Federal Hocking afford

### The importance of unreported operational spending

MC²'s expenditure report shows the school spending 21 percent of its district resources on facilities and operations. The district comparison school appears to spend only 9 percent of its district resources on the same functions. But much is missing from the comparison school's expenditure report. Based on the district's total utilities expenditures, the district spends about $284 per pupil on utilities, potentially increasing the impact of facilities and operations to almost 13 percent of total spending for the comparison school. Moreover, without a sense of the market value of the comparison school's facility—essentially what the district could raise if it sold or rented the space—we cannot be certain just how much more MC² is spending to house the school in field locations. If the district has excess building capacity that cannot be easily sold or leased or is able to provide operations services at a lower than market rate, field locations could be very expensive for districts.

to lengthen school periods while maintaining the same class sizes? Typically, a shift to block scheduling results in higher personnel expenditures, because there are longer planning periods, and thus fewer available instructors to teach classes, which usually results in the hiring of additional teachers to cover the course load.[21] In addition, block scheduling requires more staff development—particularly during the transition—to coach teachers in managing longer classes. However, if teachers' time is planned carefully, costs can be managed. Federal Hocking made several decisions to reduce costs. First, study hall was eliminated. Second, the staff decided to reduce the release time for department head duties in favor of schoolwide professional development. Third, faculty decided to integrate curricula so that multiple subjects could be offered during one block class, such as English and social studies.

20. Ironically, the school district of Philadelphia used to own the very building Science Leadership occupies, but chose to sell it and lease it back, making the argument less convincing that Science Leadership's spending analysis should include facilities costs.

21. Douglas Lare, Ann M. Jablonski, and Mary Salvaterra, "Block Scheduling: Is It Cost-Effective?" *National Association of Secondary School Principals Bulletin* 86, no. 630 (2002) 54-71, and Blair Lybbert, *Transforming Learning with Block Scheduling: A Guide for Principals* (Thousand Oaks, CA: Corwin Press, Inc., 1998).

**Time for collaborative planning.** Another valuable use of time is collaborative planning, which may occur at grade, department, or school level. Collaborative planning is essential in the SCL model, especially in those schools that emphasize authentic instruction and student engagement. By collaborating on a wider scale, teachers can integrate other subjects into their curriculum, connect the lessons, and become more familiar with the students' learning experience. Another benefit of block scheduling, in addition to longer class periods, is that it provides a longer planning period. Principals in our study tell us that these longer planning periods are used in part for collaborative planning. Collaborative schoolwide planning and training is often best accomplished through early release days. A more costly option is to pay for summer planning sessions and retreats, which of course involves paying for extra teacher time unless it is already built into the contract. One of our sample schools used a costless option, one that allows for frequent structured interaction between faculty members. One day each week, it outsources afternoon teaching responsibilities for all 9th graders to a partner institution, assigns 10th and 11th graders to internships on the same day, and allows seniors to work on projects unsupervised, allowing for two hours of collective schoolwide teacher and staff collaboration.

**Extended week.** Extending the school week is another way schools increase contact with students and provide for more differentiated support. Saturday school is an important feature of City Blended's program. This is partly because students access the Internet for much of their coursework, and in this very low-income community few have access to the Internet at home.[22] But there is a cost to offering this option: approximately $12,000 in salaries each year for Saturday school teachers.[23]

**Extended day.** MC[2] increased the length of the school day for both students and teachers. MC[2] students attend school for 7 hours each day, while their counterparts in other Cleveland schools attend for 6.5 hours. In addition, the MC[2] core staff is given 50 minutes of collaborative planning on Tuesday and Wednesday mornings and 2 hours after school on Thursdays. In total, the additional instructional and collaborative time extends the MC[2] contract day of most teachers by an average of 70 minutes a day. A memorandum of understanding from the teachers' union agrees to this extended day for teachers but requires teachers to be compensated for their time at the professional development rate. The district paid $25,758 for this added time in fiscal year 2011.

