From Practice to Policy

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Blended Learning in the Classroom

A Case Study Offers Policy Implications

"Blended learning" is shorthand for a transformed education system in which teacher-led instruction is blended with online learning in an integrated fashion. It allows education to be more personalized—instructors can engage and motivate each student to progress at his or her own pace, emphasizing their individual learning styles and interests. Talented students who quickly master the required standards can sprint ahead, while those having difficulty are provided the individualized help they need.

State education leaders can facilitate this transformation to a more personalized education system with the adoption of new policies to encourage innovation, and the revision of existing policies that might unintentionally inhibit innovation. To visualize and better understand blended learning, this NASBE *Practice to Policy* brief describes in detail one classroom in one school district of one state, and draws out the policy implications from the actual instructional experience.*

The Enlarged City School District of Middletown, a small, urban, high-poverty district about an hour's drive north of New York City, is an unlikely setting for cutting-edge instructional innovation. Just over 75 percent of the district's 7,200 students qualify for free or discounted school meals; 20 percent are English Language Learners (ELL).

Ten years ago, Middletown was ranked in the bottom 10 percent for student attendance statewide. The district's school non-completion rate of 49 percent was well above the state average. All seven of its schools—one high school, two middle schools, and four elementary schools—were identified by the state as "in need of improvement."

Since then, visionary leadership and persistent reform efforts have drastically altered the district's trajectory. By 2010 the graduation rate had risen to 83 percent. Achievement test scores in math and English language arts (ELA) have now risen at every level. Middletown's leaders have been active in applying for Federal and state grants that buttress its vision, which is embossed on its letterhead:

> *"High expectations are meaningless without rich opportunities."*

In 2012 Superintendent Kenneth Eastwood submitted a multi-faceted application for a federal Race to the Top–District (RTT-D) competition. Middletown was one of only 16 districts nationwide to be awarded a grant ($19.9 million on top of a district budget of about $140 million). The funds are helping the district implement an integrated, ambitious plan to accelerate system-wide school improvements. An important facet of the comprehensive plan is to blend online in-

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struction with in-person teaching to better personalize education for all 7,200 students.

The plan to implement blended learning in all of the district's schools involves:

- putting a tablet or laptop computer into each student's hands;
- helping teachers organize their classrooms to most effectively use digital instructional technologies;
- deploying instructional specialists to team up with teachers;
- putting advanced learning software into service that adapts lessons to students' individual learning styles and continuously assesses their progress; and
- helping families understand the instructional model and support their students' learning.[1]

The district has gained national attention for its far-sighted planning and well thought-out implementation. The use of a blended learning model in one fourth grade special education classroom of Presidential Park Elementary School was the topic of a February 2014 *Education Week* webinar, which is the basis for the profile that follows.[2]

Ms. Indelicato's Fourth-Grade Class

Jessica Indelicato is one of 33 Middletown teachers who volunteered to participate in the first phase of the district's blended learning implementation plan. Her self-contained special education class consists of 15 students whose academic levels in math and English language arts (ELA) range from the second through the fourth grade.

Students check out Chromebook laptop computers from a cart in the classroom that charges the devices at night. Each student has an account on Schoology, an online learning management system (LMS) that provides a single entry point for communicating with the teacher, for accessing assigned lessons and digital content, and for collaborating with other students. In combination with i-Ready (an adaptive diagnostic tool), the system allows Ms. Indelicato to differentiate instruction and adapt Common Core standards-based lessons to students' individual learning strengths. It also provides continuous, detailed student performance data that help the teacher monitor student progress and plan personalized instruction.

From a number of organizational options suggested by the district's contracted consulting firm, Education Elements, Ms. Indelicato and most of the district's other pioneering teachers chose a "rotational model" of blended learning with 90-minute class periods. As illustrated in the diagram below, during each period:

- the class meets as a whole for lecture-style instruction, often with the use of an interactive whiteboard (i.e., "smart board") for 20 minutes;
- for the next 60 minutes the students, divided into three ability groups, rotate among:
  1. individual workstations for personalized online instruction, independent problem solving, and self-directed exploration;
  2. tables for small-group collaborative assignments tailored to each ability group; and
  3. an area for teacher-led instruction tailored to each ability group.

