Teaching with technology

Educators' perspectives and recommendations for successful blended instructional strategies

evergreen education group

KEEPING PACE
WITH DIGITAL LEARNING

future OF **school**

About Future of School

As the first-ever public charity focused on access to quality education, Future of School is dedicated to mobilizing change in American K–12 education from a one-size-fits-all system to one that ensures all students reach their unbounded potential.

Our Student Scholarship Program rewards students for their courage to forge new learning pathways, giving them greater financial means to continue their education in whatever post-secondary school they choose.

Through the Innovative Educator Prize, we empower pioneering educators with grant funding that enables them to bring programs and tools into the classroom to transform the learning experience.

By amplifying technology's impact on students and educators, we inform, inspire and spearhead much needed change.

Future of School is an organization of the people, by the people and for the people that calls on students, parents, educators, and employers to band together to embrace and inspire the future of our society and prepare the workforce of tomorrow. Join the movement at futureof.school.

About Evergreen Education Group

The Evergreen Education Group provides a range of advisory, research, and analysis services to non-profit organizations, government agencies, and companies that are leading digital educational innovation. Our policy and market research has helped lay the groundwork for the growth of digital learning and informs legislators and other policymakers about the latest developments in the field.

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Foreword

It is the supreme art of the teacher to awaken joy in creative expression and knowledge.

– Albert Einstein

The educational needs of K-12 students have changed dramatically over the last century, yet the structure, environment, and pedagogy of today's classrooms often continue to reflect that which existed in schoolhouses across America in the early 20th century. A tendency toward passive whole-class lectures, a culture of distrust around standardized assessment, and the challenge of operational efficiency at the district-level have moved us away from the ideal expressed by Einstein above, that teachers and school should not merely guide students through successive levels of learning, but strive to develop each into lifelong learners.

The Foundation for Blended and Online Learning (FBOL) is committed to exploring ways that digital education can increase the quality of, and access to, personalized learning opportunities for all students. The thoughtful integration of technology into classrooms has proven to be a powerful catalyst, enabling data-informed roadmaps for learners at every level and a return to dynamic relationships between teachers and students.

Each of our research projects is rooted in a simple question. These questions are not developed to lead us toward a single answer or solution. Instead, we welcome a journey that arrives at multiple destinations so that we may share a number of perspectives with those invested in the future of teaching and learning.

In 2016, we explored the question, Why do students choose blended and online schools? The responses reflected the diversity of individual motivations leading parents and their children to explore new learning environments offering flexibility and individualized experiences.

This 2017 report is the result of asking, What is the evolving educator experience as policy, practice, and technology blend into a reimagined "classroom"? Where do opportunities exist? How are schools and districts supporting the professional development of staff using new tools and methods? What lessons can be learned from early-adopters? How are educators reframing the role of "teacher" relative to the contemporary learning experience?

As with all research, this report is the product of a team effort and would not be possible without curious, committed, and creative partners. First and foremost, we offer great appreciation to the Evergreen Education Group for their early and continuous shaping of this project and its execution. We also thank the Christensen Institute and The Learning Accelerator for their collaboration on the development of this work and insightful contribution to its survey of the educator perspective of the changing education landscape.

Amy Valentine

Executive Director
The Foundation for Blended And Online Learning

INTRODUCTION

TEACHERS ARE THE HEART OF EDUCATION, and by far the most important factor in determining the success of each student.

This statement is not controversial, and to many readers it may seem trite.

Yet much of the reporting on education technology overlooks this fact, as advocates report on how the latest technology is going to radically transform education with little or no thought to the role of teachers. Some technology proponents go as far as to suggest that teachers will no longer be needed in future classrooms.

Technology is transforming parts of K-12 education, from individual classrooms to entire schools. But it is not taking the place of teachers. Instead, technology is allowing teachers to work in new ways. In many cases technology supports incremental changes, for example by facilitating student collaboration on projects, or helping teachers provide rapid and consistent feedback to students. In the most innovative instances, technology supports new approaches to the use of time and space, student voice and choice, and the creation and use of student data. Teachers report being able to use technology to work much more effectively with individual students, and to extend learning beyond the walls and bells of the classroom. They also explain that technology brings challenges, and that the successful implementation of technology requires time, planning, and support.

HOW DO WE KNOW THIS?

Because we asked teachers. Over the past several months we surveyed hundreds of teachers who are using technology, including those who are bringing it into their classrooms on their own, and others who work in technology-based pioneering schools. We visited schools and classrooms, and spoke with teachers, students, and administrators. The teachers shared with us their stories of the challenges, promise, and successes of incorporating digital tools and resources into their classrooms.

This report tells their story. It includes survey results, extensive comments from surveys and interviews, and profiles of individual teachers. The profiles tell the teachers' stories in their voices, based on our interviews with them, their survey responses, and in some cases existing blog posts, videos, and additional sources.

We explore the experience of teachers in different stages and along different paths in their adoption of technology, but we do not value one stage or path over another. All teachers are working along their own paths. All have something to tell us about their journey.

Select teacher voices

Eleven teachers told us about their experiences in depth, to give readers a deeper sense for the views of a range of public and private school teachers who are at different stages of using technology in their classrooms.


OH
P16

Kate Oulton | **Art Teacher at Chagrin Falls Intermediate School**

Behavior and engagement are the best they've ever been, and student ownership and responsibility has dramatically increased since I started flipping my classroom.

NY
P17

Calina Fernandez | **4th Grade at Brilla College Prep Public Charter School**

The blended learning portion is a key component of our charter, but our culture and teachers are central. If you remove technology this would be a different school on a day-to-day basis, but the culture and the quality of teachers and administration would still be there.

PA
P18
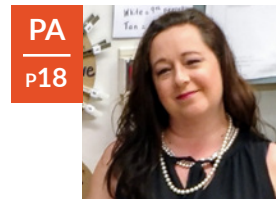
Kristin Shotko–Troiano | **Language Arts and Science at Stroudsburg Middle School**

I truly believe in this educational approach. When the district asked for teachers to pilot blended learning, I instantly knew this was something I wanted to do. I believe that blended learning is the way to go for students' education and life skills.

CA
P24

Kalyan Balaven | **Dean of Equity and Inclusion at The Athenian School and Bay Area Consortium**

If I had one meditation for the course, it is: go with the flow. Plan your course, but allow for change to happen and make room to be flexible enough to create spaces for students to navigate the uniqueness of their own schedules.

CA
P25

Kelly Schwirzke | **High School at Oasis Early College**

Teaching in this unusual instructional model has helped me continue to evolve my teaching. My thought process has shifted in how I think about accessing curriculum, delivering instruction, evaluating learning, and use of space and time.

ME
P26

Peter Servidio | 4th Grade at St. Dominic Academy

Kids who don't have the foundation for the subject they are working on get frustrated. They are trying hard, but not finding success, so they end up giving up. Blended learning takes this frustration away. It allows a teacher to say to the student, "This is where you are. Your effort is noticed. You are learning and growing. Be proud of your progress."
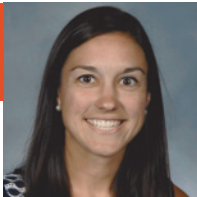
WI
P32
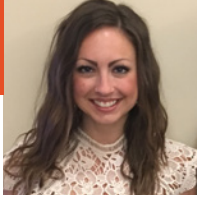
Alex Griffith | High School English at Oshkosh Area School District

I asked my students: why did they hate school? They said that school forces them to conform to everything. We tell them when to speak, when to go to the bathroom, and what they have to learn. We don't instead ask what they want to learn, and how to learn it.

IL
P33

Kara Macak | High School Math at Maine West High School

I am most excited about the opportunity to have students work at their own pace and do more problem-based learning activities. However, I think the most difficult thing for me will be to organize the problem-based learning activities and make sure they run smoothly.

VA
P39

Sarina Marine | 3rd Grade at Discovery Elementary School

I would tell teachers considering a shift to blended learning that it's not as scary or chaotic as it seems! The benefits greatly outweigh the negatives or failures you may perceive as you make the shift. It was hard at first, and we are still learning, but I know improvement will come with time and experience.
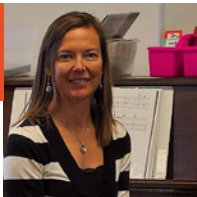
NY
P40

Chris Freeburg | Forensic Science at Fowler High School

As we continue to invest time and money into educational technology and pedagogical support, we need to assess the success and wisdom of our efforts. As in the classroom, effective educational leaders use data to support their decision-making.

UT
P41

Kathleen Berglund | 2nd Grade at Diamond Valley Elementary

It has become a necessity for our students to go beyond the fundamentals of reading and writing and to also include technological skills to be successful and navigate the current changing, media-driven environment. Teachers need to practice, attend workshops, go to professional development and keep learning themselves.

Methods and terminology

This study explores the experiences of a range of teachers who are using technology in their classrooms.

Teachers described their experiences and opinions to us in several ways. We posted a survey online and received 664 responses. Most respondents answered most questions, such that we received about 650 responses to all questions except for the four questions in which we asked for short text answers. These open-ended questions received an average of just under 500 responses each, for a total of 1,978 text responses, ranging from a few words to a short paragraph.

The survey respondents collectively represent:

- Traditional public schools, charter schools, alternative education programs, and private schools. Most teachers (N=425) were from traditional public schools.

- All grade levels, with 70 teachers from grades K-3 and more than a hundred each from grades 4-6, 7-8, and 9-12. A small number of respondents (N=16) teach adult learners. (Figure 1.)

- A variety of subject areas, including English language arts (N=125), math (N=115), science (N=81), and electives including world languages (N=66) and social studies (N=50). An additional 128 respondents report that they teach several subjects, as would be common among elementary school teachers. (Figure 2.)

- Thirty-eight states. (Figure 3.)

- A range of teacher experience levels varying from 15% of respondents who have one year or less of teaching with technology, to 15% who have four or more years of experience and have received extensive professional development. The other 70% of teachers fall in between those extremes. (Figure 4.)

- A range of school support of education technology, although the participants skewed towards schools that are more experienced with technology than average. One in four respondents said their school uses blended learning and that the teachers receive extensive professional development, which is far higher than would be in a sample that is representative of all teachers in the United States. At the other end of the spectrum, one in four teachers said they are "on my own" or "mostly on my own" and receive, at most, limited support from their school. (Figure 5).
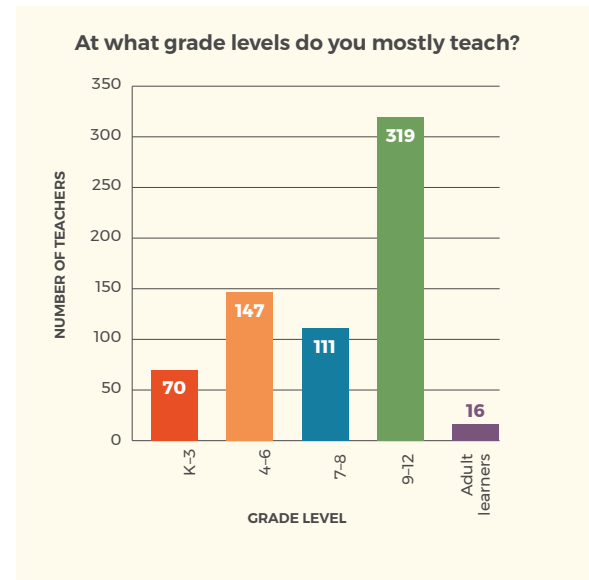

At what grade levels do you mostly teach?

Figure 1: Survey respondents represented all grade levels, although with a higher proportion from high school than elementary school.

What subjects areas do you mostly teach? *(select one)*
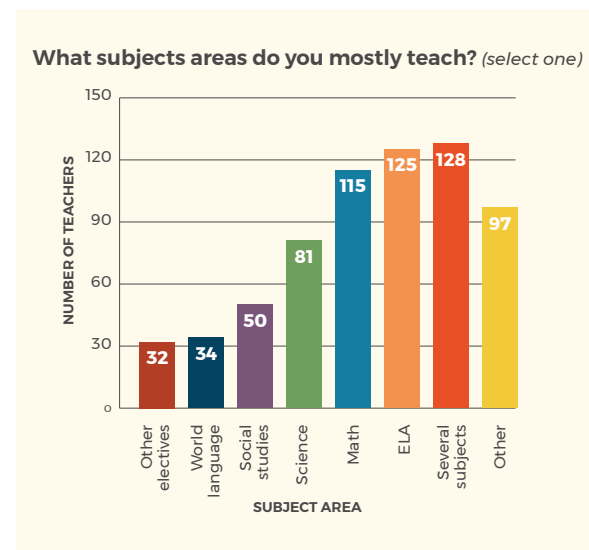
Figure 2: Survey respondents represented a variety of subject areas.

