NEW SCHOOLS AND INNOVATIVE DELIVERY

MICHAEL B. HORN AND MEG EVANS

The past several decades have seen technology transform industry after industry. Nearly every sector in America has used new technologies to innovate in ways nearly unimaginable a generation ago. By the term technology, we refer to the processes by which an organization transforms labor, capital, materials and information into products and services of greater value. The notion is not limited to things like microprocessors and other electronics. Innovation in this context refers to a change in one of these technologies.¹

One sector, however, has remained nearly the same as it was a century ago. The American school system has continued to rely on an anachronistic factory-based model, even as so much of society has transformed around it. To the extent that it has employed technology, it has done so to sustain and reinforce its factory-model processes, not to fundamentally change them.

That urban school districts in particular have long struggled to innovate beyond their factory-based model is not news. School principals and teachers complain frequently of top-down control from the district central office, which fosters a culture of compliance rather than one of innovation and pursuing different strategies for different student populations. Many district administrators have historically worried that if they give more autonomy to schools, only chaos will result and students will not be served well.

Milwaukee provides a case study with which to understand the tensions around welcoming innovation — or even making basic progress — that are so common in urban school districts around the nation. District teachers complain about wanting to implement various new ideas, such as offering new curricula to serve certain students or creating after-school programs, but being blocked for reasons having to do with central control. According to focus group interviews with Milwaukee teachers, receiving a mid-year mandate from the district staff to implement a specific curriculum or a district wide order to switch to 48-minute periods from 80-minute periods — regardless of what the school itself sees as best for its students — is not out of the ordinary.² Innovation hardly enters the conversation.

Milwaukee does have a relatively long his-
tory of school choice and a variety of autonomous schools from which students can choose. This creates the context for an innovative model that offers a suite of options to best fit individual student needs. However, the district itself has not adopted a mindset of viewing these and its own traditional schools as a portfolio of options for students. As in many urban districts, a top-down mindset seems to have prevailed. Although some of Milwaukee’s past superintendents have seen technology — in the form of computers and e-learning, for example — as a critical part of their strategy and invested accordingly, others have come in and let the investments wane. Neither consistency nor individual school autonomy appears to be in long supply.

Complaints of heavy bureaucracies stifling innovation in education are, of course, nothing new. The culture that has squelched innovation in urban school districts — embedded in both explicit and implicit processes — should not come as a surprise.

A series of accompanying policies, regulations and agreements to

EDITOR’S NOTE

In 1912, Henry Ford was just developing the factory assembly line, the motion picture industry was located in New York and had not yet produced a full length feature film and there was no passenger aviation, radio, television or computer. One-hundred years later, all of these industries have radically evolved. But in spite of vast chasm between 1912 and 2012, the model and administration of the Milwaukee Public School System — which was developed for and in a different world — has barely changed at all.

The largest school system in the state of Wisconsin still maintains a one-size-fits all approach with a central administration overseeing all schools. This may have made sense a century ago, but today, the world has obviously changed and the student population is vastly more diverse. Teachers deal with problems in 2012 that were unthinkable one hundred years ago.

Perhaps worst of all, just when education desperately needs to innovate, this antiquated system can stifle innovation. When different students require different ways of learning, the system in place is more focused on compliance.

The first path to the innovation that is needed is for school districts to radically change their model. Instead of running the old factory system for everyone, the centralized system must, instead, become managers of portfolios of different types of schools.

If some students can learn their lessons in a matter of weeks, they should not be forced to sit in a classroom for months. A greater effort towards the use of technology should be employed, specifically on-line learning. When students are involved with a panoply of technology outside of school - from texting to Xboxes - it makes no that schools should be downplaying what has already taken over society.

There should be a portfolio of schools with a diversity of different types of schools and all should focus on student outcomes. Example: Utah uses an on-line learning provider that receives 50 percent of funds up front but only receives the other 50 percent when the student successfully completes the course.

Education should use models of industry. There should be wider use of the internet, engaging the community for broader support and more flexibility from administrators, teachers and public officials. When a teacher, parent or even student comes up with a better idea, it should be given a chance to grow. Remember, the Mustang would not have been developed if Ford had stuck to the Model-T.
govern and manage today’s education system has emerged over the last several decades that, until more recently, has focused largely on controlling inputs as opposed to student outcomes.