Diagram 1. Ms. Indelicato's Rotation Schedule for a 90-minute Class Period

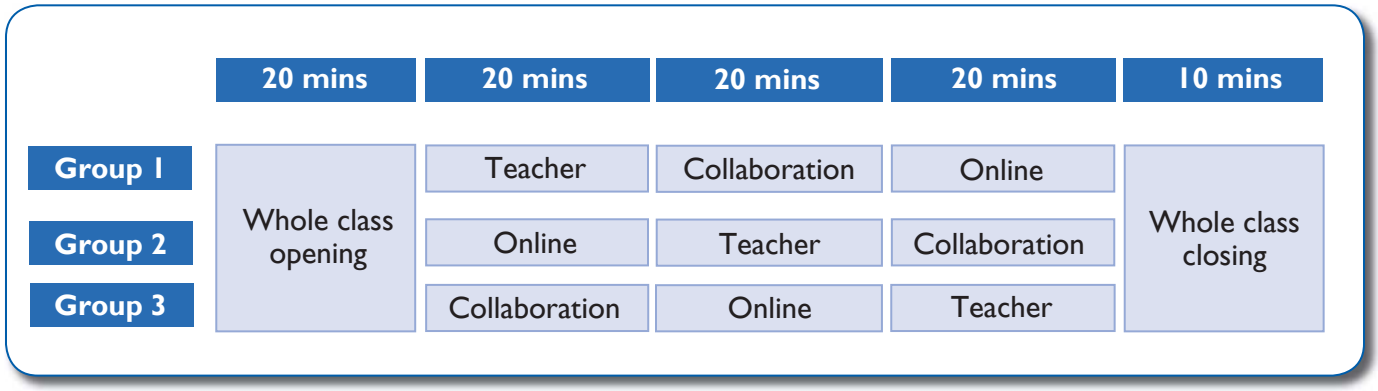
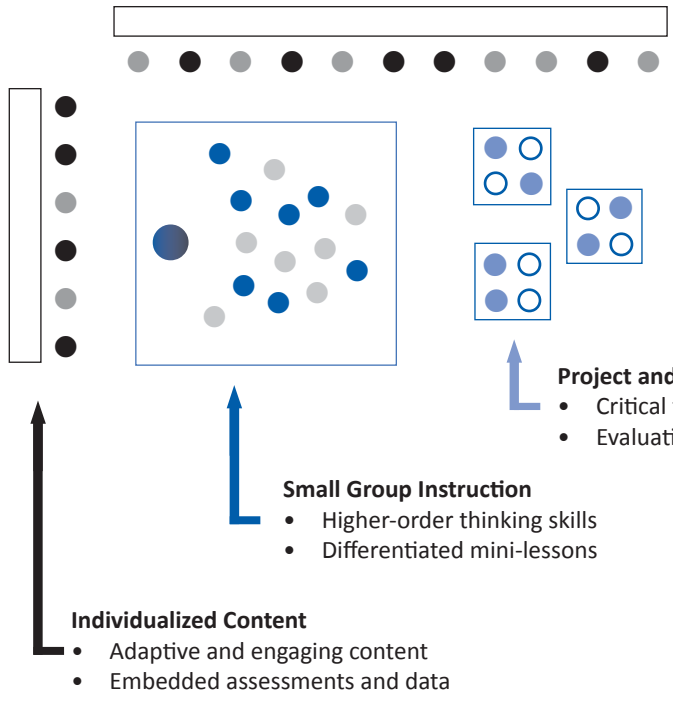
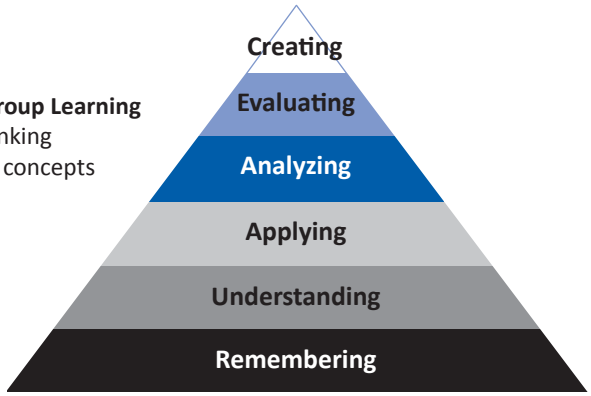