The set of teachers responding to the survey is not a nationally representative sample because the survey was available to any teacher who wished to respond, and it was publicized through means that were likely to reach a disproportionate number of teachers who have more experience than average in teaching using technology. We recruited teachers to take the survey by asking organizations including the Clayton Christensen Institute, The Learning Accelerator, Highlander Institute, and others to post the survey link in newsletters and in emails to their contacts. We also asked our contacts in schools and districts to send the survey link to their teachers. Therefore, the results should be interpreted as representing the views of teachers who are further along in their adoption of technology than the average teacher.

In addition to the survey, we also spoke with 45 teachers and seven administrators in a combination of phone interviews and face-to-face interviews and focus groups during school visits and conferences. Some of the interviewees had responded to the survey. In these cases, we used the interviews to investigate their survey answers.

For this study, we characterize blended teaching as using a combination of face-to-face instruction and digital content, tools, and resources. Our definition does not include any element of student control over content or pacing, the use of data by teachers, or other factors often used in defining blended learning. We chose this approach purposefully because we sought to receive responses from a wide range of teachers, including those who are using technology but do not define themselves as using blended learning. In fact, we are particularly interested in the experience of teachers who began their technology journey in traditional public school classrooms, often when they were given computers and perhaps with limited support, and have increasingly incorporated new instructional methods into their teaching.

We have made minor edits to some teachers' open-ended text responses for ease of reading and for privacy, for example changing verb tenses, eliminating student names, and so forth. We have done this only in cases where we are confident that the slightly revised word fully and accurately captures the intent of the original response.
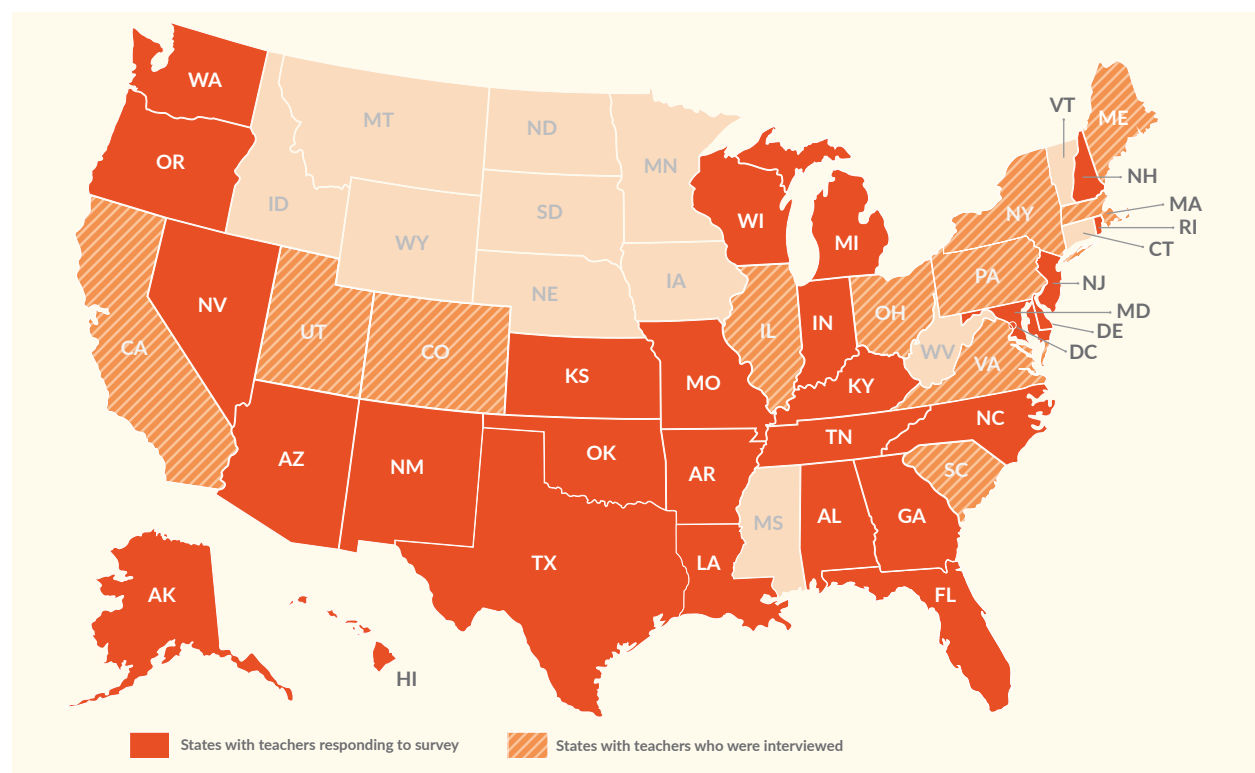

Figure 3: Teachers from 38 states (shaded) responded to the survey, and we conducted site visits, focus groups, and/or phone interviews with teachers from 11 states.

Teaching with technology experience

YEARS EXPERIENCE / PROFESSIONAL DEVELOPMENT

1 year
- and little formal PD: 15%
- and formal PD: 19%

2–3 years
- and little formal PD: 15%
- and formal PD: 26%

4+ years
- and little formal PD: 10%
- and extensive formal PD: 15%

PERCENTAGE OF RESPONSES IN EACH CATEGORY
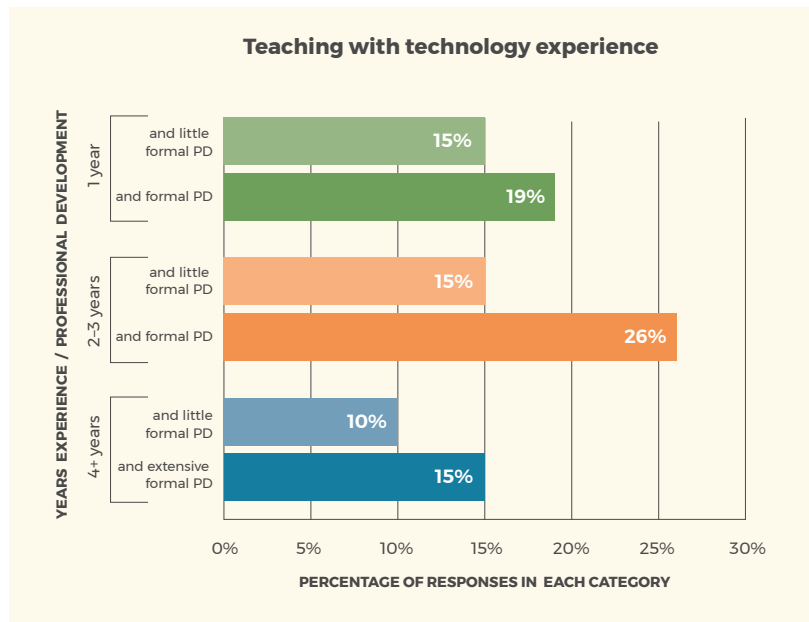
Figure 4: Survey respondents have a wide range of experience in teaching with technology, from less than a year with little formal professional development to more than four years plus extensive professional development.

School support

- On my own, limited school support; few teachers using BT: 8%
- On my own, some school support: 16%
- Traditional instruction, BT support from school: 20%
- School supports BL; significant help in my BT: 30%
- School uses BL; BT practice supported, extensive PD: 25%

PERCENTAGE OF RESPONSES IN EACH CATEGORY
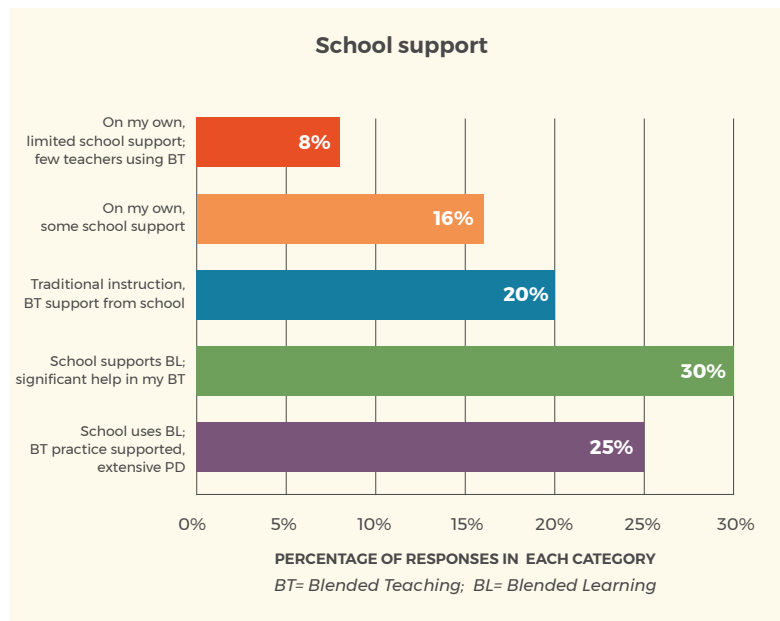
BT= Blended Teaching; BL= Blended Learning

Figure 5: Survey respondents have a wide range of support in teaching with technology from their school.

The K–12 educational technology landscape is diverse

Teachers are operating under a variety of different circumstances in their use of technology. At the extremes, some teachers are largely on their own in their classrooms, using digital tools and resources despite having a limited number of existing computers, slow or intermittent Internet access, and no funds available for purchasing online content. Other teachers are in schools that have prioritized the use of technology. In these teachers' classrooms, all students have a device which they take home, students access the Internet at consistently high speeds, and the district provides digital content and student data dashboards.

Some digital resources, such as online content, can be provided by the school or the teacher. Other tools, such as computers, are almost always supplied at the school or district level. Instructional strategies linked to the use of digital tools and resources, such as the creative use of time and space, individualized pacing, and competency-based progression, may be developed by teachers individually, or planned and implemented by the school or district.

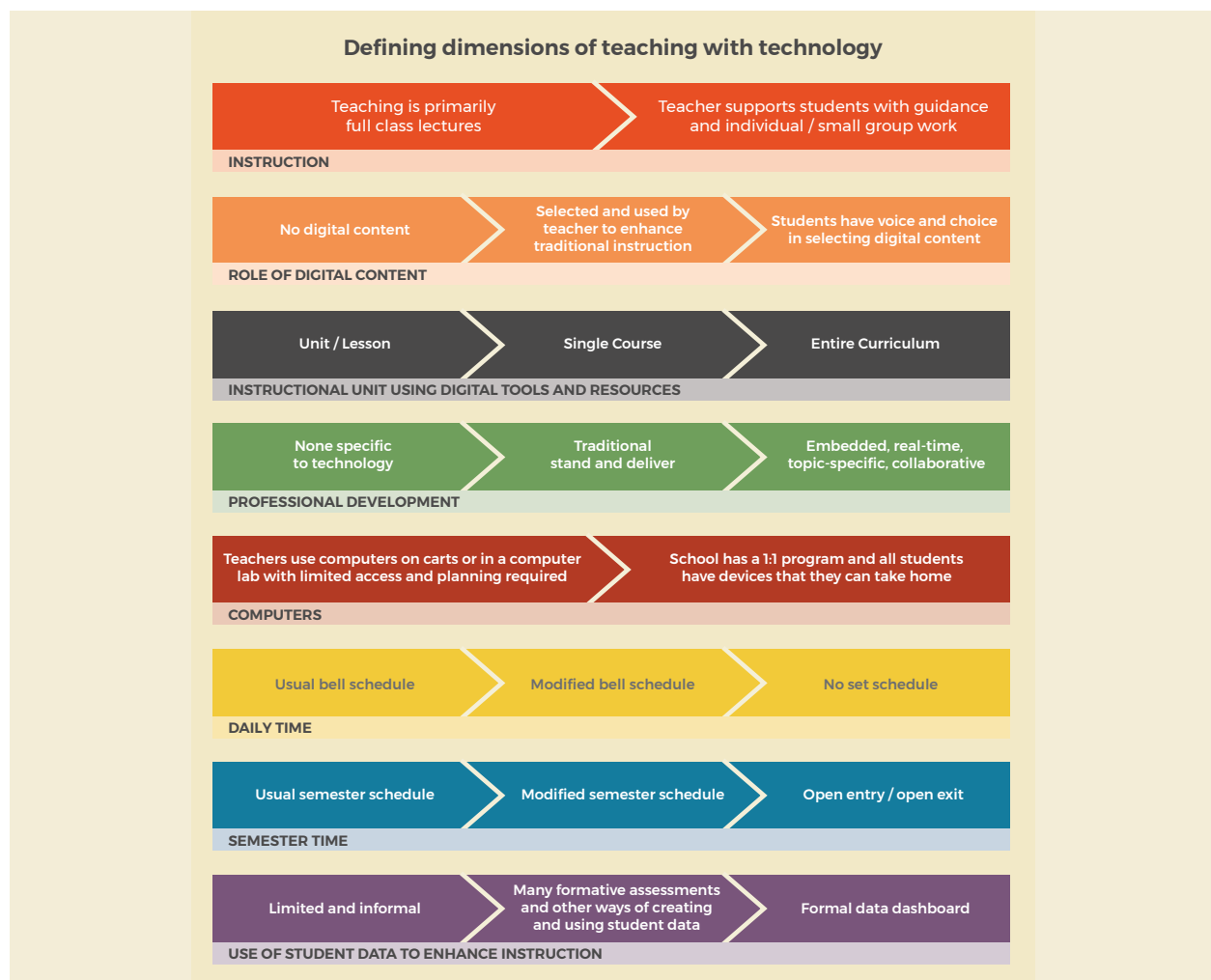These and other defining dimensions are shown in Figure 6.

