How to scale personalized learning

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A systemwide approach offers the best chance of reaching the most students.

The US public education system is struggling to meet the needs of its students.[1] Even among those who graduate from high school, only 42 percent are properly prepared for college.[2] And success depends on more than just traditional academic performance: more than 60 percent of all positions in the economy involve knowledge work by people who rely heavily on critical thinking, creativity, and interpersonal skills.[3]

One promising way to improve outcomes is to offer personalized learning, a teaching approach aimed at addressing the individual educational needs of students. Research into personalized learning first emerged in 1984 when the educational psychologist Benjamin Bloom challenged the academic community to replicate, at scale, the effectiveness of one-to-one or small-group tutoring. Bloom found that students who received personalized instruction outperformed 98 percent of those who did not.[4]

As technology has become more effective and less costly, Bloom's ideal seems, for the first time, attainable for all students. In the past several years, classrooms around the country have been experimenting with ways to transform teaching and learning under the label of blended, or personalized, learning. While the terms mean different things to different people, the most successful models create individual learning profiles that help students follow their own paths through a competency-based progression, in flexible environments that deploy space, time, and personnel creatively. What these models have in common is the use of technology to better meet the needs of individual students.[5] The results have been impressive. For example, a 2014–15 study by the Bill & Melinda Gates Foundation and RAND Corporation found that students attending public schools implementing blended learning improved their performance on Measure of Academic Progress (MAP) assessments by an average of 11 percentage points in math and 8 percentage points in reading.[6]

These personalized learning efforts at the school level, though laudable, are only the first step in improving educational achievement for students across the country. The next challenge for educators is to replicate these results on a large scale. Some school systems have managed to introduce personalized learning across most or all of their schools, and, while still early days, they are seeing promising results:

- A midsize suburban district has redesigned its secondary schools to give students three hours in the morning to work independently with an online, adaptive learning curriculum. Teachers offer personalized support as needed. The afternoon is dedicated to electives and to work in small groups with teachers. Students are reporting greater engagement at school, and teachers appreciate the time and flexibility to spend more one-on-one time with them.

- A network of charter schools has moved to a competency-based approach[7] in which all students use a software platform that guides their learning by identifying and addressing gaps in their mastery. Instructional time is devoted exclusively to multiweek, cross-disciplinary projects undertaken by groups. Students also take a few weeks a year to participate in enrichment activities outside of school. Students in these schools have achieved growth above the national average on the

Northwest Evaluation Association's MAP math and reading assessments.

- A large urban district focused on improving results for math and English language arts in the early grades has introduced a station-rotation model[8] in elementary school classrooms. This approach facilitates personalized, independent learning while allowing teachers to offer small group instruction on specific issues. The district has equipped these classrooms with devices (for example, Chromebook computers) and software to support the model. Assessments in the first year of implementation suggest the approach is accelerating students' academic growth.

While it is too early to declare victory, we think these examples provide guidance for other districts on how to scale personalized learning pilots. In this article, we discuss the three major components of a viable approach: defining a vision for the innovative design of instruction and schools; establishing a process for pilots, rapid iteration, and scaling; and creating an environment where innovation can thrive, including redesigned adult learning for educators and a strategic reallocation of resources.

A systemwide approach to innovation

The adoption of personalized learning at scale requires major changes in how teachers and others in the system operate. Accomplishing this goal will require supportive systemic change grounded in a clear instructional vision. Below are a set of principles we believe are critical to making this happen.

Define a vision for innovative design of instruction and schools

We routinely observe school districts that invest in hardware, software curricula, or specialized blended learning professional development tools yet lack a vision of how instruction and schools should be designed. As a result, those investments often don't relate to the day-to-day work in schools. To reverse this trend, districts must articulate a clear vision for teaching and learning that links to their system's aspirations.