These inputs control both the resources and the processes inside schools. They include things like teacher certification laws, which in essence dictate the population from which schools can hire teachers, and categorical funding that locks in place the things on which schools can and cannot spend money. Managing an urban school district through such inputs threatens to restrict and block innovation. If one were to specify all of the inputs into a meal in advance, for example — the ingredients and what to do with them — the odds of someone creating something different and innovative would be low, as the solution would have been essentially defined beforehand.

The same principle is at work in places like Milwaukee and many urban school districts around the nation. Focusing on inputs has the effect of locking a system into a set way of doing things and inhibiting innovation. Focusing on outcomes, on the other hand, encourages continuous improvement against an overall set of goals.

None of this would be quite so problematic were it not for the fact that the school system we have was not built to deliver for society’s needs today.

MOVING BEYOND A MONOLITHIC EDUCATION SYSTEM

The systems in place in urban school districts around the country were created in the early 1900s to serve a different time with different needs. Only 50 percent of 5- to 19-year olds were enrolled in school in 1900. One-third of children enrolled in first grade made it to high school and of those, only one-third graduated.

Competition with a fast-rising industrial Germany changed that as Americans asked public education to prepare everyone for a vocation in the Industrial Age of factories. To do this, the school system changed gears and adopted a factory-model that allowed it to extend high school to everyone in an efficient, affordable manner. In just one generation, America built a comprehensive high school system that enrolled 75 percent of the students who had started in first grade and graduated 45 percent of them.

That number continued to rise throughout most of the 20th century, although in the nation’s largest 50 cities, it has remained stuck just above 50 percent. Milwaukee fits the bill, as it graduated 50 percent of its students in 1997, a number that rose to 62.8 percent by 2011, although the rate of growth has slowed as of late.

The factory-model system that educators adopted created schools that in essence monolithically processed students in batches. By instituting grades and having a teacher focus on just one set of students of the same
academic proficiency, the theory went, teachers could teach “the same subjects, in the same way and at the same pace” to all children in the classroom. This created a school system that is built to standardize the way students are taught and tested.

When most students would grow up to work in a factory or an industrial job of some sort, this standardization worked just fine. But now that we ask increasingly more students to master higher-order knowledge and skills — in 1900, only 17 percent of all jobs required so-called knowledge workers, whereas over 60 percent do today — this arrangement falls short.

Wisconsin and Milwaukee have felt this pressure acutely. Between 2011 and 2012 Wisconsin had the biggest six-month decline in manufacturing jobs in the nation after California. According to a Milwaukee Journal Sentinel special report, the city’s pool of college-educated adults ranks among the lowest of the country’s 50 biggest cities. To become an average city among the top 50, Milwaukee would need another 36,000 adults with college degrees. Since 1990, it has added fewer than 1,000 a year. And Milwaukee is not alone in facing such a formidable gap between supply and demand for highly educated professionals.

The reason the factory-model education system that standardizes will not work given these new needs is, to put it simply, because everyone has different learning needs at different times. We learn at different paces, have different aptitudes and enter classes with different experiences and background knowledge. Because of this, each child needs a different, customized learning approach to maximize his or her potential.

This need for customization clashes directly with today’s factory-model school system, which was built to standardize. When a class or teacher is ready to move on to a new concept today, all students move on, regardless of how many have mastered the previous concept (even if it is a prerequisite for learning what is next). On the other hand, if some students are able to master a course in just a few weeks, they remain in the class for the whole semester. Both the bored and the bewildered see their opportunity to achieve shredded by the system.

To customize in the monolithic education system we have today is prohibitively expensive. Just witness how much more it costs to educate a special-needs student with an individualized learning plan — two to three times, on average. As a result, over the last three decades, special education has sucked up more and more funds and made the overall system more and more unaffordable without the overall results to show for it. In many districts, special education now accounts for over a third of the spending. In Milwaukee, for example, 19.7 percent of students were classified as special education in 2011-'12. In the FY13 proposed budget, special education services to schools account for roughly 20 percent of the operating funds and 16 percent of the total budget.

Milwaukee and urban school districts across the nation must embrace innovation to break out of this monolithic education system. There are several innovations that many urban districts have begun to put in place that hold promise, and there are many more that they should implement in the years ahead.
INNOVATING TOWARD A STUDENT-CENTRIC EDUCATION SYSTEM

Urban school districts must innovate across two parallel paths: with new whole-school models and within schools.