**Year-round schedule.** Researchers studying the distribution of school days across the calendar year attributed a majority of the achievement gap between students from high and low socio-economic status families to summer learning loss.[24] MC[2] opted to shift

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22. Some blended models are designed so that students can work offline at home. City Blended, however, felt that extended online access and time with teachers would help students keep up with their coursework.

23. The amount spent on teachers was estimated by calculating the average salary expended on two teachers who attend Saturday school for three hours each week for 35 weeks.

24. Karl L. Alexander, Doris R. Entwisle, and Linda Steffel Olson,

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| How changing time use impacts expenditures | |
|---|---|
| **Block schedules** | None, if willing to accept slightly larger classes or able to release teachers from non-instructional duties. Increased cost of additional staffing if class size is maintained |
| **Building in time for collaborative planning** | None, if coordinated with block schedules or using existing professional development time in the contract |
| **Extended day, week, or year for students or teachers** | Extra pay at the certified teacher rate to compensate teachers for additional time in the contract day or additional instructional time |
| **Year-round schedule** | None, if contract days remain the same |

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to a year-round schedule. Every 10 weeks, the students have a two-week holiday. The schedule does not add days to the contract year for teachers, so the school incurs no added expense.

## Finding 7: SCL takes a village—most SCL schools rely significantly on non-district resources to fully implement the SCL model

Nearly all of the SCL schools in our sample supplemented district resources in order to fully fund SCL activities. As already discussed, nearly all of the schools in our sample received external funding for start-up or transition. And most schools in the sample also receive funding to sustain their models.

Unsurprisingly, the schools with the deepest models and highest relative expenses—Science Leadership and MC[2]—supplemented their budgets with the most external resources. Science Leadership supplemented its district budget by as much as 20 percent with monetary and in-kind donations. But even schools with less intense SCL models reached outside their district for more resources, sometimes in the form of financial grants but often in in-kind support from the community.[25]

These supplemental resources were sought for two reasons: the district resources were not substantial enough to support the SCL expenses, and the district allocated resources to schools in a prescribed formula, locking some resources into activities that did not align with the schools' instructional models. It's worth noting that fundraising and partnering success reflects the community's support for and satisfaction with the schools' approaches and performance.

City Blended is an example of a school that needed extra resources for its model. Because the software and

computer-based curriculum content from an outside vendor required more resources than available to the school, the principal sought open-source software to suit his school's needs. Similarly, Global Connections and Federal Hocking sought and received state funding to support their internship programs. Springfield Renaissance receives funding from the state as an Innovation School.

MC[2] exemplifies how leaders may need to seek external resources when facing locked-up district-allocated resources. Here the principal found that he could not reallocate funds for district-allocated instructional aides (worth about $95,000 annually) to an internship coordinator. In response, he arranged internship support from a local nonprofit.

The scale and nature of external resources varied significantly across our sample schools. Nonetheless, we found that many SCL schools required additional resources above what the district could offer. Entrepreneurial principals and teachers readily turned to the community and/or government entities to find and secure these resources for their students.

## Finding 8: Policies that allow greater school-level flexibility help schools optimize their resources

Constraints on resources often complicated the organizational and academic changes the schools in our sample made. Commonly, districts assign resources to schools by staffing positions (e.g., four math teachers and one art teacher) using an enrollment-based staffing formula whose parameters are set by the district office. A similar process is used to fund other expenses, such as textbooks, supplies, and professional development. In an analysis of district and school budgets, Marguerite Roza found that principals control as little as 11 percent of the total dollars in their schools.[26] On top of the district constraints, teacher contracts further constrain the use of resources specifying core organizational functions such as hiring, class size, length of the school day, the amount and use of teachers' preparation time, and responsibilities in the school building. This prescriptive approach to funding schools

"Lasting Consequences of the Summer Learning Gap," *American Sociological Review* 72, no. 2 (April 2007) 167-180. Unpublished research drawn from the Early Child Longitudinal Study found a small improvement for disadvantaged children in reading but no difference in mathematics, when comparing year-round schooling to schools using an agrarian-based calendar and holding learning days constant (P.T. von Hippel, "Summer learning and 12-month learning in year-round and 9-month schools").

