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Blended Learning: Where Online and Face-to-Face Instruction Intersect for 21st Century Teaching and Learning

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Executive Summary

Blended learning, the teaching practice that combines teaching methods from both face-to-face and online learning, is an established, rapidly growing instructional model that is proving highly effective in helping schools and districts address the challenges of student achievement, limited resources, and the expectations of 21st century learners. Whether it is extending classroom instruction beyond the school day, supporting credit recovery programs, enhancing teacher professional development or delivering enriched learning opportunities for accelerated students, blended learning models are increasingly common practice across the curriculum for students and teachers alike.

Blended learning is implemented in a variety of ways, ranging from models in which curriculum is fully online with face-to-face interaction to models in which face-to-face classroom instruction is integrated with online components that extend learning beyond the classroom or school day. The rapid growth of blended learning has been a catalyst for additional instructional transformation, including:

- Evolving pedagogy in which teachers' roles include facilitation, student mentoring and differentiating instruction for individual learners,
- Increased flexibility and personalization of students' learning experiences, and
- Strategic uses of technology as districts tap the capabilities of the learning management systems to support a wider range of instructional programs.

Educators support online learning because of its unique abilities to provide students with enriched learning experiences, to extend learning beyond the school day, and to support more successful differentiated learning strategies that personalize students' educational experiences. Additionally, as educators gain more experience with the approaches to and benefits of blended learning, they have discovered that this instructional model helps them increase capacity without commensurate increases in budget or staff.

This report reviews the working definitions of blended learning, explores efficacy and prevalence data, recaps innovative and practical implementation models and provides profiles of several schools and districts that are experiencing success with their blended learning programs. The intent is to showcase this instructional model's growth and potential to spark new conversations about how blended learning can address a range of instructional needs in new and highly productive ways.

Blended Learning: A Growing Need

Take a snapshot of a day in the life of America's schools and the picture will show students and educators grappling with a host of challenges and presented with a kaleidoscope of remarkable new learning opportunities. From unprecedented budget pressures and over-burdened teachers to the need for more effective, more personalized learning to accommodate each student's individual learning style, schools are facing complex issues. The opportunities are enormous as well. Whether it is tapping the vast stores of digital information now available or using new technology tools to learn, teachers and students alike have the opportunity to move the learning experience forward in new ways.

Today's digital native students expect their learning environment to include technology because it is an intrinsic part of their lives. The publication Learning in the 21st Century: 2009 Trends Update[1] offers these important data points:

- **Students want control of their own learning.** When asked why learning through an online class might make school more interesting, 47 percent of students in grades 9-12, 39 percent of students in grade 6-8 and 25 percent of students in grades 3-5 responded that they wanted to learn online to control their own learning experience. Students do not expect online courses to be easier. They do however, expect the online learning environment to facilitate their success because they can review materials when they want and are more comfortable asking teachers for help.
- **Online teachers see great benefits to student online learning.** 76 percent of educators believe that online learning benefits students by putting them in control of their own learning.

Blended learning, which typically extends classroom instruction online, is giving schools new approaches and strategies for addressing the challenges they face and for taking advantage of the exciting new learning opportunities that are now available. More and more schools and districts of all sizes are introducing blended learning into their instructional programs and they are discovering that this model is effective, affordable, and responds to students' and teachers' growing interest in technology-based learning experiences.

Blended learning, which typically extends classroom instruction online, is giving schools new approaches and strategies for addressing the challenges they face.

Blended Learning Defined

Like many advances in educational practice, blended learning is defined and implemented in multiple ways. As more and more schools use this model, many different meanings have evolved. For clarity and deeper understanding of this approach to teaching and learning, this paper includes several of these evolving definitions and provides a working definition that encompasses the most commonly accepted blended learning models.

iNACOL, the International Association for K-12 Online Learning, defines blended learning as "combining 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."[2] In a similar vein, the Sloan Consortium, an institutional and professional

iNACOL defines blended learning as...

