

The Rise of K-12 Blended Learning in Colorado

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Executive Summary

More than a decade of research and development has produced sophisticated computer-based instruction, curriculum and assessment programs that have transformed online education from the textbook-like classes of yesterday to the engaging, dynamic learning experiences of today. These online tools combined with face-to-face instruction create what is known as blended learning. Effective integration of technology can reduce the amount of time teachers spend on tasks like attendance, grading, data aggregation and analysis, and skills practice, thereby enabling teachers to focus on high-impact instructional strategies and personalized attention. A well-designed blended learning program can even save schools money because computer-based instruction requires fewer on-site teachers and less classroom space.

The Clayton Christensen Institute for Disruptive Innovation has identified four blended learning models:

- Model 1 Rotation: Students alternate between face-to-face instruction and online lesson delivery in a classroom, computer lab or at home.
- Model 2 Flex: The curriculum is delivered online usually in a learning lab while teachers provide on-site support in the form of tutoring or small group instruction.
- Model 3 Self-blend: Students take traditional courses at school and self-selected online courses at home.

- Model 4 Enriched Virtual: Students take classes online at home and check in with teachers for face-to-face learning as needed.

Colorado is well positioned to implement and test blended learning programs on a larger scale. The state has abundant experience with online education, several non-profit blended learning support organizations, and philanthropic and government backing. Several Colorado districts have invested in online courses, professional development for online and traditional classroom teachers, and state-of-the-art learning centers to better enable students to participate in online and blended learning classes. Charter and district public schools have begun to implement blended learning models and have seen promising results.

In order to facilitate the development of blended learning, lawmakers should consider policy changes that 1) enable per-pupil revenue to flow directly to schools and courses rather than first through the district central office; 2) distribute funds based on multiple count dates rather than the current single October 1 enrollment count, using average daily membership (ADM) rather than attendance; 3) divide payments to online course providers so that 50 percent of the funding is provided after successful completion; and 4) commission experimental or quasi-experimental research into the impact of blended learning on student proficiency in reading and math on state assessments.

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-John Watson, Evergreen Education Group

Introduction

Asked to visualize the words *middle school math class*, most people will summon a memory of two dozen teenagers sitting in desks facing a teacher who is writing the quadratic formula on the board. Maybe the teacher is a master at her craft and most of the students are busy scribbling equations; or maybe half the class is asleep or passing a note (in today’s parlance—sending a text) while a few math whizzes do the work.

Chances are this visualization exercise will yield vastly different scenes of math class in the future, thanks to technology. Instead, the following scene might unfold: a student logs on to his home computer and watches a recorded mini-lecture on equations and then works through a series of problems. The next day, he comes to class and works with the teacher in a small group on concepts a software program has identified as difficult for the group based on the exercises completed the previous afternoon. Alternatively, math class might be a group of advanced middle school students working through Algebra II in a learning lab through an online program. They meet with the teacher once a week to work through a hands-on math application in the school’s science lab. Parents are relieved that their 6th graders can move ahead in math without being bused to the nearby high school. Or, math class might look like this: a 12th grader taking a credit recovery Algebra course at home after school spends an hour a week with a teacher getting one-on-one help with difficult concepts. These depictions of math class may not yet be typical, but they are the very real experience of thousands of Colorado students engaged in “blended learning.”

Blended learning, according to John Watson of the Evergreen Education Group, “combines online delivery of educational content with the best features of classroom interaction and live instruction to personalize learning, allow thoughtful reflection, and differentiate instruction from student to student across a diverse group of learners.”¹ As the above examples demonstrate, blended learning is not one type of instruction but a spectrum of interactions between students, teachers and online tools that spans from primarily teacher-led to primarily computer-provided instruction.

The Clayton Christensen Institute for Disruptive Innovation (formerly the Innosight Institute) categorizes blended learning into four models:²

Model 1 Rotation: Students rotate between online lesson delivery and face-to-face instruction. “Station Rotation” takes place in the classroom where students move through a series of learning activities such as small group instruction, independent pen and paper work, group projects, and learning on a computer or computer tablet. “Lab Rotation” has the student working alternately in the classroom and in a computer lab. In a “Flipped Classroom,” students watch prerecorded lectures at home online and then apply concepts in class with the guidance of the teacher. With “Individual Rotation,” the teacher and student create an individualized rotation plan among learning modalities that include online learning.

Model 2 Flex: The curriculum is delivered online, usually in a learning lab, while teachers provide on-site support in the form of tutoring or small group instruction.

Model 3 Self-blend: Students take traditional courses at school and self-selected online courses at home.

Model 4 Enriched Virtual: Students take classes online at home and check in with teachers for face-to-face learning as needed.

Curriculum and Instructional Tools

Blended learning models are facilitated through a Learning Management System (LMS)—a software application through which students can engage with the online curriculum, submit assignments, participate in discussions, take tests, receive grades, and record attendance. There is considerable variety in the types of online curriculum available. Instruction may be synchronous, that is, teachers interact with students in real time through a virtual white board, voice, and even live video. Alternatively, instruction may be asynchronous, that is, provided through recorded video or audio and posted reading, quizzes, worksheets, and writing assignments.

Just as with traditional curriculum, online curriculum may be developed by Colorado teachers and developers or licensed through a national curriculum provider. The packaged instruction may be dynamic with embedded animation, videos, quizzes, learning games, and other applications, or it may be static like an online textbook. The curriculum and instruction may be a single package that the student works through in a self-paced manner or may be separated into components that teachers can piece together to meet the needs of the student. Combinations of these elements are common in online and blended education. A single online class could include synchronous sessions with the teacher, recorded asyn-

chronous lectures, a tutorial from a free online resource like Khan Academy³, a lesson borrowed from the district or a statewide online lesson library, posted reading assignments, a series of diagnostic quizzes from a national provider, and a few short videos created by National Geographic on YouTube.

For more than a decade online instructional tools and course offerings, as well as the LMS technology, have been developed by Colorado and national curriculum developers, programmers and teachers, and piloted and refined in district and charter virtual schools. Virtual schools have primarily served homeschooled and homebound students, drop-outs and those at risk of dropping out, highly gifted students, traveling student athletes and artists, and other students for whom traditional classrooms do not meet their needs. Recently, some online schools have begun to blend in face-to-face instruction as a means of increasing student engagement, providing tutoring and mentoring, enabling student-to-student collaboration, increasing student accountability and persistence, and providing opportunities to apply learning such as a science lab experiment or service learning. Kim McClelland, Assistant Superintendent of Falcon School District 49 who oversees the iConnect Innovation Zone's online and blended learning programs, believes that "adding face-to-face components to online schooling is exactly what many online students need to feel more connected to school and to persist to graduation."⁴

On the other side of the spectrum, traditional classroom teachers have begun to adopt online learning tools to help them gather ongoing student performance data, extend learning beyond the classroom, individualize assign-

Blended learning models are facilitated through a Learning Management System (LMS)

ments and resources, and efficiently manage low learning value tasks such as taking attendance, collecting papers, reporting grades, and giving homework.