Diagram 2. Types of Learning at Three Rotation Stations during a 90-minute Math Class



Each station is best suited to address different learning levels of Bloom's Taxonomy.



Bloom's Taxonomy

Dots represent students colored according to the type of learning objective they are engaged in.

Adapted from Education Elements (www.edelements.com). See http://nebula.wsimg.com/3f3bf48de794ff1ae542bd233c613130?AccessKeyId=76EFDD77703ACB930FCD&disposition=0&alloworigin=1.

- Finally, the whole class meets again for a 10 minute closing session in which students reflect on what they've learned, engage in a brief assessment, or hear about what's coming up next.

Posted, regularly updated schedules and audible signals guide the students in knowing where they should be, and when. The teacher can adjust the time periods within the 90-minute period as necessary.

Each of the instructional strategies—lecture, small group work, individual learning, and ability grouping—is best suited to address different learning levels of the widely used Bloom's Taxonomy of Educational Objectives.[3] The diagram above, adapted from Education Elements, illustrates how such a classroom model might look, with dots representing students colored according to the type of learning objective they are engaged in. The various instructional strategies built into this model also help accommodate students' individual learning styles. The frequent rotations keep them moving, engaged, and motivated.

During a period's opening session, Ms. Indelicato routinely asks students to rate themselves on how well they know the day's planned learning objective(s). The students rate themselves again during the closing session. This practice helps give students a sense of control and self-mastery over their own learning.

The ability groups are arranged differently for each subject area. Group assignments are dynamic, adjusted every few weeks on the basis of multiple measures that include interim assessments and the students' own ratings (in practice, the composition of the lowest ability group has turned out to be less fluid than the other two).

In addition to following student progress on a continuous basis through the LMS and administering the annual round of statewide testing, formal assessments of student performance in grades 2–9 are conducted across the Middletown school district three times a year. The district uses an online testing system, the Common Core Measures of Academic Progress® developed by the Northwest Evaluation Association and approved by

the state. The online nature of the individually tailored tests allows students' answers to be scored instantly and immediately made available to teachers, principals, and school district leaders. Student growth can thus be tracked—and responded to—throughout the school year.

Teachers have been consulted and involved in every stage of the design, planning, and implementation of Middletown's blended learning initiative. The 33 teachers of the first implementation cohort, along with the leaders of their schools, participated in intensive professional development conducted by Education Elements in the summer prior to the program's launch.

Invaluable to the smooth rollout of blended learning has been the help provided by technology-savvy Teachers on Special Assignment, who provide guidance, coaching, and problem-solving assistance. Ms. Indelicato emphasizes that "you need people to talk to—it is important to have a critical mass of other teachers who can help support your efforts."

Ms. Indelicato summarizes her experiences with blended learning as follows:

- *I am more structured about my lessons.*
- *I get equal time with each group, rather than over-spending time with the lowest performing group.*
- *I use data more frequently and effectively to understand gaps, personalize learning, and re-group students.*
- *I am more confident about choices I am making around how to meet the needs of my students.*
- *I can more clearly see the progress my students make. It may be incremental, but I can watch it happen.*
- *My students are more aware of what their goals are and how to meet them.*
- *My students are learning more, at a faster rate, and not losing depth of knowledge.*
- *My students are being helped to fill in gaps of previous content and skills.*[2]

Fourth Graders' Thoughts on Blended Learning[2]

"I love using the Chromebooks because they teach me new stuff and make me feel smart."