"Combining 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."

leadership organization dedicated to integrating online education into mainstream education, describes blended learning as part online and part traditional face-to-face instruction. [3]

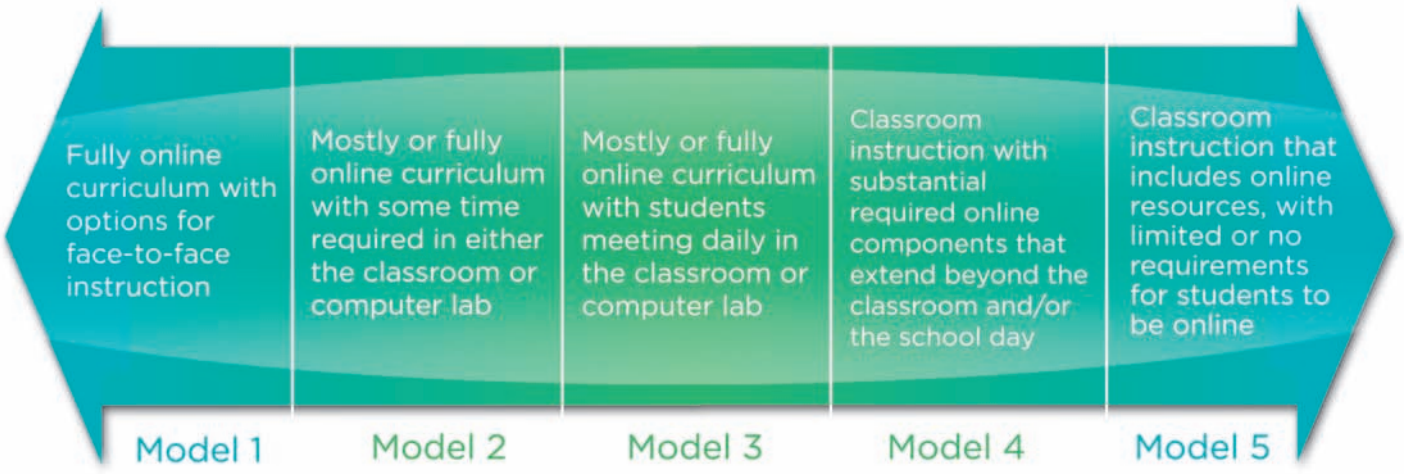
San Diego State University also offers an interesting perspective on blended learning. In the university's online Encyclopedia of Educational Technology, the article Blended Learning Solutions notes, "...blended learning combines the engaging benefits of traditional instructor-led training with the advantages brought by a variety of technologies to create an optimum program."[4] The article also underscores that many "ingredients" can comprise a blended learning model, including instructor-delivered content, e-learning, webinars, conference calls, live or online sessions with instructors, and other media and events.

For the purposes of this paper, blended learning is broadly defined as an instructional practice that combines teaching methods from both face-to-face instruction and online learning.

The Continuum of Blended Learning Models

Blended learning comes in a wide range of implementation models. This chart summarizes the continuum of models used in schools throughout the country, giving educators a working picture of the many ways in which online learning blends with and supports traditional instruction.

Blended Learning Continuum



While many districts may not initially launch their blended learning programs with a significant portion of online instruction (Models 1 &2), this approach may help districts address scheduling, resource and other challenges. Today, the bulk of blended learning extends and enhances face-to-face instruction, as shown in Models 3-5 in the continuum.

District Profile

District: Henrico County Public Schools, Henrico, Virginia
Interviewee: Jean Murray, Assistant Superintendent

Progress and achievement are cornerstones of the mission of Henrico County Public Schools. According to the district's web site, Henrico was first in the state two years in a row for the number of schools passing the Standards of Learning tests (SOLs), and the county has received ten National Association of Counties awards. Henrico County Public Schools' mission is to provide a nationally recognized educational program and staff to help 21st century students reach their full potential. They strive to develop critical thinkers and lifelong learners who are committed to their community and nation, and who have the personal integrity to meet life's challenges

In Henrico County, Virginia, blended learning has a very "active" role in curriculum. Jean Murray, the district's Assistant Superintendent explains, "One of our most successful blended learning examples, among many including Shakespeare and algebra, is our online Physical Education program. We're doing this in summer school. Our students use heart rate monitors that plug into computers. We offer online help and textbook-based instruction online, with digital drop boxes for assignments. The students work out in a local gym with their heart rate monitors, and then plug into computers to report their workout." Murray also noted that this helps students fulfill their physical education credit requirements and the program has been useful for students who were on long-term suspension or expulsion, because it allows them to earn credits they need in

Pedagogy Evolving

With the growth of blended learning and the many ways this model is being adapted, pedagogy is evolving as well. Teachers' roles are changing as they evolve from "lecturer" to instructional guide. Independent student work and mentoring are becoming more common instructional strategies as teachers assess student progress and then use a variety of tools and resources, including digital content, to differentiate instruction in order to address students' needs.