The first step must be a sharp definition of desired student outcomes. What are the biggest gaps a school system aspires to close? What are their causes, and what is the theory about why personalized learning can help? Once a school district has prioritized the gaps, it should define what instructional and school design can best eliminate them. What are students doing during the day? Where does this happen? At what pace? Which adults are involved, and what role do they play? Once these questions (among others) get answered, a district, in partnership with its schools, should develop the design that best supports the instructional vision. During this work, it is important not only to reference the range of models in use but also to understand that one size does not fit all. There must be a willingness to experiment and innovate to create new models.

One large suburban school district articulated a vision for using technology to personalize learning for students in its five-year strategic plan. The vision clearly described the core elements of what the district hoped technology could do to advance learning: provide better information on each student's strengths and needs, offer flexible access to engaging content directly addressing them, and allow the student to progress at his or her own pace, based on mastery of specific competencies. These guidelines gave the necessary direction to schools developing their own models but were flexible enough to permit experimentation.

Establish a process for pilots, rapid iteration, and scaling

The rapid iteration of prototypes and pilots to test and refine models requires capabilities that school districts typically don't have. There are

several ways to manage the process of innovation, including the development of clearly defined metrics and processes to evaluate and refine pilots as needed. Districts often wait too long after the launch of a pilot to evaluate and refine it. Rapidly assessing its progress and making small changes throughout its life promote innovation. A solid strategic plan—with clear activities, milestones, and owners, and an approach that lets the leadership maintain momentum and monitor progress—can help to guide the process.

A large urban district has been launching, improving, and scaling up school models for more than five years. Almost a third of its students are now in schools using new approaches to instruction. The district began by selecting a handful of schools with leaders who had both the will and the skills to develop models and gave those leaders internal and external support. Over several years, these schools refined their models, supported by a team from the central office, which worked with them to solve problems and evaluated the pilots. This first wave of pilots turned into a second and then into a menu of proven models that other schools in the district could use. The central office still works with schools to improve their models, but now it can also provide targeted support to schools that want to scale up proven approaches.

Create an environment in which innovation can thrive

To ensure that pilots succeed and to create the right environment for scaling them up, districts should adjust their operations to reflect the new design for instruction. Without such changes, leaders of pilots may find themselves swimming against the current: while schools are embarking on innovative paths, for example, their teachers may receive forms of professional development that aren't related to the new model. Data systems are another roadblock. If schools embrace a model that lets students advance, at their own pace, when they achieve mastery of specific competencies, critical real-time data must be made available to teachers—but most districts are ill equipped to do so. To facilitate innovation, districts should consider redesigning adult learning for educators, reorganizing central office support, identifying needed technology and data systems, aligning policy with resources, and enlisting external partners.

Redesigning adult learning to align it with innovative models. Transitioning to new models requires shifts in adult roles: teachers must change the way they facilitate the learning of students and empower them to chart their own paths. School leaders must learn how to better support educators playing a variety of new roles and how to manage redesigned budgets and master schedules. And district leaders need to redefine the support functions they offer. These role shifts require new knowledge, skills, and mind-sets. Districts must define the shifts, understand which of them will be the hardest to make, and then offer appropriate professional development opportunities. They can take advantage of rapidly increasing content for adult learning, but even the most innovative districts are grappling with how to make it reflect their vision.

Recently, a group of districts and a charter management organization, both leaders in personalized learning, reflected on how they could improve their models. These school systems recognized that adults were struggling to adopt practices aligned with the instructional vision—a problem attributed to a lack of clarity about which competencies were most important for the personalized learning models of teachers, school leaders, and district leaders. Creating an adult learning approach that authentically reflects a system's vision for personalized learning is critical to ensuring that adults feel supported during the implementation process.

Reorganizing central office support. Any innovation in models will require the central offices of most school districts to evolve, perhaps by redesigning support functions or creating new ones. For example, more specialized support may be required to introduce novel technologies in schools, more budget decisions may end up in the hands of school leaders, and purchasing departments might need to become nimbler and more tech savvy so they can better choose from the vast, rapidly changing market for software products. Districts planning to open schools must address cross-functional issues about facilities, budgeting, and accountability. In addition, districts will need to build a project management capacity to sustain the cross-departmental work supporting schools as they transition to personalized learning.