Innovating With New Whole-School Models

The first path of innovation requires that districts adopt a mindset in which they see themselves as overseeing a portfolio of different types of schools, rather than running a set of similar “one-size-fits-all” schools. A growing number of urban school districts, including New York, Los Angeles and Denver, have begun to adopt this portfolio approach. In many ways, the city of Milwaukee has also operated with a portfolio of school types for students for many years, as it has a variety of autonomous schools from which students can choose, including charter schools under the purview of different authorizers, magnet schools, private choice schools funded through vouchers, and traditional district schools.

But the district itself has not traditionally viewed these, along with its own traditional schools, as a portfolio of options for students. Instead, historically speaking, the district seems to have viewed choice schools of nearly all stripes as threats to its existing business model, as its share of per-pupil funds decline with students attending non-district choice schools. Judging from focus groups with parents, having this perspective has only sown seeds of confusion and created a series of systems that have frustrated students’ ability to find the education that is right for them. Parents receive only a simple booklet at the start of the year listing all of the district schools with brief descriptions and test score metrics, and they struggle to understand which school might be the best fit for their child.

Having different school types available for different students is critical, as not all school architectures can serve all students with differing needs. Just because two students live a block apart does not mean they automatically have the same needs, and yet the geographic categorization in use in many urban school districts suggests that we think they do.

The success of charter schools like KIPP helps reveal this: KIPP has created a school that works well for certain types of students, many of whom have struggled in traditional schools, but it is unlikely that KIPP is the right fit for all students. This is one critical reason to move toward a portfolio of school options and to allow for innovation in creating and welcoming new school architectures designed to serve different student needs.

Moving to this portfolio mindset requires significant business model innovation for both the district and individual schools, as it requires the district to shift from running schools to instead seeing itself as an authorizer of schools and purveyor of supporting school services. Operationally, this means allowing schools to control their own budgets, hiring and curriculum planning. This shift from top-down choices to ground-level control returns the decisions about what’s best for students to those closest to the classroom. Rather than viewing their charge as preserving the public schools in their geographical jurisdiction, public school boards and superintendents must view their mission as educating well all the students within that area.

A critical function in this new model is that the district move beyond input-based standards...
that seek to dictate how schools teach students, which are anathema to innovation, and instead create outcome-based student growth standards to give innovators a common target toward which to improve. For example, rather than mandating on the district-level that a school or teacher uses a particular literacy curriculum, the state should instead require students to make, at minimum, a one grade level gain in reading level over the course of the year and then let the teacher decide the best way to facilitate that growth.

Much as in a Recovery School District of the type Neerav Kingsland proposes (this volume), the district’s job would be both to shut down schools over time that do not perform up to par and to help parents and students find the right school for their needs, thereby framing the creation of new schools as a constant chance for innovation to learn which types of schools serve which types of students best — and to acknowledge that no school will likely serve all students well.18 This shift is dramatic. Districts have long defended and made excuses for failing neighborhood schools; instead they ought to hold all of the schools in their purview — magnet, charter, traditional and alternative — to the same standards and review processes.

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Milwaukee. Although the city has experienced the job of shutting down poor schools already, this experience does not largely reside inside the district, as reports indicate that it is the choice schools outside of the district’s management that have been held to a higher standard and closed more quickly than their district school counterparts. Indeed, the district and the various organizations and associations tied into its operations have instead created caps on nonunion-ized district schools — non-MPS providers are allowed to serve only 8 percent of the district’s total enrollment — which blocks innovation and does not foster an ecosystem of continuous improvement around student outcomes.19

This also requires schools to rethink their business model, as, increasingly, rather than being operating units within the district, they will be autonomous business models themselves. For this to work, rather than have dollars flow to districts that make decisions as to their allocation, dollars must follow students down to the school — or better yet, follow students to the educational experience — of their choice.

In other words, the school-level leadership must have the ability to make financial, human resource, curricular and other operational decisions on its own.20 The choice and charter schools in Milwaukee have some experience with this already, as they have significantly more flexibility than the traditional district
schools in making curricular and architectural choices for their students, creating ways to work with parents, and establishing new processes to work one-on-one with students.\

The district should also embrace the power of disruptive innovation in seeding new school models. A disruptive innovation is an innovation that transforms a sector that was once characterized by complicated, expensive and inaccessible products and services into one where the products and services are more affordable, simple and convenient. There are two critical enablers of disruptive innovations: a business-model innovation and a technology enabler that allows the innovation to carry a low-cost business model up-market to serve more and more demanding users.