Figure 6: Defining dimensions of teaching with technology.

Teaching with technology: overview

Using technology provides a range of benefits to teachers and students

Using technology to support teaching is not a panacea. Technology can be poorly planned, badly implemented, or unsupported by professional development.

But teachers report that technology can be used successfully. This section explores the main successes and benefits that teachers report from using technology.

Teachers' use of technology ranges from simple to complex.

- Nearly all respondents (97%) said they are using computers in their teaching. As explained earlier, the sample is not representative of all teachers, and this high level of computer usage is not a surprise in this sample. It provides a comparison to the usage levels of the other elements of technology.

- Between 64% and 66% of respondents report that they are using each of four types of resources and strategies: student creation of documents, student collaboration, free online resources, and online resources purchased by the school or district. This finding demonstrates that use of open educational resources and purchased resources is not either/or, but that in some cases teachers are using both free and purchased materials.

- About 60% of respondents said they regularly use formative assessments (61%) and/or differentiated instruction (58%).

- Half (49%) use a learning management system such as Blackboard or Canvas.

- 41% use a student data dashboard, which may be part of a learning management system, student information system, skills software, or other technology platform.

This section discusses the key themes and findings emerging from the combination of the survey, interviews, and teacher profiles. Quotes in italics are from the survey responses or interviews, and the numbers and percentages are based on the survey.

These numbers represent a continuum of use of technology, with greater numbers of teachers using technology in relatively simple ways, and slightly smaller numbers using technology in more complex ways. For example, 66% of teachers are using technology to replace and enhance formerly paper-based activities (creation/collaboration), but only 41% are using a student data dashboard. As usage *types* become more complex, towards formative assessments, differentiated instruction, and using a data dashboard, usage *levels* decrease. (Figure 7.)
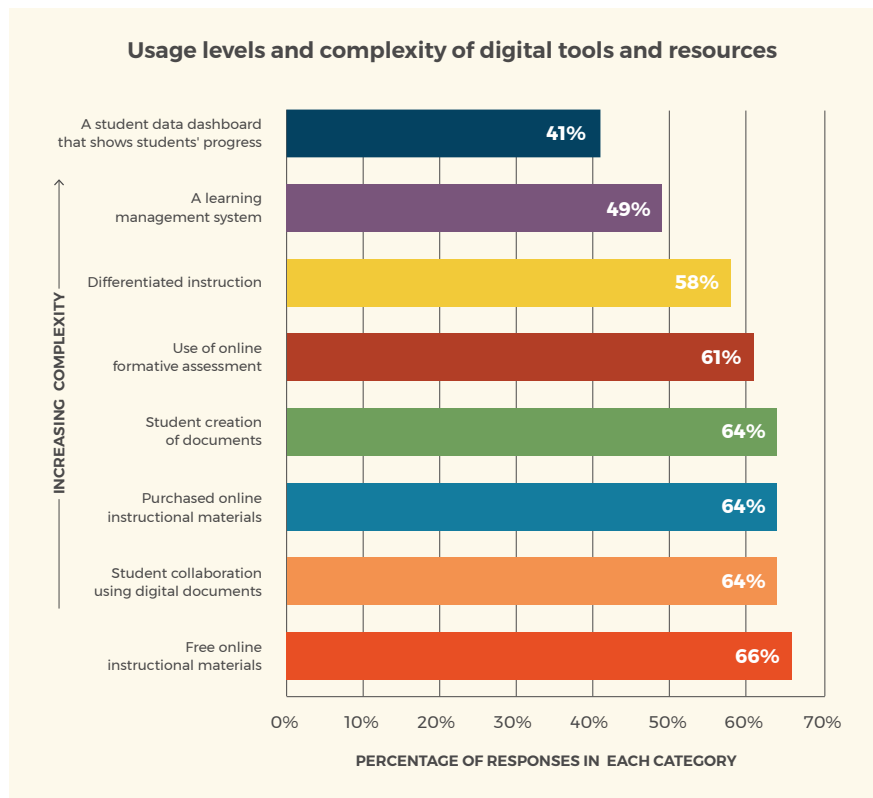

Figure 7: Survey respondents report lower levels of usage of relatively more complex digital tools and resources such as learning management systems and data dashboards.

Most respondents believe that their teaching practices have changed by using technology, and their responses track closely with their views on whether their students' engagement and/or academic performance has improved. (Figure 8.) For example, 20% said their teaching has been transformed, and 18% said that their students' experience has been transformed. Because the survey is not a representative sample of all teachers, this finding does not mean that all teachers using technology are experiencing these outcomes. Nor is it a surprise that the teachers who believe their teaching has been transformed would also believe that their students are benefitting.

Has technology impacted teaching and learning?

■ Change in teaching ■ Change in student performance

Response	Change in teaching	Change in student performance
1	3%	3%
2	6%	10%
3	28%	25%
4	43%	44%
5	21%	18%

PERCENTAGE OF RESPONSES IN EACH CATEGORY

RESPONSES FROM 1 (NOT VERY MUCH), TO 5 (COMPLETELY TRANSFORMED)
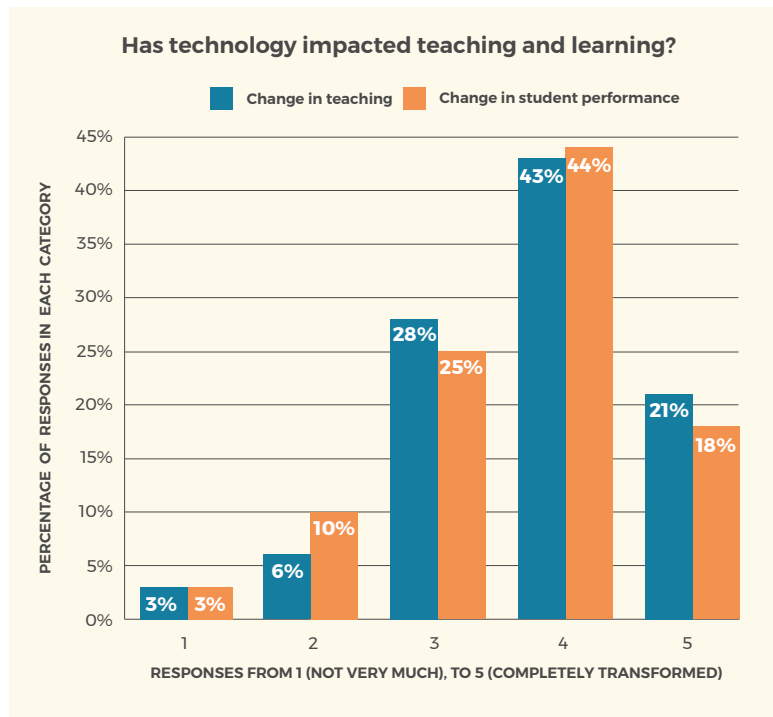
Figure 8: Many survey respondents believe that their teaching and student performance has been impacted by using technology.

The more useful findings are that the teachers most likely to report successful changes in their teaching practices are those who report 1) being more experienced with technology, and 2) having higher levels of support from their school. Teachers who indicate success with using technology in response to the question described in Figure 8 were likely to have more experience and greater support from their school, compared to teachers who felt that technology had not had much impact. These differences are statistically significant, and suggest that teachers need both significant time (measured in years) and professional development, or other forms of support, to successfully use technology. (Figures 9 and 10.)

Teaching with technology as a transformational experience

■ Answered 1, 2, or 3
(not at all to somewhat transformed teaching)

■ Answered 4 or 5
(completely transformed teaching)

BT = Blended Teaching
PD = Professional Development

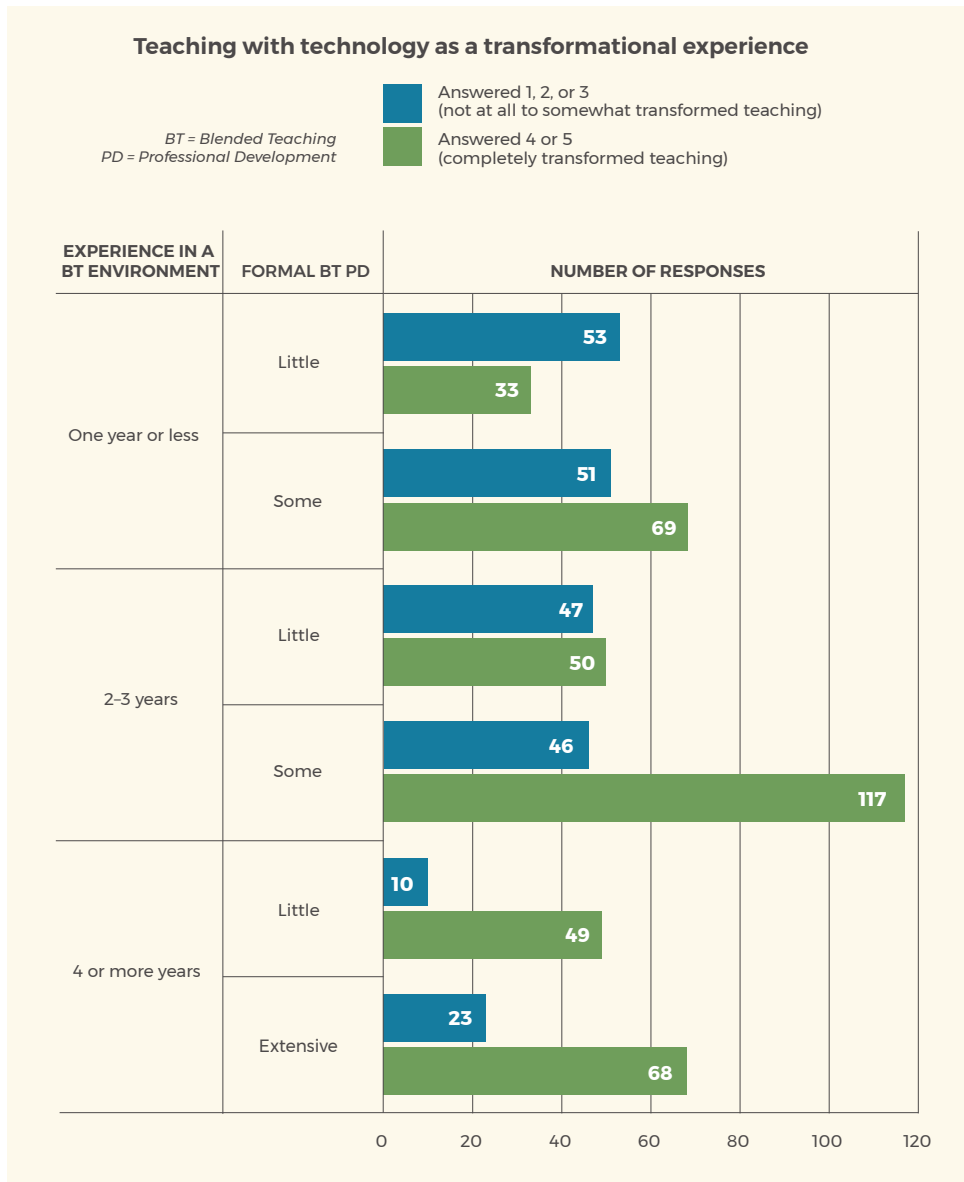| EXPERIENCE IN A BT ENVIRONMENT	FORMAL BT PD	NUMBER OF RESPONSES
One year or less	Little	53 / 33
One year or less	Some	51 / 69
2–3 years	Little	47 / 50
2–3 years	Some	46 / 117
4 or more years	Little	10 / 49
4 or more years	Extensive	23 / 68

Figure 9: Teachers who have more experience teaching with technology are more likely to say that technology has transformed their teaching and student performance.

How much support do you have for your use of BT?