Because blended learning is a framework for integrating technology and instruction rather than a type of instruction, it can be adapted to fit instructional models across the pedagogical spectrum. A teacher who primarily uses lecture and discussion might use an LMS to post syllabi, homework, grades, and resources for students who need additional interactions with the content or who want to go deeper into the subject matter. Teachers who engage in project-based instruction might assign reading, prerecorded lectures, and skills practice as online homework and spend classroom time monitoring collaborative and project-based work. A recent case study by the Donnell-Kay Foundation of two very different charter schools using blended learning—Rocky Mountain Prep, a new “no excuses” charter school, and the Odyssey School, a 15-year-old Expeditionary Learning charter school—shows how blended learning is compatible with vastly different instructional models.⁵

A Disruptive Innovation

Some advocates of blended and online education see them as more than expanding the instructional toolbox. They consider the technology to be a disruptive innovation that can transform “a sector characterized by products or services that are complicated, expensive, inaccessible, and centralized into one with products or services that are simple, affordable, accessible, convenient, and often customizable.”⁶ Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson, who wrote one of the seminal books on the

promise of blended learning, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*, believe that 50 percent of all high school courses will be delivered online by 2019.⁷ To reach this level, online education will no longer be primarily utilized by homeschoolers and full-time virtual school students; online education will be a normal part of daily instruction.

Horn and Heather Staker of the Clayton Christensen Institute for Disruptive Innovation predict that blended learning could “revolutionize K-12 education in terms of quality and cost.”⁸ Blended learning can reduce the amount of time teachers spend on tasks like attendance, grading, data aggregation and analysis, and skills practice, thereby enabling teachers to focus on high impact instructional strategies and personalized attention.

At Carpe Diem Collegiate High School and Middle School (CDCHS) in Yuma, Arizona, for example, a door sensor takes student attendance. Students begin a class on their own computer where they acquire new knowledge and practice skills. Students then rotate to a classroom where they engage the concepts at a deeper level with the teacher and peers through in-depth discussion and application projects. The e2020 online content provider tracks student progress through the curriculum and when a student struggles with a concept for more than three minutes, the system alerts a learning coach who offers the student help. In addition to tracking progress, the software gives students real-time feedback on their progress by displaying a red, yellow, green progress bar on the top of the webpage.⁹ Daily progress adds up. On Arizona state reading assessments, 97 percent of CDCHS students, half of

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whom are minority students or from low-income families, score at the proficient level, and 94 percent of students are proficient in math.¹⁰

With the task of data analysis completed by the computer program, the teachers can determine how they will best meet the needs of students who need extra help. Students who have mastered the skills can move on while the teacher works one-on-one or in a small group with struggling students. At School of One middle schools in New York City, the daily online assessment helps determine whether the students can move forward or if they will need to switch to a new learning modality.¹¹ Modalities include large group instruction, small group instruction, small group collaboration, tutoring, virtual instruction, and independent practice. The computer assigns students to modalities based on the current assessment and their assessment history. Teachers can alter schedules at any time if their professional judgment determines a different course.

A Promising Strategy

Blended learning also can save money. CDCHS saves costs through its lab rotation model. The school employs six full-time teachers, one for each core subject, to teach 280 students in grades 6-12. Students rotate between their personal cubicle, outfitted with a computer, and a classroom every 55 minutes. The building cost \$2.7 million to build, compared to a nearby school of similar size that cost \$12 million.¹² Similarly, Rocketship Education, which operates a network of elementary schools in California primarily for low-income students, saves an estimated \$500,000 a year because the model requires fewer classrooms and fewer teachers.¹³ Students spend 60 to 80 minutes in a learn-

ing lab supervised by Individualized Learning Specialists who make \$15 to \$16 an hour.¹⁴ The cost savings enables the school to pay higher teacher salaries. Average student performance is higher than the district and state average.¹⁵

As with all innovations, however, blended learning is only as promising as the quality of its implementation, Horn and Staker of the Clayton Christensen Institute warn. They write, "Just as a hybrid car can be either efficient or clunker but still be a hybrid car, blended learning can be both good and bad. Some blended-learning programs save money; others are more expensive. Some blended-learning programs produce stellar results; others do not."¹⁶ Since John Dewey first published on education in 1897, educators, parents, and policymakers have enthusiastically embraced innovations that have had, at best, mixed results.

Research on the effectiveness of online or blended learning for K-12 students, though promising, is scant. In a recent meta-analysis of 50 study effects comparing the efficacy of face-to-face, blended and online instruction, only seven comparisons from five studies were conducted with K-12 students. Four studies involved middle school students in social studies, math or Spanish classes. One study examined elementary school students in special education classes, and one study looked elementary school students in science classes in Taiwan. All five had positive findings for the blended and online classes relative to purely face-to-face classes. When the K-12 and adult learner study findings are combined, 11 studies show significantly positive findings for online or blended learning modalities relative to face-to-face instruction, and three study effects

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favored face-to-face instruction over online instruction. Of the 11 positive findings for online or blended learning, those that focused on blended learning showed a larger advantage relative to face-to-face instruction than did solely online instruction.¹⁷ This bodes well for blended learning, but clearly more research is needed.

Blended Learning in Colorado

State-Level Initiatives

Colorado is well positioned to implement and test blended learning programs on a larger scale. The state has abundant experience with online education. At present, the Colorado Department of Education reports that 17,289 students are enrolled in online schools in Colorado in the 2012-13 school year.¹⁸ The first online school opened in 1996 as a pilot program in the Monte Vista School District.¹⁹ Since then, districts, schools, and non-profit organizations have been developing online curriculum aligned to Colorado state standards. Today, the state has five multi-district online charter schools, some of which provide face-to-face tutoring at a drop-in center. The state has 21 multi-district online schools that enroll students from across the state and 11 single-district online schools that enroll only district students. Seventeen districts have online programs which provide credit recovery or supplemental courses for a small number of district students and four statewide supplemental online programs which augment district and BOCES course offerings.

The largest of these supplemental programs is **Colorado Online Learning (COL)**, which began in 1998 as a 14-district Colorado Online School Consortium to offer supplemental online

courses. Today COL offers more than 70 standards-aligned online courses developed by Colorado licensed teachers. About 80 percent of students who take COL classes live in rural school districts which lack the resources of large districts to develop online coursework.²⁰ COL receives individual course enrollment fees from districts and a state subsidy.