Blended-learning, or hybrid, schools that combine online learning with elements of a brick-and-mortar experience have the potential to serve this purpose and be disruptive relative to the first generation of “no excuses” charter schools, for example, by being lower in cost and therefore theoretically easier to scale. Milwaukee has a few blended-learning schools and pilot programs in operation, and the community has welcomed Rocketship Education, a charter management organization that runs blended-learning schools disruptive relative to first-generation charter schools. As urban districts around the country move to a portfolio model, they should seek to bring Rocketship and other similar disruptive blended-learning school models to their district as well.

Driving Innovation Within Schools
Urban districts must also embrace the use of technology to transform the learning environments within schools themselves and allow for a much finer grain of educational customization for students than is possible at the whole school level. For far too long, urban districts have deployed technology by simply cramming it into their existing schools and classrooms as an add-on or small supplement — and spent not insignificant sums in doing so. For example, Milwaukee has spent roughly 1 percent of its operating budget on technology over the last decade, but it is not clear that those investments have resulted in learning gains for students. Too many districts have historically mistaken an investment in technology for a thoughtful and strategic focus on innovation.

Instead, the district must use technology, specifically online learning, to disrupt the factory-model of schooling and customize for students’ different learning needs. Online learning appears to be a classic disruptive innovation, and it has the potential to not just help reform education but to transform it. Because it is inherently modular, it can more easily be customized for different student learning needs than can the traditional classroom. It can also create near real-time feedback loops to bolster the interactions with both the teacher and the content itself. The technology underly-
ing it is beginning to improve year after year, and it has gained traction by targeting classic areas of non-consumption, that is, where the alternative is literally nothing at all and where disruptive innovations get their start.

Milwaukee, like many urban districts, has some experience deploying online learning in these areas of non-consumption — such as to offer advanced courses or extracurricular courses to students where the alternative in the home school has been nothing at all, or — most popularly — for credit recovery. But the schools and the district have not made as strategic use of these resources as they could to drive student learning.

Milwaukee, for example, had historically used online learning well in a handful of partnership or alternative schools to help serve students who had dropped out or were on the verge of doing so. More recently, the district has begun phasing these schools out — from 21 schools down to six — to the detriment of the students who now have no option to continue their schooling. Furthermore, many urban districts like Milwaukee have ignored the potential to use online learning to implement blended-learning rotation models in elementary school classrooms. Such models generally do not require significant redesign but can bolster student learning by creating better targeted individualized pathways for each student as well as better uses of time and richer student-teacher interactions.

**PRACTICAL IMPLICATIONS**

To move toward an urban school district that uses innovation to improve student learning, districts and the states in which they operate should take several concrete steps.

**Creating a Diverse Ecosystem**

Urban districts must move toward a system of operating a portfolio of schools with a diversity of school types and a focus on student outcomes, not mandating how schools should best serve their students. Many urban districts across the country are moving in this direction.

Steps like Wisconsin’s Act 114, a statewide bill that provided parents with an expanded window to take advantage of open enrollment and send their children to schools outside their districts, are important. A lesser-known aspect of this legislation also makes transferring possible mid-year if there is evidence that a student feels unsafe in her home school. Additionally, the current Milwaukee teachers union contract contains a cap on district-authorized, nonunion school enrollment. When this contract expires in July 2013, the cap will disappear with it. This presents an excellent opportunity to continue to develop the diverse ecosystem of choice for Milwaukee students with an expansion of charter and choice enrollment.

Urban districts moving into an authorizing role should also think about opening up umbrella charters to those organizations with
a successful track record, so that innovative charter management organizations looking to expand, such as Rocketship Education, will find these locales attractive places to put down roots.

Performance-Based Procurement

States like Florida and Utah have already created mechanisms through which to pay online learning providers in part based on student outcomes. For example, in Utah, an online learning provider receives 50 percent of funds up front for serving students but only receives the other 50 percent when a student successfully completes a course. This helps align incentives around actual student learning. Wisconsin should move forward with this type of policy — and where possible define successful student learning based on their passing objective, on-demand performance assessments.