A search of available research literature confirms this trend. A combination of flexibility, independence, and experience with online tools has been associated with improved critical thinking, research, and computer skills.[5] As virtual school opportunities continue to expand to a wider range of K-12 students, it will be important that courses are straightforward and consistent in their design, provide clear instructions and expectations, and make use of appropriate media.[6]

The blended learning models are also flexible and adaptable so teachers can create instructional activities and assignments that give students the opportunity to work collaboratively, tapping their interest and abilities in social learning. In addition, project-based and experiential learning can also be facilitated through blended models, giving students the opportunity to conduct research online, participate in group work, and then develop multimedia projects that showcase their learning processes and outcomes.

Blended Learning in Action

As this paper highlights, blended learning models are in use in many ways throughout America's schools. The research team for this paper conducted in-depth interviews with district and school leaders in locations throughout the United States, including:

- St. Tammany Parish, Louisiana,
- Albuquerque Public School District, New Mexico,
- Digital Harbor High School, Baltimore, Maryland, and
- Henrico County Public Schools, Virginia.

"Allocation of time between blended learning and face-to-face instructional strategies is not the question. It is a question of which methodology will best serve student needs. We want to provide the right and best opportunities for learning."

Tom Ryan, CIO
Albuquerque Public Schools

In St. Tammany Parish, Louisiana, core curriculum courses in English I and World Geography have been redesigned to incorporate digital instruction as a daily component of learning. Albuquerque Public Schools has identified that blended learning offers important benefits for the district's ESL students and their teachers. In Henrico County, blended learning is helping students fulfill physical education, math, and English requirements and helping teachers meet professional development requirements. And at Digital Harbor High School in the Baltimore City School District, blended learning includes online course documentation, digitally based activities, discussion boards for students and teachers and more.

To be successful, these districts considered their professional development, technology infrastructure and funding needs. In all cases, educators were strategic about their blended learning implementation which positively influenced their teaching and learning initiatives.

Professional Development

The educators interviewed noted that professional development was a key element to the success of their blended learning initiatives. In all instances, professional development helped teachers become adept technology users and skilled at technology integration in a blended environment.

Technology Infrastructure

The districts solidified their technology infrastructure and learning management platforms early in their blended learning initiative. This enabled them to roll out their blended learning programs smoothly and efficiently, tapping the capabilities of the systems in place in their districts. In many instances, course management, content management, portals, and communications systems were already in place so introducing a blended learning program did not present a major technology challenge.

Funding

While districts are facing limited and, in some cases, declining budgets, the districts profiled here worked to secure funding sources to ensure the success and longevity of their blended learning programs. St. Tammany Parish used grant monies to fund their 1:1 laptop initiatives, but used district funds to support professional

District Profile

District: Albuquerque Public Schools, New Mexico
Interviewee: Tom Ryan, Chief Information Officer
Funding Source: Available New Mexico Technology Funds, EETT, E-Rate Funding

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Albuquerque Public Schools use several blended learning approaches encompassing instruction for students as well as professional development. Tom Ryan, Chief Information Officer of Albuquerque Public Schools, offers an interesting perspective: "We focus a great deal on our blended learning environment, implementing this model first on the 'fringe' and then finding that it evolves to mainstream applications. For us, blended learning is a process by which we are using online and face-to-face methods to improve teaching and learning. Allocation of time between the two instructional strategies is not the question. It is a question of which methodology will best serve student needs. We want to provide the right and the best opportunities for learning. A great example is our ESL (English as a Second Language) students. Blended models give these learners the opportunity to practice as often and as long as they need. It's about meeting the student's academic needs and using instructional strategies that increase the time and resources available to help students excel academically."

Ryan notes that blended learning is the future because it helps address students' diverse needs and learning styles, supports effective response to intervention and gives learners direct experience with technology-supported skills essential for 21st century success.

The program is "...already changing the way teachers are teaching. We're seeing less lecture/discussion/worksheet and more facilitation, more collaboration with other teachers and a shift in attitude as teachers help and encourage students to take more responsibility for their own learning."