Districts, BOCES, and other organizations have launched collaborative efforts to provide online and blended education resources. **eNetColorado**, started by the Centennial Board of Cooperative Services (CBOCES) and Colorado BOCES Association, is a partnership of 75 school districts, 14 BOCES, and over 20 educational and community-based organizations. eNetColorado provides professional development on blended and online learning. eNetColorado's DREAM (Digital Resource Exchange and Marketplace) is an online repository of links to low or no cost resources such as Khan Academy, Smithsonian Education historical resources, and *Lessons on Local Government* from the Colorado Municipal League. Resources are rated by users. Educators also have access to free educational podcasts, videos and PDF files on the Colorado iTunes U.²¹

Colorado eLearning Collaborative (CeLC) is a consortium of districts and schools partnering with education nonprofits, school reform organizations, foundations, BOCES, an LMS provider Schoology, and the Colorado League of Charter Schools. CeLC was founded in 2009 as a grass-roots effort among school district online and blended learning leaders collaborating to support each other as they were building e-learning programs. As a result of their work, CeLC formally organized to become a full-service provider in the

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online and blended education environment led by experienced practitioners. CeLC's mission is to provide the most effective quality and sustainable services to ensure all schools and districts in Colorado have access to resources necessary to support blended and online learning. Currently, CeLC works with over 40 districts and offers professional development, a high-quality digital content library, vendor group rates, consulting, and networking opportunities. CeLC manages pooled resources shared by participating schools and districts to reach all corners of Colorado.²²

Several philanthropic organizations and businesses have donated to individual schools or districts to design and implement blended learning strategies. At least three foundations have taken a statewide approach to disseminating information about blended learning, implementing high-quality programs, facilitating collaboration, funding consortiums like eNetColorado and CeLC, and working to overcome barriers to implementation.

The **Colorado Legacy Foundation (CLF)**, in partnership with the Colorado Department of Education, is leading an initiative in Colorado public schools to catalyze next-generation curriculum development, professional development, data systems, and other efforts to make teaching and learning more individualized, flexible, and effective. The multifaceted Expanded Learning Opportunities initiative aims to “ignite the unique potential of every student through the creation and delivery of dramatically personalized learning experiences.”²³ Specifically, CLF is collaborating with select Front Range schools and experts at the National Center on Time & Learning to maximize and expand learning time through the use of

staggered schedules, technology and other strategies. CLF, along with the Colorado Department of Education, is also working in southern Colorado with 14 districts in the San Luis Valley to implement blended learning and advanced assessment strategies in literacy in 16 classrooms. In Commerce City, CLF is working with Education Elements and educators at Landmark Academy to implement blended learning. In order to disseminate best practices in blended learning, CLF and other Colorado partners have provided training and conferences around the state.

CLF will soon launch an online platform for educators to collaborate and design blended learning strategies. “There is great enthusiasm from teachers throughout the state to collaborate, innovate and explore creative approaches to personalized instruction,” said Samantha Long, Director of Initiatives for CLF. “In order to create next generation learning we need to expand learning opportunities so that students who need it get time to catch up without taking time from students who can move ahead. Blended learning saves and gives time, the most precious commodity in education.”²⁴ She also notes that blended learning can extend education beyond the school day and school building thereby increasing the amount of time students spend acquiring knowledge and skills.

The **Donnell-Kay Foundation (DKF)** has supported dissemination and research into the implementation of blended learning in Colorado. Along with the CLF, the Colorado Department of Education, the University of Colorado, eNetColorado, and the International Association of K-12 Online Learning (iNACOL), DKF hosted the 3rd annual Colorado Summit on Blended Learn-

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ing in 2012. DKF launched its work on blended learning in 2010 by hosting the first Colorado Blended Learning Summit and releasing the paper, "Blended Learning: The Best of Both Worlds."²⁵ Last year, DKF and the Independence Institute convened nearly 50 Colorado online education leaders (including school district and charter school staff) and policy experts to craft a Policy Roadmap for Reform to support the statewide implementation of high-quality online and blended learning programs. iNACOL president and CEO Susan Patrick, then-Colorado Department of Education Assistant Commissioner Amy Anderson, and former State Board of Education member Randy DeHoff facilitated the discussion.

The resulting Roadmap makes recommendations in three stages that address attendance count dates, a statewide tracking system for assessment, graduation and other learning data for student cohorts, high-speed broadband Internet access, course-level funding, performance-based funding for online providers, and a competency-based system for earning credits in high school.²⁶

A month later, **Independence Institute** senior education policy analyst Ben DeGrow published a paper on how Colorado can enable greater student access to self-blended courses.²⁷ Following the example of other states, Utah in particular, Colorado could broaden self-blended course access by distributing funding based on multiple count dates, state funding of individual courses on a tiered funding structure based on costs, combining students' PPR and categorical funds and enabling them to follow the student to the providers of their choice, and dividing online provider payments so that half is paid upon successful completion by

the student. DeGrow recommended selecting 10 or more school districts to pilot the changes.

Even if these reforms are enacted, two barriers remain to fully implementing student-centered, course-level funding: "the lack of common course testing measurements and concerns about how to 'share' accountability for a student's performance."²⁸

This year, DKF partnered with the **Gates Family Foundation** and the national organization, CEE-Trust, to fund an extensive blended learning workshop. The summit and workshop presentations are available on the foundation's website along with other resources. A year ago, the foundation funded a study of blended learning in rural Colorado that identified lack of access to bandwidth as one of the main barriers to broadening the capacity of technology integration in rural schools. Responding to this challenge, the foundation is now focusing on opportunities to collaborate with organizations and foundations at the state and national levels to build local capacity and infrastructure in ways that will further integrate digital learning into the education system more broadly across the state.

In addition to supporting two Denver-area charter schools as they implement blended learning strategies, Gates is underwriting research and supporting statewide organizations like CeLC that are building capacity within the public school system to integrate technology. Recently, the foundation contributed to the Charter Schools Growth Fund's Next-Generation School Investments campaign to support high-performing charter schools with blended school models.²⁹

Rural Colorado Access

Although no statewide statistics on blended learning in Colorado are available, some data exist on blended and online learning availability for rural students. Last year, the Evergreen Education Group surveyed the superintendents of 139 rural Colorado districts, the executive directors and technology directors of the state's 19 Boards of Cooperative Education Services (BOCES), and full-time virtual schools that serve rural students.³⁰ Of the 66 individuals from 54 entities who responded, 84 percent indicated that students were participating in online or blended learning classes. Where blended or online learning exists, it is more likely to be available to high school students than middle school or elementary school students. Credit recovery, Advanced Placement, and dual-credit arrangements are the most common online or blended learning courses taken by students in rural areas.

Of the districts that reported offering online or blended learning opportunities, 56 percent offer fully online courses, 49 percent offer self-blended courses where student self-select into online courses they take after school, 37 percent offer flex model classes in a learning lab, and 16 percent have classes with a rotation model.³¹

John Watson of the Evergreen Education Group notes that some countries are implementing blended learning at a faster rate than the United States. In Singapore, a nation known for its exceptional education outcomes, 100 percent of high schools (grades 7 to 10) and 85 percent of primary schools (grades 1 to 6) use an LMS.³²

Colorado Innovations by School District

A growing number of districts and schools in Colorado have embraced online and blended learning. The following is not meant to be a definitive list of districts and schools implementing blended learning strategies or programs.