"I like the Chromebooks because they help me with math and reading. They make math and reading fun!"

"I like the Chromebook because with iReady, Dreambox, and Lexia it knows what I need practice with."

"iReady math helps me with shapes and numbers. It is so, so, so, so awesome because it helps me a lot!

Policy Implications

To bring blended learning to scale, to the point where every school in a state is operating a more personalized education system in ways appropriate to its purpose and student composition, a study of Ms. Indelicato's classroom and the Middletown district provides some useful policy lessons.

Freedom to Innovate

Middletown's leaders felt encouraged to try new things long before they embarked on the blended learning initiative. For example, the district applied for and received a waiver from New York State's requirement that every public school have a principal. Instead of employing a principal and special education staff at the high school, "deans" address discipline and building management issues and "instructional leaders" work with teachers to improve their instructional practices. Every state can be similarly generous with offering and providing waivers to rules and regulations that may be inhibiting innovation.

States can also offer competitive planning grants to schools and districts that need to offset costs related to instructional transformation, along the lines of the federal RTT-D grant program Middletown won. Another approach is to embed the adoption of blending learning strategies as a competitive preference in other initiatives, such as Common Core standards implementation, K-3 reading programs, and STEM (science, technology, engineering, and mathematics) programs.

As individuals, state education leaders can consistently encourage and celebrate experimentation and change. What educators sometimes need is "permission to fail"—that is, some assurance against being penalized if a carefully planned reform attempt does not achieve its intended results due to unforeseen factors or circumstances.

High-Quality Instructional Content

There is no shortage of high-quality instructional content suitable for blended learning available to students and teachers—the challenge is knowing which resources to access and when. Jill Thompson, an Instructional Technology Specialist and Project Manager for Personalized Learning in the Charlotte-Mecklenburg (North Carolina) School District, who also presented on the *Education Week* webinar, recommends the following websites.[4] Most are free.

- **Khan Academy** is a nonprofit that provides free world-class educational resources for anyone anywhere.
- **Sophia Learning** offers a customizable education platform with more than 37,000 academic tutorials that allows learners to choose teaching styles that appeal to their own unique way of learning.
- **TedEd,** an offshoot of the well-known TED Talks, provides a library of lessons and curated educational videos, many of which represent collaborations between educators and animators.
- **DreamBox Learning** has an online PreK-Grade 5 math curriculum designed around Common Core State Standards that uses an Intelligent Adaptive Learning system to personalize learning for every type of student.
- **OpenEd** has compiled over a million Common Core language arts and math resources including games, video lessons, and assessments.
- **Learn Zillion** offers math and English language resources for grades 2-12 that have been developed by expert teachers directly from the Common Core State Standards.
- Both **TedEd** and **Blendspace** allow teachers to quickly and easily collect online resources and turn them into lessons that include quizzes and student progress.

Technology Infrastructure

In order to achieve the benefits of blended learning, schools need reliable access to high-speed broadband and ubiquitous wireless networks. The organization EducationSuperHighway estimates that over 75 percent of schools do not have the robust Internet infrastructure necessary to implement blended learning. The State Education Technology Directors Association (SETDA) has determined that schools need 100 megabits per second of Internet access per 1,000 students today and are expected to need 1 gigabit per second by 2017.

States can help school districts by providing technical and procurement support to design, plan, and implement cost-effective networks. States can also help lower the cost of connectivity and equipment by facilitating demand aggregation (e.g., pooling the demand for telecommunications services among districts) and by assuring pricing transparency across districts.

Instructional Requirements

Current state policies often express instructional requirements in terms of hours or days to be spent on the topic (referred to as "seat-time" requirements). For example, one state requires that students receive a minimum of 30 hours of comprehensive health and family life education each year from kindergarten through grade four. How could compliance be monitored in a blended learning classroom where students spend a significant portion of time learning independently? What if some students don't need this much time to master the state's education standards, and if other students require more time? Instead of seat-time requirements, many blended learning proponents favor a mastery- or competency-based set of instructional requirements. That is, rather than requiring teachers to spend a certain amount of time on a subject, students are required to demonstrate that they understand specified concepts or can perform certain skills—no matter how much time they spent learning it, or how little time, or where they were when they learned it, or at what hour of the day or night. Middletown's RTT-D plan includes piloting a rigorous system of competency-based education in one elementary and one middle school.