BT = Blended Teaching
BL = Blended Learning
PD = Professional Development

Answered 1, 2, or 3
(not at all to somewhat transformed teaching)

Answered 4 or 5
(completely transformed teaching)

I'm on my own with at most limited support from my school; few teachers in my school are using BT
- 19
- 29

I'm mostly on my own but get some limited support from a school/district leader, or other teachers
- 61
- 40

My school's instruction is fairly traditional, but I get some formal support in BT from my school
- 56
- 67

My school formally supports BL; I get significant help in my BT from school leaders and teachers
- 59
- 126

My school uses BL and my BT practice is fully supported by my school including extensive PD
- 36
- 125

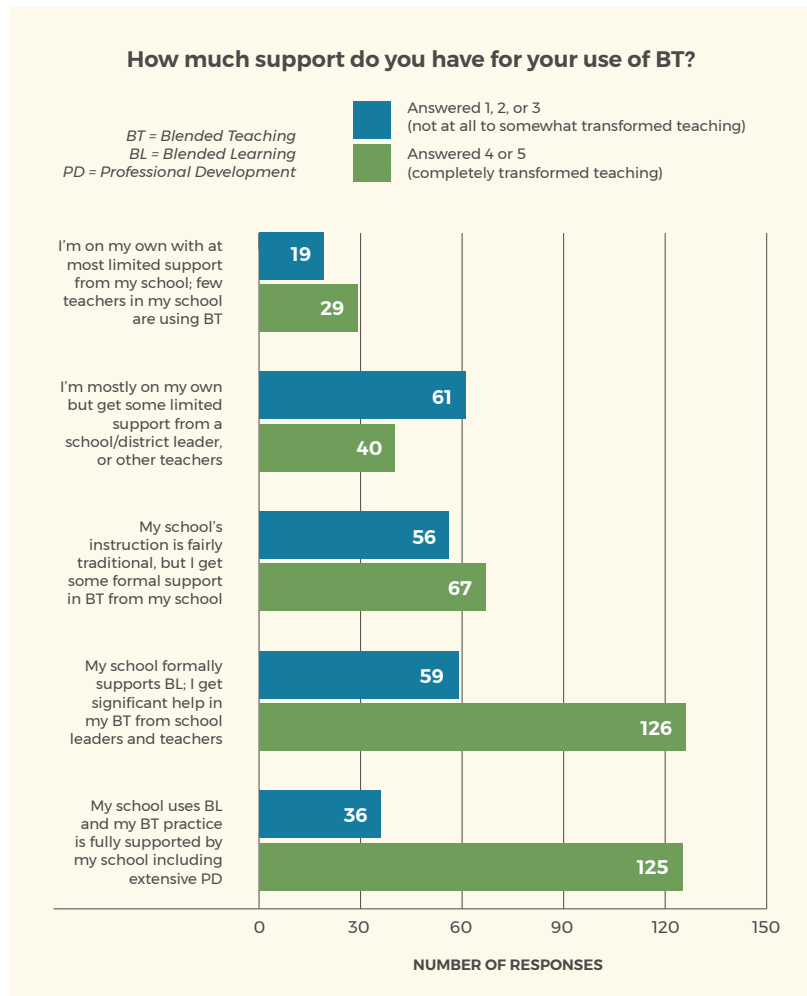0   30   60   90   120   150

NUMBER OF RESPONSES

Figure 10: Teachers who have more support from their school are more likely to say that technology has transformed their teaching and student performance.

Kate Oulton

**4th–6th grade Art
Chagrin Falls Intermediate
School**

Chagrin Falls, OH

Chagrin Falls Intermediate School is one of four schools in the Chagrin Falls Exempted Village Schools district, located six miles east of Cleveland, Ohio. The district has aimed to integrate technology into its instructional practices, in ways that bolster content acquisition and teach 21st century learning skills. Every student in the district receives a district-owned Chromebook and is able to take the device home. The computers are used in a variety of ways in the classroom, with a focus on providing students with multiple opportunities to research, collaborate and create. As Kate Oulton describes, teachers have different approaches to how they use technology. She has focused on the flipped classroom approach in her art class for students in grades 4–6.

" *I love my flipped classroom.* A flipped classroom has allowed us to maximize time on task in Art. Students are never waiting around because they are ahead or behind. Before I changed my approach, I found that I was constantly repeating myself, whether it was specific instructions on a project, or how to wash a paintbrush. I started out making videos on my computer's web cam and broke every project down into steps. A student would watch the introductory video, watch a technique video, do the task, get checked, and repeat this process.

Behavior and engagement are the best they've ever been, and student ownership and responsibility has dramatically increased since I started flipping my classroom. I am free to help my students with authentic creative problem solving rather than repeating myself constantly. Before the flipped classroom, I had students asking me all the time "Is this right?" and "Is this good?" But this is art—there is no wrong or right when creating! After I started using the flipped classroom model, I found I was getting more questions like "Can I try this?" or "Can I do it this way instead?" This has helped students create more authentic art that they can call their own.

The flipped classroom has a lot of potential to enable organic projects and allow for diversity in student artwork. Discipline-based art ed can sometimes focus less on creative and artistic behaviors and more on technique and end product. Conversely, the growing movement of choice-based art education truly honors all students as artists instead of telling them exactly what they will create and how to create it. Students make art that is important to them, and they figure out how to do it.

The most difficult part is making sure kids do their videos for homework and developing accountability for this. Students are all going through projects at a different pace. I created a calendar that would act as a pacing guide for them, but still with some flexibility. I posted this calendar in Google Classroom as well as having a physical calendar in the classroom. We talk about where they should be in the project, and then I give a soft deadline and hard deadline one week later. This gives them a chance to work on their time management and have some control over their pace.

It would help me if other teachers were doing flipped classroom in my district. Our district is 1:1 with Chromebooks, but right now I think I'm the only completely flipped classroom. It would be nice to be able to collaborate and also not be the first and only. The district is very supportive and all the teachers are Google certified, but I have not had any professional development that is specifically geared towards blended learning models.

It was a massive amount of work at first. I wish I had started earlier in the summer. It would have made the transition easier because I make all of my own videos. I also wish I had known how to create digital assessments the first year because that has streamlined grading significantly. I have almost 500 students come through my classroom, and this has made assessment and organization much easier and efficient.

Calina Fernandez

**4th grade
Brilla College Prep Public
Charter School**

Bronx, NY

Brilla College Prep Public Charter School opened in fall of 2013 with an inaugural class of 203 students in grades K–1. The school has added one grade per year, and as of school year 2016–17 offered grades K–4, with a goal of eventually offering all grades K-8. Each class has two teachers in the room working with 25 to 30 students, allowing for small group and individualized instruction. Every classroom has 15 computers, which students use during math and English primarily. Students rotate between using the computers, working with each other, and with the two teachers. Digital programs provide targeted lessons for each student, allow teachers to work with smaller groups, and provide actionable data on each student's progress.

" I grew up in the Bronx, in a community as diverse as our school. I had been at another school and then came to Brilla as one of founding teachers. I have taught at several different grade levels to gain experience across elementary school, and see where I fit best.

The biggest factor contributing to our success is the culture. Teachers want to be here, and enjoy each other's company in and outside of school. Students love being here. We have a customer service approach for parents and families and we are in constant communication with them, mostly by phone and also with school visits and events. How can we work with students if we're not in touch with their families? We have had 100% of parents come to report card conferences over all four years that we have been open, this is a testament to our approach. School and home can't be two separate things. When they work together we have success for students. We are always calling parents, and not just for bad reasons. It's important that they hear good news from us too. We ensure that we are in constant communication with parents about both academics and behavior, in order to work together to help our scholars improve.

Blended learning at Brilla is different for different subjects. One math program is directly correlated with our classroom modules, giving students the opportunity to practice math problems individually. Another math program allows students to pass through short levels, so in a 30-minute session the student is moving through lots of levels, keeping them excited, engaged, and consistently learning. For our reading program, scholars work on specific skills including comprehension, word analysis, vocabulary, text fluency, and overall reading. The data from our reading program is very useful in informing our guided reading instruction. In our independent reading block students use an online program as well as books from the classroom library. On the program, the students take a quiz to figure out their Lexile level, then as they read the program suggests different books to build their level of reading. Students can search for a book on any topic that interests them. I use this heavily at the start of the year for students who may not be as engaged in reading as other students and it helps to build a love of reading. Across all programs we see the data to know how each student is doing, and we use this data in our direct instruction. We also have a high ELL population, so some classes are piloting a program to help ELL students in language acquisition.

I didn't use technology like this in my previous school, and we get lots of training here. Teachers here have to be more intentional about how we use data most effectively. Even with the training and the support from the school, some of this is about me learning it myself and taking the time to explore the program itself as well as how to maximize the data I receive from these programs.

The blended learning portion is a key component of our charter, but our culture and teachers are central. If you remove technology this would be a different school on a day-to-day basis, but the culture and the quality of teachers and administration would still be there. Once you have the right vision, and the right people, anything is possible.

Kristin Shotko-Troiano

6th grade Language Arts and Science
Stroudsburg Middle School

Stroudsburg, PA

Stroudsburg Middle School is one of seven schools in the Stroudsburg Area School District. The middle school enrolls about 1,100 of the district's 5,200 students, in grades five through seven. Stroudsburg is a small town in the Pocono Mountains of northeastern Pennsylvania, surrounded by many rural communities. The district has begun to incorporate blended learning, seeking teachers to pilot blended learning and working with the Hybrid Learning Institute (HLI). Kristin Shotko-Troiano volunteered as one of the blended learning pioneers, and has used a station rotation model of blended learning, also incorporating the use of Google's G Suite for Education and online content, in her classroom.

" I truly believe in this educational approach.
When the district asked for teachers to pilot blended learning, I instantly knew this was something I wanted to do. I believe that blended learning is the way to go for students' education and life skills. I see myself and the other volunteer teacher as pioneers for blended learning, being the first in the district to implement blended learning in the classroom. It was challenging rolling out the technology and learning how to teach in a blended learning environment at the same time. I had access to an HLI consultant and an online course, attended an HLI workshop, and visited a school that had been using hybrid learning for several years. The challenge came when there was an issue in the moment. Though I had the support of my Superintendent and principals, there was not an immediate person available who had experience in blended learning to help me reflect and improve on my implementation.

I have noticed an enthusiasm and an engagement
during small group, collaborative, and tech rotations that I have not seen in previous lessons done with the traditional approach. I typically rotate three stations: small group, technology and either collaborative or independent work. I only have 42-minute classroom periods, so timing can be a challenge. Having consistent routines and procedures that are well-established is essential.

We overcame limited required resources and training, which helped us make a lot of progress in our first year. We didn't start with a set online program or digital lessons initially, so working on data analysis and differentiation was difficult to do while simultaneously learning how to implement the blended learning model. We had to teach ourselves quite a bit. This year I concentrated on teaching students the materials and programs and establishing the way I wanted the station rotation to run. I feel that I lacked the background skills and a required program to implement the data aspect this first year as well as I would have liked. I know that the fidelity of implementation is vital to its success and data analysis is a key component, but I know that will improve with time. I am going to continue with this approach, and as the district continues to roll out blended learning with more teachers, there will be more resources and learning opportunities available.

Growth mindset and student choice is something I try to implement in my classroom. Every week I post an agenda with assignments, projects, and rubrics in Google Classroom that will be due by the end of the week. It is up to the students to manage their time. I also give students choices on projects, from the way they want to design and present, to choosing the resources they want to use.

I wish I started using Google Classroom more
and taught lessons on it in the beginning of the year so that students and families would be more comfortable with this resource more quickly. I had no idea the difficulty some students would have with getting assignments to me using technology. An additional challenge is that using Google Classroom is optional in my district. Many students come with little knowledge and I may be the only teacher during the year who requires them to monitor the postings and turn in work on Classroom. This flexibility can also be challenging for the parents who may end up having to check different locations to monitor and support their child throughout the school year. I plan to implement training during Open House to help with these challenges.

Teaching with technology: Benefits, challenges, and recommendations

The survey asked four open response questions from which the quotes throughout this report are taken:

What is the most valuable way in which adopting blended learning practices has impacted your teaching?

What has been the most difficult or disappointing aspect of adopting blended learning, relative to your teaching?

What would help you improve your blended learning teaching practice?

Looking back at your shift towards teaching using blended learning practices, what do you know now that you wish you knew when you were just starting?

Teaching with technology provides benefits to teachers and students

KEY FINDINGS

Teachers value the ways that digital tools and resources allow for student content creation and collaboration. Teachers encourage students to use computers collaboratively to create documents, spreadsheets, and presentations, which they believe leads to greater student engagement.

TEACHER COMMENTS

The idea that students can connect in an academic way using different programs and working off a shared document is the most valuable experience I have witnessed. I love to see my students collaborating with one another.