Boulder Valley School District

The Boulder Valley School District (BVSD) serves fully online students and "hybrid" students at Boulder Universal, the district's virtual school. Hybrid students are enrolled at two schools—their traditional high school and Boulder Universal. Boulder Universal offers a range of credit recovery and core content courses to all BVSD students. Currently, over 1,100 students take credit recovery courses while another 400 self-blend into online coursework that they complete at home or at their neighborhood school's computer lab or library. All online courses are asynchronous.³³

Under principal Kurt LeVasseur's leadership, Boulder Universal is moving beyond being a school for online students or for district students who want to take a couple of online classes. Boulder Universal is poised to become the district's blended learning resource center. Educators and technology experts are building courses that are "granular," so that teachers in the district's traditional public schools can take them apart and use components to individualize learning. Since all BVSD high schools have learning labs, teachers have the freedom to implement a range of blended models. Several high schools and middle schools have begun to integrate Boulder Universal resources into teaching and learning.³⁴

Boulder Universal is poised to become the district's blended learning resource center.

“One of the advantages of starting a school now,” says [B.O.L.T. head of school, Jennifer] Alexander, “is that we can look at established blended learning schools for best practices.”

Boulder Universal resources present district teachers with many options. For example, a history teacher could use a Boulder Universal course scope and sequence and the LMS (Schoolology) to post the syllabus and assignments, collect essays, and post short videos for students to watch as homework in preparation for discussion the next day. A science teacher might have students complete a large portion of the online class content at home and use the class period to conduct experiments. A math teacher might have students complete the quizzes online through the LMS to get data on whether students are grasping the concepts. The teacher may then have students who have mastered the material move ahead on the next module while she works with students who are struggling.

One advantage of having online options is that students who are ahead can continue to move forward in a subject while remaining in the building with their peers. Traditionally, students who excel beyond their age group attend class in an upper grade. While this works for some students, it becomes complicated when students must attend class with students who are substantially older or when students must be bused to another building. When a BVSD middle school had a group of 8th graders who were advanced in math, the school decided not to bus them to the high school. Instead, the students completed their geometry course through Boulder Universal. On the first day of class, a Boulder Universal teacher demonstrated how to use the LMS, enabling the students to start the class. The students completed a semester geometry course in 10 weeks by working on library computers and at home. The class normally takes 18 weeks. They moved into the second semester of geometry and completed that course

in 10 weeks as well. While they could have moved into algebra in the second semester, the students opted to finish the semester engrossed in online math games so that they could begin first semester 9th grade algebra in the fall. The students were able to progress ahead in math without having to be bused to high school, an intimidating prospect for many middle schoolers.

Brighton School District 27J

In the 2013-14 school year, Brighton School District 27J will open a blended learning high school—B.O.L.T. (Brighton Online Learning for Tomorrow) Academy—where students will spend part of the time on campus and part of the time online. The idea for a blended learning school grew out of the district’s decision to offer online classes. Because the district does not have a virtual school, students interested in online education had left the school system to attend online schools in other districts. When district leaders began to examine student performance and graduation rates at the state’s online schools, however, they were disappointed in the results and determined to go in a different direction.³⁵ They set out to create a school that combined the connection and accountability of face-to-face learning with the personalization of online learning. Jennifer Alexander, a veteran educator and the district’s digital learning teacher, was chosen to head the school. “One of the advantages of starting a school now,” says Alexander, “is that we can look at established blended learning schools for best practices.”³⁶

In designing the school, Alexander looked to several hybrid schools around the country. She was drawn to the advisory program at Big Picture Learning, a school network that has es-

established schools in 14 states, including Colorado, and five countries. At Big Picture Learning schools, an advisor is assigned to a small group of students and oversees progress on their individualized learning plan by helping them set and meet weekly and quarterly goals. The advisor oversees students' internships, leads group academic discussions, collects and monitors student work, and connects students with education resources from books to online programs to community college classes.³⁷

In terms of the sophistication of their online systems, Alexander was impressed by the ability of School of One, Carpe Diem Collegiate High School and Middle School, and Rocketship schools to track and analyze student performance in real time.

Alexander also researched practices at San Francisco Flex Academy, USC Hybrid High in Los Angeles, and FlexTech High School in Brighton, Michigan. At USC Hybrid High, opened in 2012, students work online in the classroom while the teacher circulates to answer questions. FlexTech High School students take online courses and work on projects, with the teacher acting as coach and mentor. Students can also participate in a one- or two-year Culinary Arts & Hospitality Management Program where they can earn an industry-recognized certificate from the National Restaurant Association Educational Foundation. At the San Francisco Flex Academy, which opened in 2010, high school students take on-site, online courses provided through K12 Inc. in a central lab. Students also meet with teachers in breakout rooms as needed for intervention and supplemental instruction.

The district decided that the flex model was the best blended learning strategy for Brighton students. BOLT Academy students will be required to attend campus classes three hours a day, four days a week. The remaining time, students will take online classes provided by a national curriculum provider in the school's lab or at home. At school, students take face-to-face enrichment classes such as personal finance, citizenship, and how to be Internet-savvy researchers. BOLT students also will participate in internships and dual enrollment classes in community and technical colleges. The school will start small with around 50 students and grow over time.

Buena Vista School District

Innovation is not just a Front Range venture. At the foot of the Collegiate Peaks, a small, rural school district is experimenting with blended learning for students in the district's alternative and online schools. Students in the Buena Vista Online Academy, launched in 2010, participate in some face-to-face instruction, while students at Chaffee County High School, the alternative high school started by the district in partnership with the Salida School District, have the opportunity to complete online coursework. Students enrolled in the Buena Vista Online Academy and the Chaffee County High School, while considered separately for funding and state assessment purposes, have access to the same teachers and online classes. The main difference is where they fall along the Blended Learning Continuum, with alternative program students receiving more face-to-face time and online students spending more time working independently.

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During the first four weeks of the school year, alternative and online students participate in an orientation course that introduces them to their teachers, fellow students and what the district's director of online education and principal of Chaffee County High School, Mike Post, calls "the rules of the sandbox," that is, the logistics and non-negotiable rules of school.³⁸

The district uses an LMS called Moodle. When a student logs into the system from a school or home computer, it is as if she has walked through the front door of the online school. She checks into a class and fills out a journal that describes what she intends to complete over the next three hours. She emails the entry to her advisor, who monitors her progress and participation. By clicking into the math course, the student has entered the virtual classroom where she finds the ALEKS math program, an interactive math curriculum licensed by a national provider which provides the bulk of the curriculum. Also waiting for her is a recorded message from her teacher, a link to Khan Academy for extra help, and her score on the last Demonstration of Knowledge exam which she must pass in order to progress in the class. Once a month, the student goes to her teacher Jake Hill's office to work on a module, but she can contact him any time for extra help. If one could peer into Hill's office at Chaffee County High School, where he teaches full-time in the alternative program, one might see five students working online, two working from a traditional textbook, and two working with Hill on a difficult math problem. Some students may be in the alternative program, others in the online program.