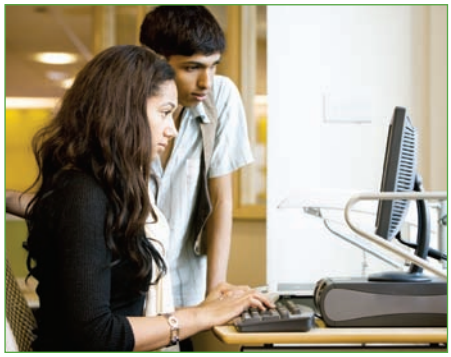
Dr. Regina Sanford, Schools Secondary Supervisor of Instruction
St. Tammany Parish Public Schools

development. Albuquerque Public Schools uses available state technology funding, EETT funds and E-Rate funding, while Digital Harbor High School uses Perkins funding and the district's own per-student funding to support its technology programs.

Addressing Unique Challenges

Blended learning is also helping schools to address significant challenges. For example, many schools are offering credit recovery through blended learning, giving students anywhere, anytime access to remedial resources and providing additional instruction and practice in online formats. Schools are also using the blended learning model to deliver core curriculum, provide enrichment, support remediation and intervention programs, and to provide accelerated learning opportunities to students who want to take Advanced Placement courses or who will benefit from TAG (Talented and Gifted) instructional support.

Professional development helped teachers become adept technology users and skilled at technology integration in a blended environment.



Educators are discovering that blended learning offers an important set of benefits. These include:

- The ability for schools to maintain their central role in managing a student's educational process and personalizing instruction;
- Providing curriculum developers and teachers the flexibility to address standards and maintain curriculum fidelity while integrating digital content and learning experiences that better engage 21st century learners; and
- Giving teachers valuable experiences in using technology effectively in their professional development courses, preparing them to use blended models creatively and strategically as this approach becomes more and more prevalent in the classroom.

As educators experiment with blended learning models, they are finding new solutions to challenges and leveraging opportunities to improve and transform traditional instructional models.

Efficacy: The real measure of success

Student Success

Education's stakeholders demand and deserve proof that instructional models support and improve student outcomes. Here the data is clear. Blended learning performs as well or better than face-to-face instruction. According to a 2009 report from the U.S. Department of Education, "In recent experimental and quasi-experimental studies

District Profile

District: St. Tammany Parish Public Schools, Louisiana
Interviewee: Dr. Regina Sanford, Secondary Supervisor of Instruction
Funding Source: Grant monies for laptop program and district funds for professional development

In St. Tammany Parish Public Schools in Louisiana, blended learning is helping the district address critical objectives for integrating 21st century skills into core subject instruction. For the 2009-2010 school year, St. Tammany Parish opened a new high school and, as part of their focus on effective use of technology to improve student achievement, the district developed a new blended learning curriculum for its English I and World Geography courses. These new programs were designed to help the school optimize their 1:1 laptop program, the result of an exciting new grant. According to Dr. Regina Sanford, St. Tammany Parish Public Schools Secondary Supervisor of Instruction, "This initiative sparked great excitement and involvement for us. Two of our Curriculum Specialists volunteered to update and adjust our English I and World Geography courses to create a comprehensive approach that embeds digital instruction as a daily part of class. Our teachers volunteered to teach these courses and we supported them with summer professional development and now on-going training during the school year to make sure standards are addressed and the available technology supports teachers' and students' needs."

Dr. Sanford also noted that students were given the opportunity to "opt in" to these classes and parents were invited to orientation meetings so they could understand and support their students' involvement in this new instructional model. Dr. Sanford explained, "Our goal with this blended learning model was to give students direct experience and exposure to the many technology applications needed to conduct research, analyze data, and synthesize information." Dr. Sanford enthusiastically noted that the program is "...already changing the way teachers are teaching. We're seeing less lecture/discussion/worksheet and more facilitation, more collaboration with other teachers and a shift in attitude as teachers help and encourage students to take more responsibility for their own learning."