25. We define in-kind resources as donations of time and materials from non-district sources.

26. Marguerite Roza, *Educational Economics: Where Do School Funds Go?* (Washington, DC: Urban Institute Press, 2010).

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and existing labor agreements mean that principals in any school have very little opportunity to marshal resources to make changes.

Principals are sometimes able to shift resources in their school. As explained above, MC² turned the homeroom period (already a duty time for teachers) into student advisory time. Federal Hocking removed teachers from hall, lunch, and bus duty in exchange for more collaborative prep time. Science Leadership frequently converted administrative and support positions into teaching positions. In one example, Science Leadership laid off the librarian to protect a teaching position threatened by budget cuts. Some principals spoke of midyear hiring as a method of skirting union hiring rules to get teachers with experience in SCL.

More substantial changes that challenge traditional funding formulas often require some negotiation with the district. For example, MC²'s principal sought to eliminate redundant cleaning and food service staff and reallocate teacher aide positions into an internship coordinator but has not yet received approval from the district. The district, however, permitted the school to make several other changes, including alternate contracts for building and transportation services and allowing the assistant principal position to become a district-wide grant-funded position. Several schools in our sample also downsized administration and student service staffing for more instructional staffing.

Changes that confront provisions of labor contracts require more formal negotiation. Both MC² and Springfield Renaissance negotiated a memorandum of understanding that altered several contract provisions, including the length of the school day, days of operation, hiring policies, and teacher duties, freeing the school to pursue organizational change and new roles for teachers.

Schools that do have wide flexibility over their resources take advantage of it. For example, City Blended, much like a charter school, receives a per-pupil allocation of money with which to purchase staff, equipment, and materials, as long as staffing decisions adhere to union contract rules. As a result, City Blended is able to pursue its technology-heavy focus by allocating a disproportionate share of resources toward acquiring hardware, software, and technology management services. City Blended is also able to control costs by hiring younger, lower-cost staff and allocating the savings on labor costs to technology services.

The principal of City Blended asserted that spending flexibility is critical to the school's operation, and without it, he would be unable to sustain the model. The principal at Federal Hocking, being the principal of the rural district's only high school as well as the district superintendent, exercises considerable control of his school's resources and speculated that he would have a much harder time doing what he does in an urban district operating under specific staffing formulas. Similarly, Noble, the only high school in its rural district, implemented an SCL curriculum with the complete support of the superintendent, evidenced by the construction of a new school designed specifically to support the school-within-a-school concept. The teachers at Science Leadership refer to their principal as a budget wizard. Until school districts and states value flexibility, financially successful SCL schools will continue to be led only by principals with extraordinary financial talents.

## Finding 9: Districts' allocation formulas often lead to higher spending on small schools, and SCL schools are usually small

A small learning environment is a common feature of SCL schools. By design, many of the SCL schools we examined enrolled fewer students than the typical high school in their district. In fact, every SCL sample school is either slightly or considerably smaller than its comparison school. Overall, our case studies included five schools with enrollment differences of more than 100 students relative to their comparison schools.

Smaller-than-average enrollment levels can lead to higher per-student spending, not necessarily because of cost differences between small and large schools, but because of the funding formulas school districts use. School districts largely rely on three types of funding formulas to distribute resources to schools: per-school funding, allocations based on step functions, and staffing formulas based on pupil-teacher ratios. Each method often results in higher per-pupil spending in small schools.[27] Consider the implications of the common practice of assigning one

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27. A step function allocates resources using enrollment thresholds, with each step signifying a fixed unit increase in the allocation of a particular resource to a school.