In addition to Demonstration of Knowledge summary assessments, students

must take the district's Content Target Assessment Tests. Teachers and advisors monitor assessments, log-in data, journal entries and teacher contact time in lieu of traditional attendance and seat time. Post has created an innovative way to correlate online and alternative work with the traditional Carnegie Unit of credit. He assigns 100 points to one course credit, which equals one .5 Carnegie Unit or 60 hours of seat time in a traditional setting. One hour of traditional seat time is therefore worth 1.67 points. Teachers assign tasks point values based on the expected amount of time they take to complete and their overall value in the learning process. A student earns the points when he has completed the task and scored at the 80 percent mastery level. Post offers the following example: "While watching a three-hour movie may be worth only one point, a half-hour meeting to discuss content or concepts with the teacher or in a group may be worth three points."³⁹

Students are required to document and submit all of their work for the teacher to evaluate. The teacher provides feedback and the student may need to re-submit work with edits in order to earn an 80 percent. The student keeps copies of his work to provide evidence to the teacher that he has earned 100 points for a credit. Exemplary work is used as documentation in the graduation portfolio. While students may work at their own pace on the credits of their choice, they are expected to earn 9.6 points per day, or 61.44 points every two weeks. Teachers, advisors, and the principal monitor students through a contract system and work with students who lag behind or fail to meet minimum expectations to create and execute a work plan that keeps them on task.

...[Chaffee County High School principal Mike] Post believes that the mix of online and face-to-face instruction has improved student outcomes.

Alternative and Online students take the ACT together. Last year, these students enjoyed the highest score for an alternative campus in the state. Proud of the results, Post believes that the mix of online and face-to-face instruction has improved student outcomes. In the future, he would like to see the divisions break down between the Buena Vista Online Academy, the district's alternative program, and traditional district high school students so that students can take whatever course, be it online, blended, or traditional, that works for them to achieve proficiency.

Denver Public Schools

In 2012, the Janus Foundation committed to donating \$2.1 million over three years to Denver Public Schools to accelerate the use of blended learning in the classroom. The goal is to leverage technology so as to expand learning time while reducing class size and teaching loads. The district is in the process of launching six pilot schools that will adopt a classroom rotation model with students engaging in independent online work part of the time. West Generation Academy and Grant Beacon Middle School are the first two pilot schools.⁴⁰

Grant Beacon Middle School (GBMS) received Innovation School status in May 2012. Under the Innovation Schools Act of 2008, Colorado schools may apply to their district to receive Innovation School status. The designation allows schools to waive state and local policies and collective bargaining agreements in order to implement innovative ideas. During the 2012-13 school year, GBMS began implementing a blended learning rotation model. Principal Alex Magana selected two lead teachers to act as math and reading blended learning facilitators to help

teachers implement the model. In reading, students rotate between an online program, independent reading, and working with a teacher. In the 2012-13 school year, the school used the Accelerated Reader program which monitors and assesses independent reading and Read Live which develops reading skills.⁴¹ The school will use Reading Plus, which Magana sees as more rigorous, instead of Read Live in the 2013-14 school year. In math, teachers divide their classes into two groups. One group works on the ALEKS online program while the other works directly with the teacher until they switch modalities. In social studies, teachers are implementing a flex model where the teacher posts learning goals and students work independently and in groups to research topics online with the teacher as a coach throughout the process.

Magana is especially pleased with how teachers are using the LMS (Moodle) to develop their own online curriculum. Reading teachers have added discussion boards for students to post book reviews and facilitate discussion of assigned books. In math, one teacher has prerecorded his math lectures so that students can listen to them as many times as they need to understand the learning target. In math, reading, and other subjects, students have the opportunity to move through the curriculum faster or slower depending on their needs, with the goal of helping all students achieve proficiency. Says Language Arts Teacher Peter Grampp, "Blended learning has everybody reaching for the same goals, the same standards, just different ways of getting there. It's an awesome way to keep the rigor and the standards we must have and be inclusive of all sorts of students and one teacher can do it."⁴²

At Grant Beacon Middle School... students rotate between an online program, independent reading, and working with a teacher.

...the blended learning model saves money, allowing [Rocky Mountain Prep founder James] Cryan to invest more funds in his teaching staff and special programs for students.

Several other foundations support the work of **Rocky Mountain Prep (RMP)**, a charter school in east Denver where blended learning is integral to the school's structure. Disheartened by Denver Public School statistics—only half of all DPS students read on grade level and 52 percent graduate from high school—RMP founder James Cryan set out to design a school where teachers had real-time data and tools to differentiate instruction to meet the needs of every single student.⁴³ Blended learning strategies could enable differentiation even in a classroom of 28 students. RMP opened a year ago with 131 pre-kindergarten, kindergarten, and first grade students, and will eventually enroll students through the 8th grade. Cryan estimates that about 83 percent of his students are from low-income families, about a third are Hispanic, a third African American, 13 percent White, 10 percent Arab, and 10 percent Eastern European. "We're the Model UN of schools," says Cryan.⁴⁴

In addition to enabling more differentiated instruction, the blended learning model saves money, allowing Cryan to invest more funds in his teaching staff and special programs for students. "Our blended learning approach allows us to offer a program that is economically more self-sustaining," says Cryan, "So we believe that at full build-out our blended learning approach will save the school about quarter million dollars a year."⁴⁵

Each reading and math class employs a rotational model. Class begins with a short whole group lesson, and then students break into groups according to skills levels. Students rotate between stations that feature independent work such as reading, small group guided reading or math with a teacher, small group practice with a beginning teach-

er (called a teaching fellow), and interaction with the DreamBox Learning Math and i-Ready online programs on a computer or tablet.⁴⁶ Even the youngest students enjoy the online programming, which helps students develop competency in essential skills, often in the guise of an engaging game. Students showed strong academic growth over the year, with 83 percent of RMP students scoring at grade or above level by the end of the year on the STEP literacy assessment.⁴⁷ At the beginning of the school year, nearly half of students scored in the lowest quartile on the nationally normed Measures of Academic Progress (MAP) assessment. By the end of the year, nearly half scored in the top quartile on MAPs and students scored in the 70th percentile overall.⁴⁸