St. Tammany Parish also operates a Virtual Academy for High School, called A3. The district uses Blackboard® software as its platform for A3 and found that the platform also supported its new blended learning initiatives effectively as well, thanks to the system's content management and communications capabilities. Dr. Sanford noted that current plans call for adding more digital curriculum for the 2010-2011 school year and will include English II and Civics/Free Enterprise. These courses will give students greater opportunities to continue their blended learning experiences.

contrasting blends of online and face-to-face instruction with conventional face-to-face classes, blended instruction has been more effective, providing a rationale for the effort required to design and implement blended approaches."[7]

The study's main findings are noteworthy:

- Students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction.
- Instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction than did purely online instruction.
- The effectiveness of online learning approaches appears quite broad across different content and learner types.
- Online learning can be enhanced by giving learners control of their interactions with media and prompting learning reflection.

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Teacher Effectiveness

A study by Susan Lowes, Ph.D., at Columbia University describes another dimension to the efficacy of blended learning. This research found that teachers' instructional practices are transformed by learning how to teach online, because they develop new skills and build pedagogical strategies using technology. The research also reported that online teaching improves practices in both virtual and face-to-face settings. Further, 75% of the teachers in this study said that teaching online had a positive impact on their face-to-face teaching. Lastly, the study pointed out that teachers who gain experience delivering instruction online can serve as change agents in the schools where they also teach face-to-face courses.[8]

Research on blended learning's efficacy supports the work of educators already using these models and those now considering additional opportunities to put the power of blended learning to work for students and teachers.

Blended Learning: Growing Momentum

A recent report from The Sloan Consortium points out that a majority (63.1%) of the public school districts in the United States now have at least one student enrolled in either a fully online or blended learning course. Their data indicates that most of the administrators in these districts predict that such enrollments will grow by approximately 20% over the next two years.[9] Blended learning is clearly a rapidly growing instructional practice.

Not only is blended learning a growing model, it is increasingly embraced and adopted by districts of all sizes and at all stages of the technology implementation continuum. In fact, a recent market research study produced by Grunwald Associates points out that educators view the key benefits of online learning from the vantage point of student learning. [10] A large majority of the district leaders surveyed currently use an online learning product, underscoring the prevalence and acceptance of online learning as a central component of K-12 teaching and learning. The data also highlights district leaders' priorities as they relate to online learning. This includes providing students with tools to supplement classroom

School Profile

School: Digital Harbor High School, Baltimore City, Maryland
Interviewees: Brian Eyer, Principal & Jan Purnell, Teacher
Funding Source: Perkins funding and Baltimore City School District's per student funding

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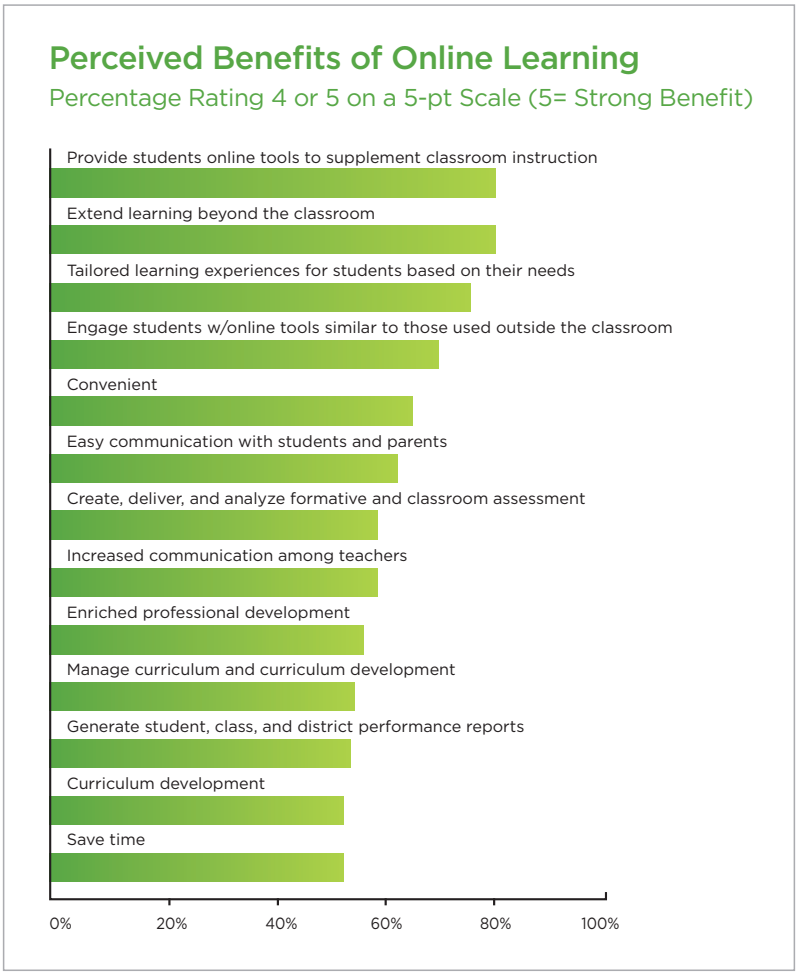
Digital Harbor High, an urban high school within the Baltimore City School District, currently serves 1,050 students. There are no entrance requirements but students must accept the school's mission, which is either college preparation or preparation to work in a technology industry. There are four different paths for students choosing the technology option including programming, media/video, information support services and networking. Students must pass an industry standard test to graduate.