I have been able to give my students more opportunities for collaboration through creation and collaboration projects. Overall, I feel that my students are more engaged.

I believe the techniques I have incorporated in class have helped my students learn the importance of working together and how they can achieve/learn more by helping each other.

Learning management systems and digital tools such as online quizzes provide teachers with increased student achievement data. Formal assessments or quick informal quizzes at the start of a class allow the teacher to take the pulse of the room and understand where students may need help. This instructional strategy can be implemented without using computers, but online quizzes allow for much quicker assessment and data collection. Consistent creation and analysis of student data allows teachers to focus on student growth.

Technology has provided me a great opportunity to better meet the child where the child is. I am a nerd, and I really enjoy analyzing data, finding the exact skills that a student needs remediation or extension on, and designing instruction that is more tailor-fit for that individual student.

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I now have immediate feedback on where my students stand. I also have the tools to provide 1:1 support because the digital content allows me a chance to differentiate appropriately for each student while I conference with other students. It is a beautiful cyclical process!

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I am able to evaluate student data and use it for the purpose of differentiated instruction. I can teach in smaller group settings rather than whole group and ensure my students understand key concepts and vocabulary.

Technology allows teachers to better differentiate learning between students, and personalize instruction for each student. Some teachers divide students into different groups, such that the teacher can work with a smaller group of students, while other students are working on computers. Because of the increased use of assessments, and individual student data, teachers associate blended learning and technology with a focus on student growth.

Blended learning has allowed me to work with smaller groups of students and to give students more individualized learning. Teaching in small groups has also allowed me to address the diverse needs of all the students in my classroom.

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I am able to focus on teaching all students in my classroom instead of just teaching to the middle. I have more time to work with all levels of students individually each day!

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Heightened my level of consciousness about the use of student data; differentiation; student choice and pacing---exposed me to a plethora of resources from which I or the students may select the best tool to use based on the goal/purpose.

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Blended learning emphasizes individual growth and not proficiency.

Technology helps teachers to give students more control over their learning. Teachers often find that when they trust students with a higher level of control, students respond positively.

Allowing students to set their own pace, more than any other strategy I've seen, gets students to take ownership of their learning most quickly and most deeply.

I foster and develop student independence in learning and growing. I set high expectations of my students and hold them accountable when having discussions with them about their data.

Blended learning has increased student engagement dramatically. It has enabled my co-teacher and me to spend much less time delivering whole group instruction because we know students will be engaged in meaningful activities, allowing us to provided targeted instruction in small groups or with individual students, based on their needs.

Online content allows students to choose from different information sources, giving students increased voice and choice. The teacher guides this process to varying levels depending on the student, as appropriate.

Blended learning allows students to work at their own pace and to be as creative as possible. They have choices, and I feel that it has helped them become leaders in the classroom. It has also made them more accountable for their learning and more proud of their accomplishments.

Students see that they have a voice and choice which helps them feel a part of their learning process.

Students have more ownership for their learning because they can choose their path based off immediate feedback.

Using digital tools improves efficiency of grading, distribution of instructional materials, and other aspects of classroom management. Digital tools also help teachers work with students who miss time due to sickness, sports, or other reasons.

It has significantly simplified distribution of materials, drastically reduced paper waste (turn-in is 100% digital), made it easier for me to grade papers and provide feedback.

What a difference it makes when a student is absent! Lets me organize my curricula as I was drowning in files and lesson plans as I teach 9 different curricula during the school year.

Teachers in schools and districts that have formal technology programs extend learning beyond the classroom walls and the hours of the school day.

I do all of my quizzes, assignments, demos, grades, etc. in the learning management system so that students have access to the class at all times. They can go home and work on homework material that they may not have finished in the classroom.

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It has allowed students to have access to the curricula 24/7 so they can watch and re-watch videos if they forget something.

Although not a new concept, the flipped classroom model allows teachers to focus class time on more difficult ideas and hands-on work while assigning basic concept acquisition for homework. The practice of learning at home (e.g. reading the textbook) and reserving activities for class time has been used for generations, and the recent concept of "flipping the classroom" is often overhyped. Still, to the extent that online homework provides data to the teacher to better understand the level of each student's understanding, the flipped classroom approach can be valuable.

Blended learning allows the most valuable time (with students) to be used on the most productive practices (one-on-one, small group), and the least effective practices (lectures) to be done outside the classroom, and able for students to revisit at any time.

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I can now utilize the face to face time much more, to make it meaningful. The students have the background knowledge so when we are face to face we get to really dive into projects and service learning.

Differences exist in the ways technology is used between subject areas and students.
By far, math teachers use more online resources, followed by ELA. However, digital tools and resources are used in a wide variety of subject areas.

Flipped classroom has allowed us to maximize time on task in art class. Students are never waiting around because they are ahead or behind. Student ownership and responsibility has dramatically increased. I am free to help my students with authentic creative problem solving rather than repeating myself constantly.

It has helped to ensure students do more high level writing. I can hold them accountable at a higher level knowing they always have spelling and grammar assistance.

As a special education teacher, I feel that I am able to teach my students when I am not even there. The blended learning that they do online has given me control over what they are learning while I am able to teach another group. I feel I am getting double the amount of teaching to my students.

As a resource teacher, the best benefit has been that all kids get small group or individualized support now which means that my students don't stand out as different, instead all kids are getting what they need.

Using online courses and communications tools opens teachers to new opportunities and directions in face-to-face settings.

I am now more focused on the process of learning and how students learn versus simply content. I have always had an eye on both, however designing, implementing, revising, reflecting on my online course has really inspired me to think deeply about the purpose of education.... helping students learn and think critically. I have re-examined the way I teach, deliver content, ask students to do things in my face-to-face courses based on this idea of students getting more practice—to learn, to think critically, to apply...I rethink a lot of the work I ask students in my face-to-face classroom to do to optimize the process of learning.

Kalyan Balaven

**Teacher: Beats, Rhymes & Life:
An Exploration of Hip-Hop, its
History & Global Impact**
Dean of Equity & Inclusion

*The Athenian School and Bay Area
BlendEd Consortium*

The Bay Area BlendEd Consortium was founded by five private independent schools (The Athenian School, The College Preparatory School, Lick-Wilmerding High School, Marin Academy, and The Urban School) to jointly offer a set of blended classes combining in-person and online instruction. Students meet face-to-face between three and five times in each course and where appropriate to the subject, courses take advantage of the unique learning resources of the Bay Area. The consortium helps the member schools prepare their students for the changing methods of instruction and communication they will see in college and in the workforce, while preserving the core relational culture that lies at the heart of their educational missions.

" I've been a teacher for nearly two decades,
and became interested in BlendEd because it allowed me to reach beyond my school and meet students from other schools while using a modality of learning that meets students where they already gather most of their information. I also was excited to teach a course on Hip-Hop, because it allowed me to both teach to my passions and model the marriage of scholarship with authentic expression.

I use the course's f2f time to build a sense of community and use various techniques that have worked for me in my teaching to help students connect with each other. I used the last few f2f meetings to work in a recording studio and create new music together. I meet students at various Bay Area BlendEd School campuses, and we've gone to studios for the recording sessions.

I've been asked by students of other schools in the BendEd Consortium to write college letters of recommendation. I've been honored and take it as a sign that the connectivity is working through the courses we teach.

An unforeseen challenge has been the scheduling nightmares that come from trying to make face-to-face sessions happen given the disparate schedules of the five member schools, in particular around spring breaks. This seems to gut the course of its cohesion from March to mid-April.

I've gotten only positive affirmation from students who have taken this course thus far. Some students wonder what the course is like, some wonder if being blended makes it too hard, others think it might be an easy course. But they all walk away with an in-depth understanding of cultural syncretism and how layers of history help inform the culture we study that is known as Hip-Hop.

If I had one meditation for the course, it is: go with the flow. Plan your course, but allow for change to happen and make room to be flexible enough to create spaces for students to navigate the uniqueness of their own schedules.

My course on Hip-Hop is unique for high schools, but there are university courses on Hip-Hop and they are not without critique. One is that many courses are taught from a pure academic bent, and people in the Hip-Hop world view this type of curriculum as one devoid of a "lived in" understanding of Hip-Hop, which misses out on the aesthetic nuances of the culture and tries to break it down into elements, which are not truly how Hip-Hop as experienced by those who live it. Another critique is that academic courses that are taught by famous M.C.'s and other Hip-Hop artists, while providing a level of lived in experience, lack the academic punch of the scholarly courses. When I created this course, I wanted to avoid both pitfalls, and to do so, I had to wear both my teaching cap and the Kangol I sport when I am on the mic. So, a key element in the course and a measure for its success has been the XFactor album, which I released as the artist "Professor A.L.I." and that I use as an audio reader for the course. Students use its instrumental beats to record responses to units, and release as their own songs, which has been greatly appreciated by everyone in the class. I believe that this has allowed students to appreciate the course for its authenticity and scholarly merit.

Kelly Schwirzke

Oasis Early College High School

Santa Cruz, CA

Oasis High School, located on the Cabrillo College campus in Aptos, CA, is one of the Santa Cruz County Office of Education's Alternative Education programs. All Oasis students work with their parent or guardian, teacher, and counselor to design an educational plan. These plans typically include:

- Weekly one-on-one meetings with an Oasis teacher on the Cabrillo Campus
- Online courses offered by Oasis
- Dual enrollment in Cabrillo College courses, which may be online or on the campus
- Tutoring with additional subject-specific teachers
- Regional Occupational Program career technical education courses
- Service, academic, or vocational internships

In addition to their college courses, jobs, internships, and other interests, students may work on their courses at the Oasis campus for as much or as little time as they choose, although teachers may push students who need extra help to spend more time on campus.

When I started teaching at Oasis I had been serving as a regional director serving districts with planning, implementation, and evaluation of online and blended learning. During that time I was embedded at some schools for short periods and found that the best way to help districts improve their effort was to be part of the staff on an ongoing basis. I saw some alternative education settings that had the flexibility to make this type of approach work, because they are outside traditional constraints. I found that it's very hard to come in as a trainer, but as part of the staff I could find the high impact levers for change. I can identify problems and help teachers see how blended learning is part of the solution.

At Oasis, students learn within a school that gives them flexibility and autonomy. They have to come to campus only once per week if they are doing well, but many spend more time here because they like the interaction with teachers and with each other. But they are also learning in online courses from home, in college courses and in jobs and internships.

Teaching in this unusual instructional model has helped me continue to evolve my teaching. My thought process has shifted in how I think about accessing curriculum, delivering instruction, evaluating learning, and use of space and time. Initially we started with figuring out how online curriculum fits into our instructional model. But over time we start thinking about what is the most effective way to deliver instruction, and online, in person, and blended just become a continuum of options for providing seamless instruction and assessment. Our students no longer think about differences between these approaches, it's all part of what they do. For teachers we just think about what is best for this student, at this time.

I have many more opportunities to collaborate with other teachers because we aren't in front of 30 students at set times. We can think as a team about what a student needs, and we do this routinely.

When I started my blended teaching journey I wish I had recognized more quickly that blended learning is a tool to help my teaching and my students, and it's about helping teachers see solutions for all stakeholders.Allowing students to set their own pace, more than any other strategy I've seen, gets students to take ownership of their learning most quickly and most deeply. I have a plan with each student and they go in and start to work with it, and often they change the plan. Students have often told me this is the first time they have had a say in their learning. "Before this I was always told where to be, what teacher to learn from, what to do, when to do it." There was very little room for natural curiosity. Students are shocked when I ask them how they want to demonstrate mastery, and then they do more than I would have assigned. It's all about ownership.

Students get all sorts of information on their phones, but their phones can't teach them how to think. Parents and teachers routinely tell me a student is excited about learning again, and often the students tell me themselves. I tell students they we are on a journey together, they are free to move about the cabin—and they respond.

Peter Servidio

**4th Grade Teacher
St. Dominic Academy**

Lewiston, ME

St. Dominic Academy is the only PreK–12 College preparatory school in the Roman Catholic Diocese of Portland in Maine. The Diocese also has ten diocesan elementary/middle schools and one high school with a total of approximately 2,255 students across the state. Before implementing blended learning, some of the diocesan schools had been using multi-age classrooms to focus on students' individual skills instead of grade level expectations. Peter Servidio teaches elementary school and is also the Coordinator of Distance Learning for the Academy. In the latter role, he helps teachers navigate blended learning. In addition, the elementary campus of the Academy has recently launched a hybrid summer enrichment program to help students start the new year on track for success.

"**Our teachers are student centered,** and we are blessed to have teachers willing to try new strategies. Teaching with technology is not going to work unless the teacher is comfortable using the tools. We aren't going to say, "Here's a new program, go use it." Instead, I always say, "Here's the training for a new curriculum. Can you be on board?" We support our teachers, and ultimately they take the route that works best for them and their students. It has been refreshing for teachers that we aren't forcing something new on them; rather we are inviting them on the journey.