At the 14-year-old Expeditionary Learning **Odyssey School** in the Park Hill neighborhood of Denver, some classrooms had already integrated technology into instruction. Executive Director Marcia Fulton wanted to explore blended learning as a solution to a multitude of challenges from how to meet student needs to time, space, and budget concerns.⁴⁹ Through a collaborative process between teachers and the administrators, the school community determined that blended learning would complement the rotation model already in place throughout the school. Teachers regularly divide the class into small groups for collaborative, independent, and teacher-led work. The school worked with the Evergreen Education Group supported by a Piton Foundation grant to develop a plan for implementation. Another grant by the Morgridge Family Foundation enabled the school to pilot a blended literacy model in grades 2 to 5.⁵⁰

University Prep, a two-year-old charter school in historic Five Points, has an

ambitious goal to prepare elementary school students so they can graduate from college down the road. David Singer, University Prep's principal, believes that blended learning can help the school accomplish its mission by giving students more practice through academically rigorous online curriculum. Twice a week, students work on the ST Math online program while teachers and teaching fellows circulate and provide assistance. The program makes it easy for teachers to identify struggling students through a color signal on the screen. On other days, teachers use more traditional methods to teach math. In reading, students are divided into four flexible groupings based on reading skill levels. To master the five components of reading—phonics, phonemic awareness, fluency, vocabulary, and comprehension—groups of students rotate through three or four 30-minute blocks working with teachers, independently, or online with i-Ready reading program. Singer believes it is important to provide children from low-income families with the same caliber of technology as children in wealthy communities. Each class at University Prep has a set of iPads to facilitate blended learning. Says Singer, "The mission of the school is for all of our students to attend college; we'd be foolish not to recognize the importance of technology in education."⁵¹

Falcon School District 49

In August 2010, the Falcon School District opened the Falcon Virtual Academy (FVA) with 59 students in grades kindergarten through 12th grade. Less than three years later, the school has 420 full-time students and nearly 1,000 additional students who attend part-time or who take supplemental or credit recovery courses while attending their local school. Part of the growing

popularity of FVA is the 21,000-square-foot, state-of-the-art blended learning center the district opened in 2012.⁵² The facility features student workstations, videoconferencing systems, meeting rooms, an art studio, and a science lab. Three days a week, FVA students can go to the center to work independently, meet with teachers, or take classes that apply what they are learning online. FVA students also take courses at Pikes Peak Community College and engage in internships in the community.

Kim McClelland, district assistant superintendent and iConnect Zone innovation leader, estimates that during the 2012-13 school year, FVA students completed about 70 percent of their work online through the k12 and Aventa programs and 30 percent in a face-to-face setting at the center. She predicts that in the future students may split their time evenly between on-site and online learning.⁵³

In 2013, Falcon and Yuma School District 1 created the Colorado Digital BOCES to support online and blended learning in districts throughout the state. Boards of Cooperative Educational Services (BOCES) provide member school districts with a variety of services such as curriculum development, training, technology and data support, vocational, gifted and talented, special education and alternative programming, and grants management. Because the FSD already contracts with Charter School Solutions, LLC for its charter liaison services, it was a natural fit for Charter School Solutions to provide the same type of expertise for the new BOCES.

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The first of its kind in the state, the Colorado Digital BOCES will provide blended learning teacher training, a substitute pool of trained educators, induction programming, special education services, and consulting.

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duction programing, special education services, and consulting. McClelland is enthusiastic about the BOCES' potential to support the implementation of best practices in blended learning for schools. "Many districts do not have the capacity to provide training and curriculum development in blended and online learning environments on their own," she says. "We can do more together."⁵⁴

Falcon 49 is unique in that instead of having a superintendent, the district has made use of the state's 2008 Innovation Schools Act to divide into four zones, each overseen by an assistant superintendent. Each of the three traditional zones comprises a high school and its feeder middle school and elementary schools. The fourth zone—the iConnect Zone— includes the district's charter schools, virtual school, homeschool program, and alternative school. Each zone has considerable autonomy over its programing. While blended learning occurs most noticeably in the virtual school's learning center in the iConnect Zone, blended learning strategies are being implemented in the traditional zones as well. Several schools are offering self-blended online courses to be taken in the school's computer lab or have instituted a lab rotation model with students spending part of the time in the school's computer lab and part in the classroom.

Jeffco Public Schools

In 2008, Jeffco Public Schools opened the Jefferson County 21st Century Virtual Academy, an online school for students in grades 7 to 12. Part-time students can take up to three courses a semester while remaining enrolled in their own public, private, or home school. The school also offers credit re-

covery courses throughout the year for students needing credits to graduate.

The virtual academy adopted the LMS Schoology because it resembles the popular social networking site Facebook.⁵⁵ The LMS is user-friendly, and teachers and students are comfortable with its format. The district hires expert curriculum writers who create courses so that the components, such as assessments, reading requirements, discussion questions, assignments, recordings, videos, and other resources, can be restructured by teachers according to their needs and the needs of their students. Teachers and students can post feedback on Schoology regarding the course so that it can be improved.

Jeffco 21st Century Virtual Academy teachers and students are not the only ones logging into the school's LMS; 20,000 other Jeffco students also have accounts. Teachers at traditional district schools are using the LMS and its curricular resources to implement blended learning in their own classrooms. To facilitate the integration of technology in the classroom, the district has been conducting training at Jeffco schools. The Schoology site also provides virtual working space for educators to design or refine virtual and blended learning courses and get feedback and support from district technology and curriculum experts.

In addition to providing opportunities for traditional students to self-blend into online courses or to study full time at the Jefferson County 21st Century Virtual Academy, the district is facilitating the adoption of blended learning models in its traditional schools through its virtual school resources. "With district resources and training, the sky's the limit for creative teach-

ers,” says Sherry Meier, assistant director of student online learning at the Jefferson County Public Schools.⁵⁶

The greatest challenge for many teachers, Meier believes, is getting people to conceptualize blended learning. Educators often see learning as constrained by four sides of a box—seat time, location, packaged curriculum, and schedule. Blended learning enables teachers to fold down the sides of the box. Students can learn outside of the school day and school classroom. Students can take more or less time to master the material and progress to the next learning target. Teachers can take apart the curriculum and use components that work for them while adding their own tools and content.

Woodland Park School District Re-2

Nestled in the Rampart Range, the Woodland Park School District Re-2 is home to two high school chemistry teachers whose blended learning model has won them national attention from the premier education reform journal *Education Next* and other national organizations.⁵⁷ In 2012, Jonathan Bergmann and Aaron Sams published *Flip Your Classroom: Reach Every Student in Every Class Every Day*, and have produced a series of webinars about the flipped classroom strategies they use at Woodland Park High School.⁵⁸ In a flipped classroom, students watch recorded videos of lectures at home after school hours and spend class time in the science lab applying the concepts they learned the previous night.

Enabling students to listen to lectures at home accomplishes several objectives: homework is essential not busy work, students who need to hear the lecture more than once can do so, and limited classroom time can be spent in

the lab working on challenging problems. After all, students do not need to be together in a classroom to listen to a lecture, but they are unlikely to conduct advanced chemistry alone at home. Bergman and Sams’ flipped classroom helps them maximize time.