But urban districts can themselves enter into performance-based contracts now without waiting for the legislature to act. Recently McGraw-Hill announced that it had entered into a performance-based contract with Western Governors University for its higher education content, which suggests that even traditional textbook publishers might be open to these sorts of innovative contracts. Districts could offer the schools they authorize the opportunity to enter into different sorts of these arrangements with different vendors.

Funding Ecosystem

Lifting categorical funding requirements and the mandating of inputs at all levels and allowing funds to follow students down to the educational experience are critical. For urban districts coping with increasing budget cuts, allowing schools to have both more flexibility and the ability to opt in to performance-based contracts or other services that the district provides can help provide a gateway to innovative schooling arrangements. Such arrangements are more cost-effective and can achieve success for students, as several blended-learning proof points have shown across the nation.

In Milwaukee for example, almost a quarter of MPS’s 9,300 employees are eligible for retirement, and the district estimates that more than 1,400 employees will retire by 2015.25 This presents an ideal opportunity to not mandate that the district and its schools hire precise replacements, but to instead allow schools to create innovative staffing models and create blended-learning models that make sense for their needs.

Internet Connectivity

To support a move to blended learning, districts will also have to help schools have the proper Internet connectivity, as well as work with cities to ensure that students have adequate Internet access. Currently, most schools do not have adequate infrastructure to support Internet access, and many low-income residents do not have access to high-speed Internet. For example, according to interviews, in Milwaukee, Time-Warner Cable’s monopoly
has created expensive service that has limited student Internet access. Districts and states should use their potential scale to negotiate good contracts that schools can opt into and provide expertise to help schools implement and maintain their infrastructure wisely.

Building Broad-Based Community Support
Although structural changes are important, it is also important to gain buy-in from educators on the front lines who will be working directly with students — and to help educators see that the move to online and blended learning is not motivated by a desire to replace teachers with technology. Recently, the Rhode Island Department of Education held a large meeting for the district teachers, principals, parents and administrators to establish a common language, understanding and strategies for growth of digital learning in the state to spur educators on the front lines to lead the innovation.26

As urban districts move to a portfolio model of schooling, they ought to move into this educational role for educators as well and hold similar sessions. In many cases, this should spur immediate action, as educators in elementary schools in particular can establish blended-learning rotation models within their existing classrooms to better serve students. In addition, as Rhode Island did, urban districts ought to partner with interested foundations to establish competitive grants for educators and schools that create innovative school designs to bolster student outcomes.

Given that the teachers in Milwaukee were not even familiar with Wisconsin’s plans on how to move to the Common Core standards or to adopt the SMARTER Balanced Assessment Consortium’s new assessments, the importance of playing this educational role and holding sessions where appropriate cannot be overstated.

Move Away from Seat Time to a Competency-Based System
To bolster the likelihood that as educators adopt blended learning, this does not merely maintain the current factory-model system but in fact transforms it into a student-centric one, it is imperative that the state move beyond seat-time policies and create room for competency-based learning ones in which students make progress based on actual mastery of learning objectives.

In Milwaukee, blended-learning schools such as Milwaukee Community Cyber High School have managed to skirt seat-time requirements by chartering as virtual schools with the district — a clever way around the regulations but also far from ideal given that the Milwaukee Community Cyber High School is not in fact a full-time virtual school. Wisconsin ought to lift its existing seat-time requirements so that district schools that are not chartered as virtual schools can take advantage of competency-based learning as well. All states should have this mindset. This change requires state-level legislative action to change the educational code, but without community and thought leaders behind the change, there will likely be little impetus for legislators to take up the cause. For example, Utah passed a far-reaching bill to boost online learning in 2011 and allow it to escape the traditional seat-time metrics. To engineer this, a group of parents became active in lobbying for change, briefing each state senator, testifying at the committee level and even hosting ice cream socials at the state Capitol to raise awareness about the issue. The parents group also found it particularly helpful to have a couple of close
allies in the Senate who stood as legislative champions of the cause.

Similarly, districts and states should move toward adopting or utilizing data and assessment systems that focus on individual student growth and allow students to move seamlessly between educational experiences, rather than treating students who enroll in different types of schools, for example, as separate silos of data. This practice, which is prevalent in Milwaukee, only creates complications for students and educators.