Our multi-age classrooms made the transition to blended learning easier. For example, students in 3rd, 4th, or 5th grade are working together on division because that's where each student is in math. Most adults think in terms of specific grade levels, but by focusing on the learner's skill level and bringing individualized learning into the classroom, it has allowed us to change this conversation and shift the mindset to what is best for each student.

Kids who don't have the foundation for the subject they are working on get frustrated. They are trying hard, but not finding success, so they end up giving up. Blended learning takes this frustration away. It allows a teacher to say to the student, "This is where you are. Your effort is noticed. You are learning and growing. Be proud of your progress." The student data collected through the blended learning platform allows me to see where the gaps in these fundamental skills are and address them. Last year I had two students who had the same grade in language but taking a closer look at the data, I realized one student didn't understand punctuation, while the other student wasn't getting prepositions. Even though these students had the same grades, they were missing different fundamental skill sets. Individualization and Blended Learning allowed me to pull each student aside and address these foundation gaps which could have followed them through high school and beyond.

Our new eight-week summer enrichment program is designed for students who aren't at the level they need to be going into next year. The first two weeks the students were in the classroom with teachers, the next four weeks they continued their work online from home, and in the final two weeks, they are back in the classroom with the teacher. This "bookend" method allows for the best of both traditional and blended learning while allowing the students to enjoy their summer. The program is still in progress, and already some students have achieved the level they need to be at going into next year.

One of the most difficult parts of rolling out blended learning is the amount of information out there. It takes time and dedication to figure out what is right for your students. We make sure all of our teachers know just because a blended program worked somewhere else it doesn't mean it will work the same in their classroom. I encourage them to be open to that change and try new things. Most of all, don't be discouraged if it doesn't work. My goal is to empower teachers, reminding them that they are the professionals and I can give suggestions, but ultimately they know their students best and know what is or isn't working. In the end, it is all about the students.

Teaching with technology presents challenges

Even when the use of technology is well planned and executed, it still presents challenges for teachers. Some of the most common obstacles are explored below. These are especially notable given that 1) the teachers in our survey are more likely to have more experience with technology than average, and 2) the teachers report generally positive views on their use of technology.

KEY FINDINGS

For teachers to be successful in their use of technology, the devices, Internet access, online content, and software must work well and consistently. Some teachers report that they have two versions of their lesson plans—one for using computers and one for paper when Internet access fails—but clearly it is not reasonable to expect most teachers to take on that level of planning. Although many schools are using computer labs or carts, teachers who are further along in implementing technology express frustration at not having better and easier access to computers.

Teachers are especially concerned about students accessing inappropriate online material. Some teachers have developed strategies in their classrooms to address digital citizenship, or use strategies developed by their districts, but others are still greatly concerned by this issue. However, finding the right balance of allowing vs. restricting access is difficult for district administrators, and some teachers report frustration with students not being able to access materials that the teachers want them to see.

TEACHER COMMENTS

Not having one-to-one devices for every student. I can't completely implement a flex model and often have students who cannot complete their online activity because time runs out and they need to pass their computer on to another student.

The ability to track collaboration is somewhat improved, but there is still a great deal of improvement needed in the technology before it becomes feasible to take useful data.

Teaching using technology is wonderful when the technology works as intended, however it is very difficult to create and utilize a lesson when a certain aspects of the program or the network are down.

The most difficult is simply dealing with the unpredictability of technology— sometimes it works, sometimes it doesn't.

Since I teach in an incarcerated environment, it is difficult to provide students with total Internet access, as everything has to be controlled.

The reliability of the Internet and the blockage of needed sites is a problem.

Contrary to popular belief, today's students are not necessarily comfortable using technology, and therefore they may not be as ready to use computers to learn in school and at home as assumed. Watching a video on a smartphone for fun is a far cry from studying an instructional video, and then posting and answering related discussion questions. Many teachers report that even if students appear comfortable with computers, they may not be ready to use computers to learn. They may be distracted by non-academic websites, games, or videos. In addition, although teachers sometimes report that students are more engaged simply by using computers to access information, other teachers report that they still have problems with students not studying assigned materials.

Some students have not yet embraced this model. These are students who could mostly benefit from this strategy, but may feel inexperienced when using a computer for academic reasons.

The hardest part for me is getting students to access/watch/read everything that I make available for them. They often jump straight to the assessment and then try to Google answers rather than looking at my carefully chosen info.

If students know we are watching, they are more likely to stay on task and within that learning program. Keeping students on task on the iPads while recording themselves reading has been a challenge, yet recording themselves reading is so beneficial.

Because students must use their computers to facilitate their work, they (almost universally and vociferously) say that they are very distracted and it takes them a long time to complete tasks, particularly out of the classroom when they are working at home or on their own. They default to opening other tabs and bouncing back and forth between their assigned tasks and social media. They admit they are frustrated with their own impulses, and I know I am (and many of my colleagues are) significantly enabling the problem.

Students are not ready for the responsibility. They are not collaborating with peers and are frequently distracted by technology.

Although students generally respond well to having increased voice and choice, some students don't handle their increased responsibility very well at first. Older students have spent years in schools in which they have been told exactly what to do, and the change to having greater control takes some getting used to. Although successful blended teachers and schools report that their students have learned to take control, the teachers in our survey say that many of their students have not yet made this transition.

Often students will neglect to do a consistent amount of work over time and not really learn the material as they try and cram things in before the end of the semester.

The most disappointing aspect is that some students waste time while on the technology. They have too many distractions. This can happen in any classroom setting, however.

Students are not mature enough to take responsibility for their own learning. They aren't ready for this kind of accountability.

Students end up in one of three categories: 1) Self-driven/motivated student. They will do whatever you ask of them. 2) Motivated by grades. These students will do the bare minimum required of them to get the grade they want. Due to this factor, the work ethic fluctuates which results in inaccurate data regarding abilities. 3) Not motivated. These students wouldn't have done much work regardless of what it was. Blended learning has allowed more students to fall into the "motivated by grades" category, since they are now in control of how fast/slow they go.

Although many teachers relish their new role in working with smaller numbers of students, and allowing students greater voice and choice, some feel that this change has reduced their role. Most teachers value their role in communicating new information to students. Advocates for the increased use of technology in schools must understand that some teachers believe—in many cases correctly—that lecturing is their most effective instructional strategy, at least for certain topics and grade levels.

Much of the actual instruction is done by an already designed curriculum. While it is a high quality curriculum, my opportunity to teach on a larger scale is limited. I am put in more of the supplemental support (tutoring) position instead of an actual teacher.

The transition from a traditional teaching approach to using blended learning can require a significant time investment, especially at the start, for professional development and planning. In too many cases, the teachers—and often school leaders—do not fully anticipate the initial time and effort that is required, leading to frustration and in some cases poor outcomes.

The most difficult aspect for me has been lack of time for planning. To successfully implement blended learning one needs to be well planned and prepared and this requires more time, especially at the beginning stages of the implementation.

The lack of sufficient training before being in the middle of the school year. It is very difficult to be out of the classroom so much and then to try various methods on the kids during the year. It makes for a very chaotic classroom and causes struggles with management due to shifting expectations.

Planning has now become a nightmare. I now need to find various sources to accommodate ALL levels of learning. Materials do not exist for all levels, so I spend a large amount of time developing these.

This model requires a lot of planning time to meet student differentiation. I sometimes find myself planning three lessons for three different groupings of students. Collaborating with other teachers is great but there is not a set time in the day to always do this.

Schools need to bring parents and families along in the blended learning journey, but communications to the home may not be sufficient. If the teacher or school are relying on a flipped classroom or other instructional models that require significant work at home, then students must have a supportive learning environment at home.

Communicating and "selling" the process and value to families and community is difficult.

Students can fall behind if their parents aren't supportive at home.

Empowering families to be more confident in their role is necessary.

A small number of teachers have moved quickly along their blended learning journey and are now running into the constraints of school or district policies. These constraints are most commonly related to bell schedules, semester calendars, and grading policies. In addition, teachers often express concern about the impact of testing new ideas on evaluations of their own performance. They hear from technology companies the concept of "try, fail, improve", but they feel that they are being watched and evaluated constantly and have little or no room to experiment and "fail forward." Along these lines, teachers may resent being told how to improve their practice by technology consultants who have little or no experience in a classroom.

I feel that test scores and performance limit what I can do. The district and administration are pressured to perform, and this cuts into the wonderful things I can do with my students.

Our current grading practices do not accommodate blended learning. When differentiated learning means giving students different assignments or different amounts of work, it becomes impossible to keep grading equitably in the perspective of parents and administrators.

The message that teachers have been failing and we can be saved by outsiders is disappointing. The reality is new cool words are being applied to best practices in place. It's incredibly demoralizing to be told everything about me is wrong from people who have never been in my classroom.

I would like to have longer class times so that students can work more at their own pace plus I can offer more enrichment.

Some of the teachers in our interviews and surveys feel that they are innovating, but that other teachers and other parts of the educational system are not. In our interviews, no teachers criticized other teachers directly, but a few survey and off the record comments reflected these concerns.

The most frustrating part has been getting other co-workers to "buy in" to all the new/different techniques that many teachers are trying in class. If more teachers would try new techniques, I believe the process of trying, tweaking, trying again, students improving and starting over with a new idea would happen much faster. I would love to recommend that our district get a speaker to talk to all teachers about a "growth mindset". If all teachers had a "growth mindset", I believe our students would be more apt to follow suit.

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Most of the obstacles that some teachers mention have been overcome by other teachers, or by school or district processes. The prevalence of some of these issues in comments by teachers who are generally supportive of the use of technology (as evidenced by overall survey numbers) suggests that 1) many teachers experience significant challenges along with notable successes in using technology, and 2) for almost every problem that one teacher identifies, another teacher has implemented a successful strategy for solving it.

For teachers to be successful with technology they must be supported by their schools and districts. There are simply too many interconnected parts that play into success or failure, and teachers are responsible for only some of them.

> *[The challenges are]... getting one-to-one devices, getting quality headphones, teaching children how to be responsible with online resources, changing parents' mindsets about traditional learning vs. blending learning, and getting other teachers to trust that a blended learning environment is the way education is going.*

In some cases, teachers are playing a central role in obtaining computers, communicating with parents about instructional changes, and convincing other teachers to come along on the journey. But teachers should primarily be focused on their students in their classrooms. Teachers may help with determining aspects of technology acquisition and policy, but if school leadership is not taking on these roles the shift to positive use of technology will not be successful.

Alexandra Griffith

English
West High School
Oshkosh Area School District
Oshkosh, WI

The Oshkosh Area School District educates about 10,000 students attending 21 school sites in central Wisconsin. Over the past five years the district has developed its Learning without Limits initiative, which provides students with a 21st century learning environment that personalizes instruction and extends learning beyond classrooms. A key element is embedded professional development, provided in schools by technology integration coaches who assist teachers with exploring and implementing ways to use instructional strategies in their classrooms. The district also supports a group of teachers who are finding ways to transform their classrooms as part of a personalized learning cohort. Alex Griffith (left side in picture) is one of these teachers; she works with technology integration coach Kristi Levy (right).

" My personalized learning journey started at the conclusion of my first year of teaching, which ended with me crying in my car. I teach at-risk students, and one third of my students failed my class that first year. I had used the curriculum I was given, and a standard teaching approach, and I felt like I failed my students. I was using common assessments, common prompts, common everything—and it didn't work.

Then I got angry at my failure, and tried something new at the start of the next year. I asked my students: why did they hate school? They said that school forces them to conform to everything. We tell them when to speak, when to go to the bathroom, and what they have to learn. We don't instead ask what they want to learn, and how to learn it. I thought if I can change that equation maybe I can reach these students. We have a gold mine of talent in every classroom, but when we tell them they have to conform we bury their talent, their interest, their flame. I had to figure out how to reach more students, by doing what they wanted, and working with their interests, their abilities, and their challenges.

I sought out my district technology facilitator (Kristi Levy) to help me. I realized that that the district was already having conversations about how to personalize learning, using technology that it was investing in, and I could find the support that I needed. The support from Kristi and the district has been so important.

Technology supports what we do, but it is mostly embedded, and we don't talk about it much. Kristi and I gave an entire conference presentation about personalized learning and never once mentioned tech. I think maybe we could even take a similar approach to instruction with paper and folders instead of computers, if we had to, but without the technology we would be severely hindered. For example, students choose how they are being assessed—some create websites, others produce documentaries, others launch social media campaigns. We can't do that without the technology.