All classes at Digital Harbor High School use Blackboard software, which supports the school's concept of integrating more traditional instructional methods with online learning. Online components include course documentation, digitally-based activities, online submission of class assignments, discussion boards, test generators, self-grading, and an electronic gradebook. Teachers are required to post syllabus information and grades and this information is required to be refreshed at least every two weeks. Principal Brian Eyer notes, "Several people are central to driving change at Digital Harbor. As a principal, I expect teachers to use technology and I evaluate them based in part on their use of technology. Our faculty is comprised of many veteran teachers who love technology and these professionals understand that this is the way students learn best today."

When asked about some of Digital Harbor's most successful uses of blended learning, Eyer and teacher Jan Purnell provided some exciting examples, "In our science classes, the teacher may be talking about mitosis and the stages of mitosis before conducting a lab activity with an onion. She may have shown students a microscopic-projected view of the onion noting that this is what students should look for in their lab work. Following the lab activity, that teacher will show a time-lapse video sequence." Classrooms are often equipped with multiple technology-supported learning stations that may including mapping, video, database access or other instructional supports and this helps address students' multiple learning styles.

Digital Harbor's achievement results are worth noting. According to Eyer, the school's attendance rate averages 92%, compared with the district's 83.5% attendance statistic. Digital Harbor has maintained adequate yearly progress (AYP), with students coming from every part of the city with every level of ability. All seniors are required to apply to college and the school's senior graduation rate is 90%, contrasted with the district's 63% graduation rate.



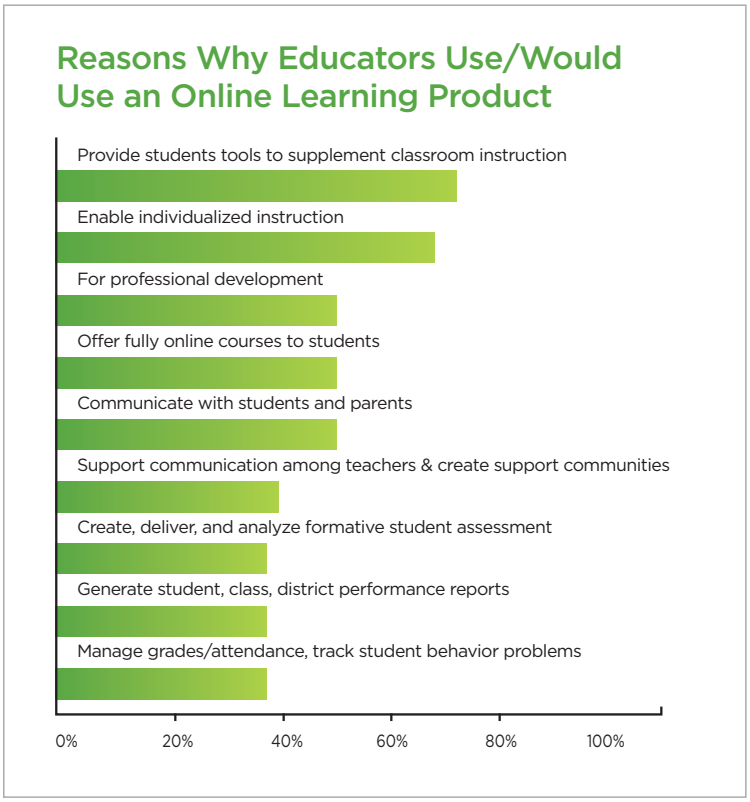
Graph A Source: Grunwald Associates, 2009 Market Research Study[10]

instruction, extending learning beyond the classroom, and offering tailored learning experiences (see Graph A). Each of these aligns strategically with the advantages of blended learning models and implementations.