Bergmann and Sams believe the new arrangement has improved their rapport and engagement with students. In the classroom, students who understand can work independently, while students who need help work one-on-one or in a small group with the teacher. Bergmann says that struggling students are more likely to ask questions in the lab environment than in a whole class lecture.⁵⁹

Bergmann’s daughter Kaitie took two flipped classes while in high school—an honors freshman earth and space science class and chemistry. She liked the ability to watch the lecture more than once. She also appreciated “the ability to step up and take responsibility for my own learning at a pace that worked for me. I got to choose when to listen to a lecture, decide what was the best use of my class time, such as conducting a lab, doing a worksheet, asking for help, or working in a small group, and then work towards the weekly stated goals.”⁶⁰

According to Bill Tucker, who profiled Bergmann and Sams’ work in *Education Next*, the idea of the flipped classroom has been around for a decade. The National Center for Academic Transformation (NCAT) and higher education institutions have implemented similar models.

NCAT president and CEO Carol Twigg believes that with strong student expectations and monitoring a flipped classroom can help reengage students

In a flipped classroom, students watch recorded videos of lectures at home after school hours and spend class time in the science lab applying the concepts they learned the previous night.

...district and school examples described on the previous pages can be categorized by the Clayton Christensen Institute for Disruptive Innovation blended learning models.

in learning. While the flipped classroom can provide expanded time for lab work and other projects, teachers need to ensure that students have the requisite knowledge and skills to participate in projects in a meaningful way. “If you don’t have basic math skills,” says Twigg, “you can’t do an interesting physics project.”⁶¹

Status of Blended Learning

As table 1 shows, district and school examples described on the previous pages can be categorized by the Clayton Christensen Institute for Disruptive Innovation blended learning models. In Model 1 schools, students rotate between face-to-face instruction and online lesson delivery conducted in the classroom, in the lab, or at home. The school may employ blended learning in a few classrooms or it may be an integral part of the school’s instructional delivery. In Model 2 schools, instruction is delivered primarily online in

a lab with teachers providing online support and enrichment opportunities. In Model 1 and 2 schools, students attend a single school which receives the student’s per-pupil funding and is accountable for the student’s performance on the Transitional Colorado Assessment Program (TCAP) and ACT assessments.

Similarly, in Model 4, where students attend a single online school and receive face-to-face support and enrichment coursework at a learning center, students attend a single school, which receives the students’ funding and is responsible for student assessment scores. Students enrolled full-time in one of the state’s multi-district online programs receive less PPR than traditional district students while students enrolled full-time in a single-district online program receive the same PPR as traditional students. Students may enroll part time in an online school and part time in their neighborhood school.

Table 1: Blended Learning Classification of School Examples Described in this Report

Model 1 Rotation	Model 2 Flex	Model 3 Self-Blend	Model 4 Enriched-Virtual
Carpe Diem Collegiate High School and Middle School, AZ	BOLT Academy, CO	Boulder Universal, CO*	Buena Vista Online Academy, CO
Grant Beacon Middle School, CO	FlexTech High, MI	Colorado Online Learning, CO	Falcon Virtual Academy, CO
Odyssey School, CO	San Francisco Flex Academy, CA	Jeffco 21st Century Virtual Academy, CO*	
Rocketship Education, CA	USC Hybrid High, CA		
Rocky Mountain Prep, CO			
School of One, NY University Prep, CO			
Woodland Park High School, CO			

*Also enroll full-time and part-time online students

Students may also access up to two supplemental courses through a district-approved provider such as a district online school, online program, or a statewide online program like Colorado Online Learning (COL) and still be considered a full-time student at their local school. In this self-blend option (Model 3), unlike Models 1, 2, 4, students take courses from more than one provider—their local school and an online provider.

The growing popularity of self-blended supplemental courses has prompted the legislature to make changes in how these classes are funded and tracked. In 2013, Gov. John Hickenlooper signed Senate Bill 139, which mandates that every Colorado high school student have the opportunity to take at least one supplemental online course per year. The state, in coordination with the BOCES administering the supplemental online provider contract, will track academic performance of students taking supplemental online courses, pass and fail rates of supplemental courses and satisfaction survey results of teachers, parents, and students. The law also eliminated the \$200 per student per semester course fee cap in hopes that it would increase the number of high-quality courses created and offered by providers.

Despite these reforms, student ability to take self-blended courses is still limited. If the student wants to take a course from a non-approved source, even if it is provided by another Colorado district or public charter school, he must pay out of pocket and may not receive course credit.

Some states have enacted education funding systems that allow secondary students to more easily take online courses. Louisiana is the latest state to

adopt such reforms. In 2013, the Louisiana Board of Elementary and Secondary Education voted to fund the \$2 million Louisiana Course Choice program for the upcoming school year. Students attending a public school with a state accountability rating of C, D or F, or an A- or B-rated school that does not offer an equivalent course, may enroll in an online course from state-approved provider. The state pays the online provider half upon enrollment and half upon successful completion.⁶² Utah and Texas also pay online providers at the beginning and end of the course. Funding online courses through a combination of upfront and completion payments ensures that online providers work to retain students until they successfully finish the course. This system of accountability protects taxpayers and provides an incentive for providers to deliver engaging courses and interventions.

Florida takes accountability to another level: online and traditional site-based courses with end-of-course exams will be funded through a performance-based system beginning in 2014.⁶³ By doing so, Florida has created a link between funding and student content mastery.

Historically, class completion has been measured in terms of seat time, along with a rating of the student's work quality and subject competency in the form of a grade. If students can work at their own pace in a blended or online class, seat time requirements may be a hindrance, particularly for students who can master the material in less time than a semester. A recent study by the Colorado Children's Campaign offers this insight: "Competency-based pathways flip accountability. Instead of making time the constant and allowing mastery to vary, competency-based

If the student wants to take a course from a non-approved source...he must pay out of pocket and may not receive course credit.

The Colorado Children's Campaign recommends the state provide districts waivers and credit flexibility to adapt competency-based measures of student progress for the granting of credits and funding purposes.

approaches make mastery the measure by which students move to the next lesson, unit, course, or grade—regardless of how much time it takes.”⁶⁴ Rigorous, standards-aligned end-of-course assessments offer a more accurate determination of completion. Adams School District 50 in Westminster has implemented a competency-based system.⁶⁵

The Colorado Children's Campaign recommends the state provide districts waivers and credit flexibility to adapt competency-based measures of student progress for the granting of credits and funding purposes. However, the organization believes that ultimately the state must redesign its education system to fully integrate student learning outcomes with matriculation and funding. Other states are moving in this direction. In 2013 Texas Gov. Rick Perry signed Senate Bill 1365, which enables students to earn course credits through assessments rather than seat time.