Using student voice doesn't mean the teacher voice goes away. The teacher is still the guide, still the voice of reason. It's not one or the other, teacher or student. It's the combination of both. The most powerful moments in my classroom are when we connect face to face, not with technology. The number one factor motivating students is connecting with them and showing them how much they matter to you. Teaching this way requires that I really know my students, using more data than was available to me before.

We've had success, but we're also running into constraints. As Kristi says, teachers can only move so far if they are only personalizing within their classrooms, within the school structure—50-minute class periods, semester schedules, etc. The main issue I'm trying to figure out now is that I tell students their work matters more than their grade, but then I have to give them a letter grade because the district requires it. I need to find a way to break this model, but it's been around forever and that's how our universities run. I tell students you're not just a final grade, I want to look at your real mastery, but then I have to give them that final grade that I say is not that important.

Kara Macak

**High School Math
Maine Township 207**

Des Plaines, IL

Maine West High School is located in Des Plaines, an inner suburb of Chicago, Illinois. The Maine 207 school district has implemented technology across the district with its 6,400 students utilizing Chromebooks and G Suite for Education extensively. Kara Macak has been teaching for 15 years, and has spent the last 14 years at Maine West High School. She teaches two regular Algebra 1 classes for freshmen, two extended Algebra 1 classes for freshmen, and 1 Pre-Calculus class for seniors. She is just starting her blended learning journey and is most excited for her students to be able to work at their own pace and to offer individualized learning to fit their needs.

"*I just started integrating technology into the classroom last year.* I started by making videos of my lectures so students could watch at their own pace, and take individual time in the classroom to continue with the videos or work through the homework questions with my help. This helped students who needed more time. They were able to watch the videos multiple times and move along at their own pace. I had one student drop from sophomore level into my freshman level class. He was able to walk through videos and work out problems on his own, while I kept working with the rest of the class. Without those videos I don't think he would have caught up.

Next year the math department will be trying a different version of blended learning. We will be using an online math program and plan on splitting the classes into two groups, upper and lower. I'll be able to tell some students they do not have to be in class on certain days and they can find a study room within the school to work on math or any other class they need to work on. My vision at this point is that I will allow my stronger students to go to the study rooms so that I can focus more time with those students who are struggling. I also see that on some real-world problem solving days I might do an easier problem with my weaker students and dismiss my stronger students and then another day dismiss my weaker students and do a more challenging problem with my stronger students. This is something all departments are trying on some level next year, and we will experiment with what works and what doesn't in terms of having kids outside of class during class time.

I am most excited about the opportunity to have students work at their own pace and do more problem-based learning activities. However, I think the most difficult thing for me will be to organize the problem-based learning activities and make sure they run smoothly. We are going to a format in which we will let the kids learn according to what the online program says they are ready for. I will be there to help kids with questions and teach mini-lessons to groups of students when they need it. The cool thing is that some students might finish Algebra 1 early and be able to start Algebra 2 the same year.

Student ownership is important. Last year, I could see some students using the videos to stay on track where in the past they may have gotten behind, become overwhelmed, and given up. Next year we are working on allowing "incompletes" instead of failures. My hope is that allowing students to move at their own pace will help those that need more time. I won't force kids to move on when they aren't ready. We're telling the student, you're not failing, you just aren't done yet. Those students will be able to keep working through the summer months to complete the lessons.

We have a lot of support from the district. We will be receiving professional development, and a visit a nearby school that has been doing blended learning for a long time. They have already been through the ups and downs of implementation and I hope to learn a lot from that visit.

Recommendations for the next wave of digital learning adopters

KEY FINDINGS

Recognize that blended teaching represents a significant change in instruction, not just the layering of technology onto existing practices. This misunderstanding leads advocates for the increased use of technology in education to underestimate the amount of time required to adopt technology successfully. Most existing professional development mechanisms are insufficient, because 1) they do not allow for enough time, and 2) they are removed from the classroom and school year, often taking place during summer breaks. Teachers need more time and support than they usually receive.

Understand that initial efforts are an investment that pays off over time. Making this investment opportunity clear to new teachers would be useful because they are being asked to do more in the short term for a payoff in the longer term.

TEACHER COMMENTS

TIME! It seems that there aren't enough hours in the day to personalize and differentiate instruction to the many ability levels of my students.

More time during the professional working day to collaborate with other teachers that are blending to develop better curriculum and/or use of district provided resources.

More information on programs, collaboration time, and time to just get familiar with all of these programs to be sure which ones would be the most beneficial to our students.

The time it takes. Setting up an online presence took a long time over the course of the first year, and then I got it perfected the second year...and then one of the systems went obsolete within the district and I had to start all over and learn a whole new platform. This year we have had frequent issues across a variety of platforms with student access and ability to turn items in. It has added a whole new level of aggravation that wasn't there before. NOT that there aren't benefits, as well, but I heard all about the benefits when we were being brought on board, and not everything is as shiny as advertised.

The big difference is that when you shift over you are now front loading all the work. Ex: It takes longer to get the tests ready BUT the tests are automatically graded and you get instant data from them.

I wish I understood how much time it would have given me to connect with my students. It has been a lot of front loaded work to prep my teaching structure; however, it has given me more time one on one with my students. Every day it gets easier.

I think I struggled most with the intense learning curve and wondering if I'd ever be able to "get it." And I did. Now, I enjoy teaching in the blended model more than I ever did in the traditional realm and I see the benefits for the students are extraordinary!

A major shift in professional development is required, away from an "expert" telling teachers what to do, and instead supporting groups of teachers who learn from one another, often throughout the school year. A few districts are taking this approach, embedding instructional coaches in schools and working with teachers throughout the day during breaks and planning periods. This approach also lets teachers learn about new techniques and provides them the time to try these ideas in their classrooms before moving on to a new topic.

Instead of throwing more and more new teaching strategies at us each week during professional development time, allow us time during our professional development to learn how best to use the software. Not a one time training, but have it be ongoing for a month or two until we have mastered or near mastered how to access the reports and resources it offers.

Finding that "balance" of adding new blended learning techniques & allowing myself to grow in the techniques that I have already learned. I feel very overwhelmed at times with all the classes that are offered & yet I want to keep up to speed with all the new techniques that our district has to offer.

Mindful, meaningful, and targeted PD. Taking a day or two each month to plan and collaborate for blended opportunities keeps me from slipping into a rut.

I had a great mentor when I first started teaching and without her, I wouldn't be where I am today. I needed to make my mistakes and I needed to succeed the exact way I did…and still do. That's what helps to make me a better teacher.

Supportive, successful professional development is based on teachers working together. However, these supportive forums require more planning and preparation time than teachers often have.

Being provided with time and opportunities to work and plan with other teachers throughout the district would be helpful to improving my blended learning practice. It would also be helpful to learn and share ideas about blended learning with others. Having more time to plan and prepare activities would improve my practice.

1. Be patient & try one technique/idea at a time, so you do not become so overwhelmed. 2. Understand that all coworkers are not going to "buy in" to all the changes, but you need to do your best to continue to share ideas that work & hope that your peers will want to join in. 3. Know that positive change takes time with your students/staff & allow the "growth mindset."

As an instructional coach, I worked with a colleague to lead BL professional development for a cohort of teachers at each of our schools. After each meeting, teachers tried the strategies in their own classes, and then shared their experiences with the group. The excitement among our Blended Learning cohort members was incredible. Several teachers invited me into their classes as they planned and tried some of the strategies for the first time, and students were totally engaged and loved the autonomy of taking ownership of their learning. Having this group of teachers sharing their experiences and bouncing ideas off of each other was extremely helpful.

Professional development also must be geared towards specific subject areas and grade levels, which is a final step in an educational technology learning pyramid. Experienced teachers emphasize that successful professional development operates over three levels. First, teachers need to understand the ways in which devices, software, digital content, data platforms, etc. operate both alone and in conjunction with one another. The second level is applying general instructional strategies based on the use of these tools and resources. The third level explores the use of these instructional strategies in the context of a specific group of students, for example middle school science students, or students taking algebra I.

The sample blended learning lessons connected to the specific subject areas have been helpful. Seeing lessons directly connected to content we already teach is helpful. More lessons like this would be ideal.

More resources specifically for each content area. There is never enough time to make new BL activities.

I wish that we could work with other teachers in our content areas across the district more than we do in the development of this process rather than being so school focused. Especially if your school is small or there are very few teachers that teach that content it can be difficult to collaborate and that increases the feeling of isolation.

Educational technology learning pyramid

APPLY
strategies
to specific grade
levels and subjects

EXPLORE
general instructional strategies
based on these tools and
resources

UNDERSTAND
use of devices, online content,
software, and creation / use of data

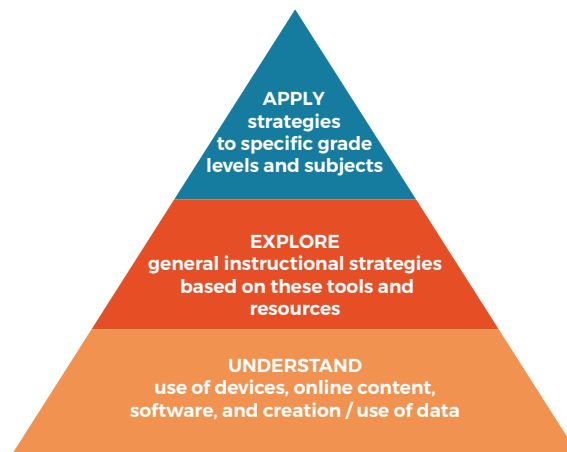**Apply the growth mindset strategy to teachers as well as students.** Blended learning advocates often call for increasing students' growth mindset, and believe that digital tools and resources help students focus on growth, persistence, and grit. Blended teachers explain that this type of mindset is also necessary for new teachers as well as for students.

Stay open minded to new changes and be aware of new resources available and how to utilize them.

Flexibility is key and if something doesn't work the first time keep trying. Blended learning practices take time to adjust to for a teacher and especially for our students.

Blended learning will not be perfect at the beginning stages of implementation, it takes trial and error. You need to see what works and what doesn't for the particular group of students in your classroom.

Provide blended teachers with additional examples and resources. In particular, teachers would like the opportunity to visit other classrooms to see exemplars in action.

More access to books, podcasts, etc. that will develop me as a teacher. My school system does a fabulous job internally of giving us these resources but I would love to see, hear, read what other schools are doing too.

Additional experiences and opportunities to see how other classes run their BL environments as well as additional resources to provide to my students as choices for their rotations/activities.

I would want to observe a classroom where I could observe lower level students learning genuinely with blended learning. As it is, I have not yet found such a classroom. When I am told that a teacher is doing amazing things with technology and learning, I find that the results are largely overstated.

Going to see model classrooms in a BL environment would be beneficial. Then having time to debrief with teachers on my team and the model teacher. So often we go to PD but leave saying "I don't have time for that." I feel this thought would be eliminated if we had planning time.

Understand that technology should not be isolating, but instead it allows teachers to focus on relationships with students. The role of the teacher changes, but the importance of the teacher is unchanged. The new role often leads to students having more control over their learning, and teachers must become comfortable with this change.

It's all about relationships. Students who feel valued, will feel more motivated. I wish I knew in the beginning how to develop those professional relationships with students.

Letting go of the control and hoping the students will do their part was the most difficult at first. The students took control of their learning and it was amazing.

Letting go of the ultimate control of teaching was hard. The students learn from each other and the teacher takes a step back and becomes the overseer.

Technology has given me more time to work with students, as I'm spending less time delivering content. It allows me to focus on the things that computers/technology cannot do (like build relationships, check in with students, social/emotional needs, etc.)

Technology advances more quickly than human behaviors and systems, so choose a strategy to support, and stick with it. The rate at which digital tools and resources are adopted must not exceed the rate at which teachers and students can learn the new tools and successfully use them. Otherwise teachers will constantly feel that they are being required to implement new ideas.

Teachers need to feel comfortable with it before they dive right in. Teachers need to adapt blended learning slowly, make it work for them, and see it done successfully. All of that coupled with proper training would help teachers adopt blended learning.

We need long-term commitments to specific technologies from my district. We keep having to move from technology to technology and that wastes a lot of time and effort.

Teachers have different personalities and instructional strategies, and they should feel comfortable adjusting blended learning concepts to their own strengths and situations. Blended learning advocates disparage the "factory model" of learning because it applies one mode to all teachers and students. But poorly implemented technology can fall into the same trap of expecting teachers to use digital tools in one way, regardless of circumstances. Instead, digital tools can be used in flexible ways by teachers who choose how best to use these online resources.

There is no one-size-fits-all in blended learning. There are various models that can be used and it entirely depends on the needs and abilities of your individual class.

It is okay to try new models and find what works best for your student. There is more than one way to approach blended learning.