Of course, time-based instructional requirements might still make sense for some subjects, such as for art or physical education classes. Policymakers may want to take a good look at the totality of their instructional requirements to determine if the concepts and competencies (the

outcomes a student should know and be able to do) are all essential, if they form a complete set that will prepare students for productive and satisfying lives, and if the requirements are expressed in terms that fit each subject.

Student Assessment

Middletown administers all the tests required by the state for accountability purposes. Yet what teachers and instructional specialists find more useful are the kinds of data on individual student progress, strengths, and weaknesses provided continuously by the computerized learning management system, as well as the three-per-year online assessments used across the district. Knowing precisely which skills and concepts each student has yet to master enables Ms. Indelicato to make immediate adjustments to her lesson plans, individual and group assignments, and overall instructional strategies to fill missing knowledge gaps.

Given the power of these kinds of formative assessment to improve instruction, state education leaders may wish to reconsider the scale and scope of expensive and time-consuming state tests—though for the moment all states, even those with federal waivers, must still comply with the math, English, and science assessment requirements of the No Child Left Behind Act. But for other subjects, and in the future, policymakers might consider how an adequate level of accountability could be achieved through a less-intrusive system that relies on a random sampling of classrooms, or one that involves allowing the state education agency to access local student assessment results anytime they wish.

Teacher Preparation and Support

Understandably, teachers can be anxious about changing their daily routine. It is time-consuming to identify and integrate outside resources into tried-and-true lesson plans, especially at first. The wealth of resources to be found online is intimidating. It almost goes without saying that implementing personalized education on a large scale will require significant investments in professional learning for teachers, school leaders, and instructional specialists.

The 2010 National Education Technology Plan (www.ed.gov/technology/netp-2010) lays out a vision of "connected teachers" who have convenient access to:

- content, resources, and systems that empower them to create, manage, and assess engaging and relevant lessons and learning experiences;
- communications tools that enable them to connect with their students to support learning both in and out of school;
- student learning data and tools for effectively using the data;
- resources and expertise that guide and improve their instructional practices;
- online learning communities consisting of fellow educators and professional experts in various disciplines around the world; and
- local networks of parents who desire greater participation in their children's education and members of community organizations that serve students in the hours they are not in school.

The plan suggests that episodic and ineffective professional development be replaced by professional learning that is collaborative, coherent, and continuous. It should blend effective in-person courses and workshops with the expanded opportunities, immediacy, and convenience enabled by online environments full of resources and opportunities for collaboration.

The Learning Accelerator, a nonprofit organization whose mission is to accelerate the implementation of high-quality blended learning, has delineated critical competencies educators need to implement a transformed education system of personalized learning. State education agencies can work with colleges of education to determine effective ways to provide the needed preparation and professional development of educators.

Endnotes

1. Enlarged School District of Middletown, Race to the Top-District Grant Application (October 2012). Available at www2.ed.gov/programs/racetothetop-district/2012/finalists/applications/middletown.pdf.

2. Jessica Indelicato and Amy Creeden, "Blended Learning to Support Mathematics Instruction," presentation, in *Education Week* Webinar, "Blending Math Instruction for Elementary Grades" (Feb. 13, 2014). Available at www.edweek.org/ew/marketplace/webinars/webinars.html?intc=thed.

3. B.S. Bloom, M.D. Engelhart, E.J. Furst, W.H. Hill, and D.R. Krathwohl, (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain* (New York: David McKay Company, 1956).

4. Jill Thompson, "Blended Math Instruction for Elementary Grades," presentation, in *Education Week* Webinar, "Blending Math Instruction for Elementary Grades" (Feb. 13, 2014).