The data also points out that online learning products and services are most frequently used to support instruction, both in terms of supplementing classroom teaching and learning and facilitating individualized instruction (see Graph B). Again, this supports the spectrum of blended learning models and indicates that blended learning is no longer a fringe practice and is now quickly becoming a core part of instruction.

Blended Learning Builds Capacity

Blended learning can help schools and districts build instructional capacity and, at the same time, realize significant cost efficiencies. For example, once digital content is developed or acquired, it can be shared by teachers within a building and throughout the district. Instructional components such as virtual field trips, web quests, and guest



Graph B Source: Grunwald Associates, 2009 Market Research Study[10]

Blended learning can help schools and districts build instructional capacity and, at the same time, realize significant cost efficiencies.

speakers who appear through video streaming or webinars can save districts money and expand students' experiences far beyond the walls of the classroom.

Teachers can be in more than one place at one time, thanks to technology. In some cases, this enables districts to provide students with optimum learning opportunities without adding staff. Around the country, some districts are experimenting with a four-day school week, which can help them achieve savings in facilities operation and transportation. To compensate for this shorter week, some schools are using online learning to extend and supplement course work.

Jed Friedrichsen, Chief Administrative Officer of blendedschools.net, a provider of blended learning opportunities for schools and students, offered an interesting example of how blended learning is expanding district capacity. He noted, "A small school district in Pennsylvania, Rose Tree Media, recently went from a half day kindergarten to full day kindergarten without having to expand their facilities. Instead of adding two classrooms to their school building, they decided to offer half day online so the students come to school for half of the day and then those students are online for half of the day."[11] Freidrichsen noted that blendedschools.net now serves a variety of school districts that use the organization's learning environment to expand and enrich their curriculum by providing a blended environment for their regular classrooms.

Blended learning has established itself as an accepted and effective learning model.

Professional Development

Professional development programs also benefit from blended learning methods. This often works to save teachers travel time and also minimizes the time that teachers have to be out of their classrooms. The blended model gives teachers the opportunity for independent study, while at the same time offering them some in-person learning time that helps foster collaboration and build stronger peer connections. The blended model also gives more teachers more opportunities to participate in professional learning, thanks to flexible scheduling and lower costs. Programs can be delivered throughout the school year and in some instances, a just-in-time model can address emerging training needs without greatly increasing costs.

In Henrico County, Virginia, professional development is offered on an on-demand basis, with video clips, learning lessons and follow-up lessons. If a principal wants to work with teachers, they can find appropriate lessons to help teachers build skills in a specific content area or teaching strategy. The district is also putting its own training information into this format as well, so staff and faculty alike can take advantage of flexible and effective professional development opportunities.

Blended Learning: Powerful Possibilities from a Credible Model

From expanding and enriching 21st century learning opportunities for students, offering teachers new techniques for personalizing instruction, delivering more effective forms of professional development, to transforming credit recovery, acceleration and other special academic programs, blended learning has established itself as an accepted and effective learning model. Blended learning gives districts a strategy for overcoming the barriers presented by limited resources, time constraints, and budget pressures. It also gives educators a new palette to craft updated curriculum that meets the needs and preferences of digital natives to learn more successfully in their technology-infused environment.

While there are a variety of blended learning models, there is not a single best approach. As seen through the examples and insights educators have offered here, the best model is the one that works best for students and teachers in their particular environment and that addresses their specific needs at the time. The models for blended learning are flexible and expansive enough to accommodate a wide range of learning needs and opportunities. Blended learning is an established, proven and effective way to deliver quality instruction. It gives educators and students a technology-based on-ramp to student achievement and richer, more rewarding learning experiences.

Endnotes

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10 Data from a 2009 market research study online learning usage commissioned by Blackboard Inc. and conducted by Grunwald Associates, an independent research organization.

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Blackboard

Worldwide Headquarters
650 Massachusetts Ave, NW, 6th Fl.
Washington, DC 20001
+ 1.800.424.9299, ext. 2427
+ 1.202.463.4860, ext. 2427

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