All kids come in the room with a different base, and thus a different end point. They grow at different rates, times, and with different projects. Supporting that has increased student success and increased positivity.

Sarina Marine

3rd grade
Discovery Elementary School
Loudoun County Public Schools
Ashburn, VA

Discovery Elementary School enrolls about 900 students in the suburbs northwest of Washington, DC. About one in five students is an English Language Learner, about 16% of students are economically disadvantaged, and the same proportion (16%) have Individual Education Plans. Discovery is one of 90 schools in Loudoun County Public Schools (LCPS), the third largest school division in Virginia.

LCPS has a focus on implementing personalized learning (PL), and Discovery is one of the 15 schools the division has chosen to lead the PL implementation. In the PL instructional model, online content, small group instruction, and independent student work all complement a reduced reliance on whole-group instruction to dynamically tailor learning experiences to students' strengths, needs and/or interests.

" ***I've been teaching for 11 years,*** and this year has been new for me because my co-teacher, Sara Conant, and I got a grant to purchase Chromebooks, in addition to the iPads provided by LCPS, so we are one-to-one. We are the only classroom in our school that doesn't have to use computer carts. This has made planning and using technology far easier and more meaningful than when we had to check out the carts.

LCPS has started a major personalized learning initiative. To me, blended learning is a way to implement personalized learning. The key is that the technology allows my co-teacher and me to focus on each individual student. This is especially true in math, where we have the most online content, and some in reading and science too.

In my classroom last year, before we had as many devices available, we mostly worked with whole group lessons and tasks, with a little bit of small group or partner work. This year the personalized learning approach has allowed us to reduce our whole group time, which in turn allows us to focus on individual student's needs. Usually we provide a short whole-group introduction or review of the day's material, and then give students an explanation of their choices for paths to follow for the class, which usually include support at a "teacher table", working with a partner, independent practice through technology, doing basic review tasks, or taking on a more challenging option. They make their choices and get to work!

At first it was difficult to release some of the control to students, and to trust that it would benefit them. To be honest, it was kind of messy initially. Students weren't used to this approach, so sometimes they were choosing the fun activity, or the partner activity, as a

default, and we had to rethink how we were presenting the choice options. We created a planner for them so they have to think about what they intend to accomplish, and then can choose their activity based on their goal. In some units that are more difficult, we guide them more at first before giving them choices.

Blended learning has increased student engagement dramatically. It has enabled my co-teacher and me to spend much less time delivering whole group instruction because we know students will be engaged in meaningful activities, allowing us to provide targeted instruction in small groups or with individual students, based on their needs.

My teaching team (other third grade classroom teachers; plus special education and ELL teachers) is very supportive and collaborative in our lesson planning. I'm not sure that everyone is aware of all the wonderful things that happen in every classroom. We have had many visitors view our implementation of blended learning and personalized learning within our co-teaching structures. This has been a tremendous opportunity and as a result we are viewed as a leading BL and PL classroom at Discovery.

I would tell teachers considering a shift to blended learning that it's not as scary or chaotic as it seems! The benefits greatly outweigh the negatives or failures you may perceive as you make the shift. It was hard at first, and we are still learning, but I know improvement will come with time and experience. We are always seeking more opportunities to co-plan with other teachers, and having more opportunities to observe exemplar blended learning classrooms in action would be very helpful.

Chris Freeburg

High school Forensic Science
Public Service Leadership
Academy @ Fowler High
School

Syracuse, NY

The Public Service Leadership Academy @ Fowler High School (PSLA), part of the Syracuse City School District, combines academics with career and technical education (CTE). The school has four academies (Entrepreneurial, Homeland Security, First Responder, and Military Security), each of which has partners from the education, corporate, and public agency sectors. PSLA's instructional approach combines real-world activities and skill development with a student-centered approach designed to engage students. Technology is used extensively in the CTE programs, and the school and district is also focused on implementing personalized learning and increasing student access to computers. PSLA aims to have students graduate with an industry credential, college credits, and a strong score on the New York State Regents exams.

"*Before moving to PSLA two years ago* I was in a district that used technology extensively, so I was comfortable with it and wanted more than PSLA had. I got a laptop cart for my room so that all my students would have computers while in my class. I was using Google docs, and created content playlists for the students in my class.

As a forensic science teacher I've had to curate my own resources, including readings from different materials, online simulations, and hands-on labs where students are lifting fingerprints, testing fibers, etc. This is really a mix of online and physical work. This is a lot of work for me because these resources aren't available in one curated place. It's not like math or other subjects that would be much easier!

My district is moving towards the increased use of personalized learning and blended learning, but sometimes I still feel like I'm working against a headwind. To be honest, the district IT department does not understand the needs, challenges and experiences of students and teachers in a blended learning classroom and can create roadblocks when they are overly focused on issues like student safety and privacy. Of course these are critically important, but they can be addressed in ways that give teachers flexibility in using online resources and allow student access to the best tools available. Technology is constantly innovating, and while the mindset is changing, it's slow.

I haven't always used the term "growth mindset" but I talk about related concepts with students. These are students in one of the highest poverty parts of the country, working to be academically successful while having to deal with all the issues related to poverty. I like to use the

lyrics of The Rose that Grew from Concrete by the rapper Tupac Shakur to help them think about the challenges they face, and how they will overcome them. Tupac paints the picture of a rose growing from a crack in concrete. Such an act takes great care and a rose's own defiance of "nature's laws," but instead critics point to the petals damaged in the growth process. Tupac, on the other hand, encourages us to celebrate its tenacity and will to keep its dreams. Students can connect with his lyricism; it speaks to the challenges throughout their own lives. I introduce this analogy in September and return to it throughout the year. My students find the grit to make it through their personal challenges at home and outside of school, and I encourage them to transition this mindset to the classroom. This may be one of the most important skills they learn during my time with them.

There's a needed discussion about how blended and personalized learning are improving student learning. I would love to see more data about how blended learning is changing learning outcomes, in lowering the achievement gap especially. There's interesting data from John Hattie around the most powerful levers to change. Hattie says that student-teacher relationships are central. Technology is a tool that can help us leverage the best of what teachers have to offer. As we continue to invest time and money into educational technology and pedagogical support, we need to assess the success and wisdom of our efforts. As in the classroom, effective educational leaders use data to support their decision-making. I look forward to learning more about our efforts to improve student learning.

Kathleen Berglund

2nd grade
Diamond Valley Elementary

St. George, UT

Diamond Valley Elementary School enrolls about 300 students. The student body is 95% white and about a third of students qualify for free or reduced price lunch. It is one of 25 elementary schools in the Washington County School District, which has about 31,400 students.

The district offers teachers extensive blended learning professional development through its Educational Technology Endorsement Program. Kathleen Berglund is working towards this endorsement, and has also taken the initiative to tap into Donor's Choose to help fund the acquisition of Chromebooks for her classroom. Raising money in this way helped her get computers for her students, and also gave parents a chance to read and understand how the technology would be used in their child's classroom and education.

There are so many aspects of blended learning I find valuable. Students have more control and flexibility over their learning. Having technology in the classroom has helped increase their critical thinking, engagement, motivation, achievement, and problem solving. I had to teach them to critically think and problem solve with their peers, or sometimes on their own, instead of them coming to me for every technical challenge and class question. Collaboration and communication are key components to a successful blending learning environment.

Blended learning is helping me save time grading and planning. The technology has helped by grading assignments immediately and giving me time to discuss the outcome with the students, then set goals and plan their next steps. Having these extra resources has helped support student learning by using student data to personalize instruction. For example, I have four different spelling groups based on their level, which is much easier to do using the technology. Blended learning also makes it easier when a student misses a lot of school because they can easily work from home. It's been valuable having the student be able to access instruction through Google Classroom or Schoology. This allows the students to learn at their own time, place, path, and pace. Also I'm finding it to be much easier to communicate learning objectives and goals with the parents as well.

The world is constantly changing, if we can't be flexible as teachers how do we teach our students to embrace change? It has been difficult getting other teachers to trust that a blended learning environment is the way education is headed. To successfully teach with technology, the teachers need to shift their whole mindset and continue learning. It has become a necessity for our students to go beyond the fundamentals of reading and writing and to also include technological skills to be successful and navigate the current changing, media-driven environment. Teachers need to practice, attend workshops, go to professional development and keep learning themselves. As teachers we need to get out of our comfort zone and continue to learn and evolve. We are doing the students a dis-service if we don't personalize their learning and give them some control over their own education.

Teaching my students to be good digital citizens has been an ongoing challenge. It has been hard to trust students and give up control. As a teacher, you cannot see what is happening on every student's device. I do my best to teach my students how to safely navigate the Internet, not to ever give out information and not to talk to anyone. I have a "Crash and Tell" policy. If a student at any time comes across something inappropriate or makes them feel uncomfortable they immediately close their computer and come tell me. Kids who struggle with classroom rules and procedures and school-wide rules in general, also tend to struggle with being a good digital citizen. After one student played a game, a virus appeared on the tablet. Having that situation happen, and the problems it created, showed them that their actions have consequences.

Conclusion

Many teachers using technology have successfully followed a similar trajectory. Teachers often portray initial steps of the journey with descriptions such as:

Prior to incorporating blended learning, I primarily taught lecture style and to the middle. I was bored, the kids were bored, and I felt like I was slogging. I thought, how much better could this be if I only taught kids what they needed to know and stopped wasting time on things they didn't need to know? I feel that was the beginning of a revolution for me.

I truly believe in this educational approach. I feel that I have lacked the resources and skills to implement the data aspect this first year, but I know that will improve with time and resources. I have noticed an enthusiasm and an engagement during both small group rotations and tech rotations that I have not seen in previous lessons done with the traditional approach.

Along the way, teachers often see promise in using technology in their classrooms, even while recognizing their limitations and working to address their challenges.

Over time, they begin to see benefits.

Saving time, having extra resources to support student learning, personalizing student learning, using student data to direct instruction, differentiation, increased home-school connection, students able to access instruction at home, students learning at their own pace, path, and place.

The learning curve was tremendous the first two years. I think I spent too much time worried about the facilities/technology and content—and I came around to realizing in year three that it is always and should always be about the learning opportunities and supporting learning...whether you are online or face-to-face.

In retrospect, they realize that they have overcome a challenge and improved their practice.

Teaching with technology: Educators' perspectives and recommendations for successful blended instructional strategies

42

Teachers who are along the journey recognize that they are learning.

I know improvement will come with time and experience. More opportunities to co-plan, and to observe exemplar blended learning classrooms in action would be very helpful.

I could see that this method was going to evolve and become more popular and useful as technology advanced... and it has!

The use of technology in education is not a cure-all. Technology does not replace teachers. In early stage implementations, it is one tool among many that teachers use to best serve their students. In implementations that are more developed, it can be used to fundamentally change instruction with positive results for students. But in all cases the technology is secondary to teachers and school leaders. Technology supports best practices; it is not a best practice in itself.

Implementation is challenging and can be daunting. When poorly planned or executed, technology can cause far more problems than it solves. But digital tools can also help teachers and students teach and learn successfully by catalyzing the integration of innovative approaches in classrooms to personalize teaching and learning for all students.

In keeping the focus of this report on the voices of teachers, we close with the calls from teachers who wish to see more of their colleagues move forward with successful uses of technology and blended learning.

It's okay to try something new. The only way we grow as teachers is to experiment and see what is effective. I think it is also important to get feedback from students regarding the set up of some blended learning activities and groups about the methods they feel are most effective for them to learn.

When students take ownership in their learning, they are more invested. When students collaborate with other students, they learn more from teaching one another.

Just try it! Jump right in! And don't be afraid to let the kids teach you or venture into new things together with them. Learning WITH your students is not a bad thing!

It's going to take time for teachers and students to get comfortable with it. I didn't really make reflecting an emphasis until the third quarter. And I also implemented more choice at this point as well. It's a gradual shift. It's different, but you can look back at this point in the year and be proud of what you and your students are now doing that wouldn't have even been a possibility without access to devices to support Personalized Learning.

Start small. Don't feel like you have to understand everything. Students are capable of figuring out new tools. You don't have to be an expert at each of them. Allowing students to experiment with new tools is a good critical thinking exercise.

It's not as scary or chaotic as it seems! The benefits greatly outweigh the negatives or failures you may perceive as you make the shift toward blended learning.

For as many reasons people come up with for why it will not work there are many more reasons behind why it does.

I wish I had known that my best teaching practices from my traditional building days would remain best practices in a blended world. I would have pulled those practices out much sooner.

Let it go!!! Some control that is... I'm not going to lose my job if my students are able to learn and use resources outside of me. I serve my students growth and learning better when I don't limit them to the four walls of my classroom.

You don't need to worry about knowing everything. If you introduce things to kids, they will take it and run with it and become co-teachers!