Although Colorado does not currently tie funding and credit earning to competency-based measures such as end-of-course exams, the state does connect competency-based measures such as TCAP to school rating (School Performance Frameworks) and Unified Improvement Plan designations. In other words, schools are accountable for student proficiency in core subjects. As students take more self-blended online classes from the district or outside providers, policymakers will need to consider the potential impact on TCAP scores and school ratings. For example, even if the student takes reading courses online but attends a traditional public school, his reading scores on TCAP or the ACT are owned by the school, not the online provider. Since this is likely to be the case in only a small percentage of situations, online courses are unlikely to impact a school's TCAP

or ACT scores. But in the future, the number of blended students is likely to increase and with them the potential for impacting school's average scores and ratings.

*Recommendations for Lawmakers*⁶⁶

1. Enable per-pupil revenue to flow directly to schools and courses rather than first through the district central office. Funding could be divided among courses and travel across district lines based on student enrollment choices.
2. Distribute funds based on multiple count dates rather than the current single October 1 enrollment count, using average daily membership (ADM) rather than attendance. Senate Bill 213, signed by Governor Hickenlooper in 2013, changes the current one-day count to a quarterly ADM count. However, voters must approve a \$1 billion tax increase in November for the change to take place.
3. Divide payments to online course providers so that 50 percent of the funding is provided after successful completion. Districts and the state should consider how to define successful completion in terms of competency measures, such as end-of-course exams rather than seat time.
4. Commission an experimental or quasi-experimental research study on blended learning at specific Colorado sites to determine possible impacts on student proficiency on state assessments.

Recommendations for Schools

Given that existing research on blended learning in a K-12 environment is limited, teachers, principals, and superintendents may want to proceed

with caution. Blending learning's potential for improving student performance and even providing cost savings can only be realized if the model is well implemented. Done poorly, blended learning is just another shiny-looking education reform with lackluster results.

The Donnell-Kay Foundation's *Case Study of Blended Learning Implementation: The Odyssey School and Rocky Mountain Prep* by Matt Samelson provides an excellent examination of the costs and benefits of blended learning faced by two Colorado schools as they implemented blended learning.⁶⁷ During the process, the school directors asked themselves a series of important questions:

- What do we want to accomplish?
- Which Learning Management System and digital content is right for our school?
- How much will they cost?
- What professional development is necessary for teachers?
- Should the school start small with one classroom, one grade level or adopt the model universally?
- What is the timeline for implementation?
- What problems will blended learning solve?
- What are our data needs?
- What LMS can handle data from multiple programs?
- How will teachers, board members, and parents respond to the change?
- How will blended learning impact teacher recruitment?

Judy Bauernschmidt, the executive director of CeLC, offers valuable advice to school leaders: "Don't go it alone." School leaders interested in blended learning should reach out to schools implementing different models and to the previously noted capacity-building organizations that can help schools anticipate potential costs, and begin to put together a thorough plan.

Conclusion

Just as computer technology can help teachers personalize education in the traditional classroom, face-to-face instruction can bring a personal touch to the education of an online student. Blended learning is a framework for integrating technology with traditional instruction rather than pedagogy or curriculum, it can be flexibly adapted to many classroom environments, teacher preferences, and student needs. Schools can choose from among four models of blended learning that span a continuum of primarily face-to-face to primarily online-driven instruction. Even when minimally implemented, blended learning strategies can provide teachers with real-time assessment data and the time to work with small groups of struggling students while students who have mastered the material can move forward in the curriculum. On the other end of the spectrum, online credit recovery courses with face-to-face options can give struggling students a chance to make up coursework and graduate while self-blended courses provide motivated students the opportunity to explore learning beyond the classroom and school day. That is the promise of blended learning.

Just as there is promise, there are also costs associated with the implementation of blended learning. Whether a

Done poorly, blended learning is just another shiny-looking education reform with lackluster results.

school adopts a blended learning rotation in some classes or a whole school model with intensive use of online tools, the technology and training entail financial and time-related costs. One ought also to consider the cost of failure if the program is poorly implemented. Regardless of how a school or a district implements blended learning, the question should always be: “Are students learning more as a result of these changes?” The purpose of funding online programs based in part on completion, for more research into the efficacy of blended models, and for proceeding carefully when implementing blended learning strategies at the school level, as this paper recommends, is to keep that question ever before us. The difference between true innovation and temporary novelty, after all, is the staying power of results.

Notes

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⁴⁷ See Rocky Mountain Prep, Approach and Outcome, <http://www.rockymountainprep.org/our-story-2/approach-outcomes/>.

⁴⁸ James Cryan, Principal, Rocky Mountain Prep, electronic mail to the author, July 6, 2013.

⁴⁹ Matt Samelson, “Case Study of Blended Learning Implementation.”

⁵⁰ Ibid.

⁵¹ David Singer, Principal, University Prep, telephone conversation with the author, June 26, 2013.

⁵² Kim McClelland, District Assistant Superintendent, Falcon School District 49, phone interview, May 26, 2013; and Falcon School District 49 blog, http://d49.org/modules/blog/viewPost.phtml?profile_id=164048&beid=268522&sessionid=34f67a786977d28ea0bf663ee0944cce.

⁵³ “Falcon Virtual Academy Celebrates New Blended Learning Facility, *Fresh Ink*, October 13, 2012, http://www.csfreshink.com/group/falcon/forum/topics/falcon-virtual-academy-celebrates-new-blended-learning-facility?xg_source=activity.

⁵⁴ McClelland, telephone conversation, May 26, 2013.

⁵⁵ Sherry Meier, Assistant Director of Student Online Learning, Jeffco School District, telephone conversation with the author, May 16, 2013.

⁵⁶ Ibid.

⁵⁷ Bill Tucker, “The Flipped Classroom,” *Education Next* Vol. 12, No. 1 (2012): 84. <http://educationnext.org/the-flipped-classroom/>.

⁵⁸ See Jonathan Bergmann and Aaron Sams,

Flipped Classroom Webinar Series, <http://www.ascd.org/professional-development/webinars/flipped-classroom-webinars.aspx>.

⁵⁹ Tucker, "The Flipped Classroom."

⁶⁰ <http://researchnetwork.pearson.com/online-learning/the-flipped-classroom-a-students-perspective>.

⁶¹ Ibid.

⁶² Colorado Children's Campaign, "Digital Learning in Colorado: Opportunities and Recommendations," (January 2013), <http://www.coloradokids.org/file/download/2a838fa9-81ae-474b-9c04-4bcb4fa0edd5>.

⁶³ Ibid.

⁶⁴ Anderson and Skrzypchak, "Blended Learning: The Best of Both Worlds."

⁶⁵ Recommendations mirror those in discussed in DeGrow, *Online Course-Level Funding*.

⁶⁶ Ibid.

⁶⁷ Matt Samelson, "Case Study of Blended Learning Implementation."

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