A few large urban districts have begun creating cross-functional departments focused on implementing this new approach. Such an office is responsible for helping to set a vision for the district and to launch pilots. To ensure that they succeed, the office is responsible for working with other departments across the district to remove the barriers pilots face and to begin building systems at scale.

Identifying needed technology and data systems. New technology should be seen as a way to facilitate the innovative vision of instruction, not as an end in itself. If technology underpins a district's chosen innovation, there may be several prerequisites, including more Internet connectivity for each school, interoperable system platforms and ecosystems with federated identity management, instructional software, and devices. Systems must not only understand how these technology components work together but also navigate the complex market of providers to procure suites of products that operate seamlessly. The further personalization of learning also requires a solid data infrastructure that gives teachers timely access to information on students so they can be placed in new groups when appropriate and the instructional model can be adjusted in other ways as well.

Aligning policy and allocating resources. For most districts, achieving the potential of personalized learning will require changes in key policies and funding sources. Seat time, scheduling, and limits on competency-based learning, for example, may inhibit or constrain a district's ability to innovate. Similarly, funding policies that constrain how a system purchases technology or instructional materials can limit the pace of investment, and an unclear cost-benefit analysis of technology can further slow change. However, districts can make a financial case for such investments and craft creative solutions (such as raising money for infrastructure in the bond market) to get started while broader policies are addressed.

Enlisting external partners to help develop and sustain the work. Sustaining change requires deep sets of partnerships with organizations that can provide ongoing support, which may vary with the instructional model. The supporters could include local funding partners during the innovation period, businesses and community groups that provide enrichment opportunities outside of schools, and higher education institutions that ease access to college-level courses, taken either in person or online.

A large urban school district, for example, has built a partnership with a local graduate school of education to add expertise in innovation and teacher development. These ties have proved to be an important element of the overall program of personalized learning. As a result, the district is constantly connected to new research, to leading practitioners from other school systems,

and to entrepreneurs pushing the boundaries of traditional models.

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Innovative education products and approaches are proliferating. But long-term success depends on defining a truly systemwide approach to innovation, ensuring that pilots are successful, and putting in place the conditions for an eventual scaling up. Any systemwide effort must be supported by a deliberate approach to change management that engages the right leaders across the organization and supports individuals as they change their behavior and mind-sets to align with the new models.

When school districts successfully implement the elements described above, the students who most need improved—and sustained—support will be able to receive it. Innovation will be designed as a core piece of the ongoing strategy, not a stand-alone initiative, and districts will be ready for constant improvement rather than one-time trials. Adults across the system will feel that they own the innovations and will be supported to develop the knowledge, skills, and mind-sets necessary to realize and sustain change. Finally, the work will gain community-wide buy-in, providing significant external resources and support. ■

[1] The National Center for Education Statistics reports that about 66 percent of eighth graders are not proficient in math or reading. Some 18 percent of all students do not graduate from high school (according to the US Department of Education), and of those who do, 58 percent do not score as "college ready" on the SAT (*2015 College Board program results*, collegeboard.org).

[2] *2015 College Board program results*, collegeboard.org.

[3] Michael Horn and Heather Staker, *Blended: Using Disruptive Innovation to Improve Schools*, first edition, San Francisco, CA: Jossey-Bass, 2014.

[4] Benjamin S. Bloom, "The 2 sigma problem: The search for methods of group instruction as effective as one-to-one tutoring," *Educational Researcher*, June–July 1984, Volume 13, Number 6, pp. 4–16.

[5] "Personalized learning: A working definition," *Education Week*, October 20, 2014, edweek.org.

[6] *Early progress: Interim report on personalized learning*, Bill & Melinda Gates Foundation and RAND Corporation, November 2015, k12education.gatesfoundation.org.

[7] In a competency-based approach, students advance only after demonstrating mastery.

[8] In a rotation model, students move through a fixed schedule (or at their teachers' discretion) between learning modalities, at least one of which involves online learning.

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