## Figure 2. Per-pupil expenditures by enrollment in New York City high schools
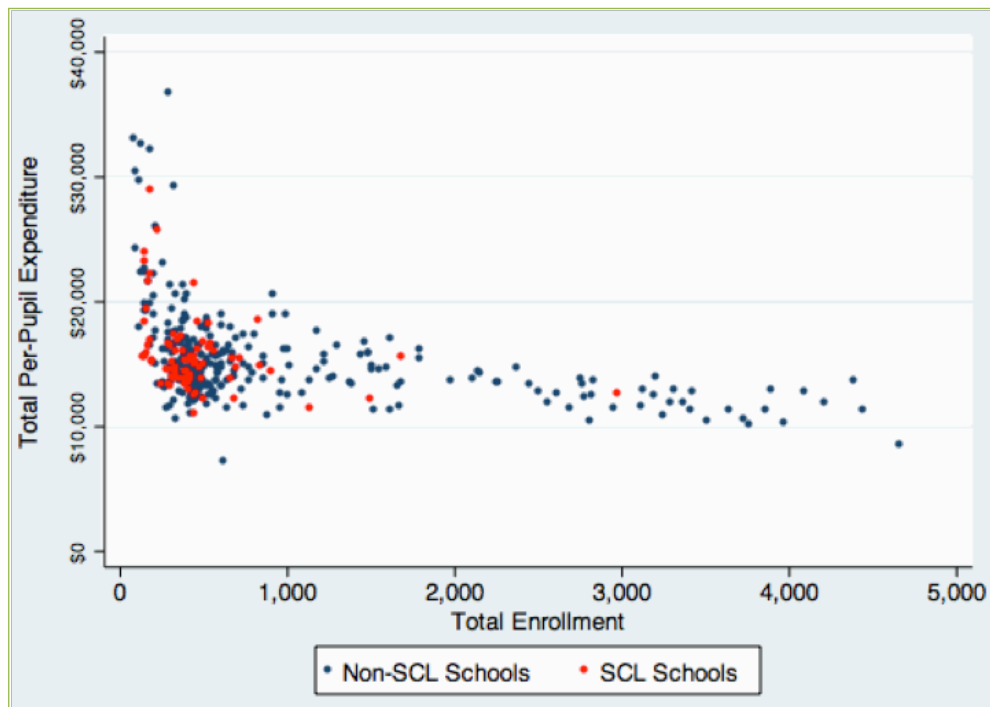


**Source:** 2008-2009 per-pupil expenditure data provided by the Research Alliance for New York City Schools.

full-time equivalent principal for every school. Per-pupil spending for a principal earning $150,000 annually in salary and benefits at a school with 200 students is $750. That same salary is only $300 per pupil at a school with 500 students. That's a $450 per pupil (150 percent) difference in spending on one person, because the allocation rule does not take into account the effect of enrollment differences on spending levels.

Spending differences between big and small schools also appear when districts use step functions to determine resource levels. For example, a district may allocate a vice principal for every 500 students.[28] If an SCL school enrolls 490 students and its comparison school enrolls 510, the allocation rule arbitrarily provides extra resources to a school that's roughly the

same size. The pupil-teacher ratio also has an inherent spending bias in favor of small schools when it assigns teachers in full-time rather than part-time increments. By rounding up to the next full-time teacher in a small school that employs fewer teachers, districts increase the total number of teachers by a greater percentage than when rounding up in large schools.

The impact of school funding formulas is very apparent in our analysis of spending in New York City high schools. **Figure 2** graphs total per-pupil expenditures in the city's middle and high schools against school enrollment. Blue circles identify non-SCL schools; red circles identify SCL schools. These data demonstrate that SCL schools are much smaller than the typical school. The graph also shows a downward sloping relationship between per-pupil expenditures and enrollment for both types of schools. Because both types of schools follow a similar pattern, these data suggest that it is school size and not SCL status driving per-pupil expenditure differences across schools in New York City. In fact, once we control for size and

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28. It is possible for student support staff, such as guidance counselors or social workers, to appear as "lumpy" costs, in that a single counselor can serve hundreds of students. However, districts and even collectives of districts in rural areas have developed strategies to split these services across multiple schools, making them less "lumpy."