CONCLUSION

Although urban school districts have struggled to innovate in the past, there is an opportunity to move beyond these struggles. With the rise of digital learning, there is a chance to transform the urban school district from its factory-model past into a student-centric system that can customize for each student’s distinct learning needs and bolster each student’s achievement.

Despite challenges that stand in the way of this change, there are concrete steps that state-level actors and district leaders can take to move toward this reality. From the low-hanging fruit of moving elementary schools to a station-rotation model and offering a wide range of individual online course options for high school students to the critical steps of removing seat-time requirements and focusing as a district on individual student-growth metrics, Milwaukee and other cities can begin to stand as models for the nation on how to capture the potential of online and blended learning.

Increasing numbers of charter networks and districts are grasping the promise of digital learning, but few have yet to re-imagine and rebuild systematically with disruptive innovation in mind. Following the suggestions above, as well as engaging educators and the larger community, can begin a process of transformation that sets urban districts on a path to creating an education system markedly different from the one that has dominated the past century of education — and can help each child realize her fullest potential.

1Definitions are from Clayton M. Christensen’s The Innovator’s Dilemma: When New Technologies Cause Great Firms to Fail (Boston: Harvard Business School Press, 1997), introduction.
2Will Howell interviewing a focus group of Milwaukee charter and choice teachers, July 12, 2012.
4See also Mike Petrilli’s piece in this volume about Quality Control.
7Note that this rate was calculated with the new Wisconsin Department of Public Instruction formula and may be lower than previous calculations. Using the legacy rate, this year’s graduation rate would be measured as 68.6 percent.
8Disrupting Class, 35.
10This is particularly significant because Wisconsin depends more on manufacturing for jobs than any state but Indiana. John Schmid and Craig Gilbert, “Wisconsin


12 See Jonathan Travers, Genevieve Green and Karen Hawley Miles’ piece in this volume for more on school finance reform.


15 See the FY13 proposed budget at http://www2.milwaukee.k12.wi.us/portal/FY13/Supt_Overview_2.pdf, accessed on August 2, 2012.


17 As Mark W. Johnson discusses in his book, Seizing the White Space: Business Model Innovation for Growth and Renewal (Boston: Harvard Business School Press, 2010), there are four elements of a business model — an organization’s resources, processes, priorities and value proposition. Understanding an organization’s business model allows one to see what an organization is capable of doing, but also what it is not capable of doing. One of the central problems facing the education system is that, as alluded to earlier, it was not built to educate successfully each child, but instead to offer something for everyone. Creating an education system designed to educate each student successfully requires significant business model innovation.

18 See also Michael Petrilli’s piece on quality control in this volume and Neerav Kingsland’s piece on recovery school districts in this volume.


20 See Travers, Green and Hawley Miles on school finance in this volume for more on bringing decision-making down to the school level.

21 One teacher in a Milwaukee choice school explained the power behind this approach in the following way: “Right now, we’re in the process of rebuilding our own curricula in whatever way we want to do it. Nothing’s been defined, nothing’s been laid out for us, they just expect results. And so we know that we have to work at a level to deliver excellent results…. We do have to be way more creative with the resources we have to make it happen, but our administration backs us a thousand percent, and we need it to make it happen.” Focus group of Milwaukee charter and choice teachers, July 12, 2012.

22 For more on this, see Frederick M. Hess and Bruno V. Manno’s Customizing Schooling: Beyond Whole-School Reform (Cambridge, Mass.: Harvard Education Press, February 2011).

23 Interview with Daniel Grego, executive director, TransCenter for Youth Inc. by Meg Evans, June 15, 2012.

24 Blended learning is defined in Michael B. Horn and Heather Staker’s white paper, “Classifying Blended Learning,” Innosight Institute, May 2012, on page 3 as: “a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path and/or pace and at least in part at a supervised brick-and-mortar location away from home.” The rotation model is defined on page 8 as a program “in which within a given course or subject (e.g., math), students rotate on a fixed schedule or at the teacher’s discretion between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring and pencil-and-paper assignments.”

25 Mike Ford, “MPS’ looming fiscal crack-up,” Wisconsin Interest 21, no. 2 (June 2012).

26 Meg Evans, “Convening Rhode Island Around Digital Learning,” Innosight Institute, June 2012.

27 See Jon Fullerton, this volume for more on strategic uses of data.