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other factors statistically, New York City appears to spend slightly less on SCL schools than other high schools in the district.

School districts in our study spent more to maintain facilities in smaller schools. Sample SCL schools that had lower enrollment relative to their comparison schools outspent (in per-pupil dollars) their comparison schools by substantial margins in the facilities expense categories. Sharing facilities with another school to increase building enrollment, while maintaining lower enrollment at the SCL school, can mitigate the consequences of a funding formula that sends more maintenance spending toward small schools. The City Blended, Global Connections, and Noble cases show that sharing space with other schools mitigates the funding formula bias that leads to greater funding for small schools. Per-pupil operations and maintenance spending at these schools are actually lower than at their comparison schools by as much as $1,798 per student in two of the three cases.

SCL school leaders informed about these issues and empowered with authority and budget flexibility can reallocate surplus funds from the categories used by the district and redeploy those resources in service of SCL principles. This may require the principal to teach one class per week, as Springfield Renaissance's principal does, or it may require the school to hire a part-time instead of a full-time custodian to afford an internship coordinator. SCL school leaders must set school priorities first and then look at ways to reallocate the budget to fund those priorities, instead of spending the budget in the same way the school district assigns it.

# Conclusion

District leaders interested in SCL but concerned about costs can take comfort from this study. Most of the districts we studied spent just a bit more, or somewhat less, on their SCL schools, relative to their traditionally structured counterparts. Opening or converting to an SCL school likely requires some start-up funds, depending on facilities and equipment needs, as well as the availability of funds. Once they were up and running, most of these schools were able to operate within plus or minus 13 percent of the cost of operating their comparison schools, with only one exception.

To be sure, adding resources to the instructional core can increase costs. However, many of the schools in our sample made up for at least some of these expenses by operating with fewer administrators and student support services personnel, or by hiring less expensive teachers.

Expanding the learning day led to additional staffing expenses. But schools in our sample also found that shifting to block schedules, moving to a year-round schedule, or adding collaborative planning time could be done with minimal or even no expense by repurposing time that already existed in the school schedule or absorbing slightly higher class sizes.

A timely lesson offered by our sample is that when technology is just layered onto a traditional staffing model, expenses can rise. Taking advantage of technology to advance student learning likely requires rethinking staffing and how to organize students and teachers across the school.

Embedding students in the field also brought new expenses that schools did not seem able to cover by reallocating resources. This was especially true for one of the schools located in a field setting. It may be worth exploring whether virtual technologies could be used to engage students in field activities at a lower cost.

Small enrollments are a common feature of most SCL schools. District-to-school funding formulas that rely on per-school rather than per-student allocation rules can lead to spending disparities between small and large schools within the same district. Some schools in our sample overcame these potential expenditure pitfalls by co-locating with other small schools, replacing paid staff with unpaid interns, sharing resources, or going without common staff or services.

Perhaps the most important insight from this analysis is the importance of setting fair but hard budget constraints for schools and then giving schools the resource flexibility they need to deliver on the priorities they set for their school and its students. Funding all schools fairly within districts would reduce the spending differences we observed—both those favoring SCL schools and those favoring the comparison schools. All the schools in our sample used their resources differently than is common in traditional schools. Principals who had control over their budgets expressed great appreciation for this flexibility. Principals with limited control voiced their frustration by arguing that these constraints cost the district more money than was necessary, because resources or staff positions went unused, poorly aligned with the school's needs.

To a significant extent, school leaders and teachers recognized that district resources are finite and showed great enterprise in bringing in outside resources to support learning in their schools. However, districts can also help their SCL schools, by cutting the strings that bind the use of resources and by being their champions in the community and with external funders.

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