May 2019

Kelly Linker, Research Specialist
Adrienne Reitano, Senior Research Associate

Office of Research and Evaluation

May 2019

THE SCHOOL DISTRICT OF
PHILADELPHIA

Blended Learning Initiative

Year 2 (2017-18) Report

Key Findings

- Most schools struggled to meet the recommended implementation targets provided by the vendors for rotation programs. However, teachers reported that they accessed program data on students and used it to inform instruction.
- Overall, teachers and principals were satisfied with the support they received (including vendor-provided training).
- Teachers said the initiative provided benefits in scaffolding instruction but that students struggled with working independently.
- More students meeting an ELA implementation usage target met proficiency on the PSSA ELA exam. Similarly, more students meeting a math implementation usage target met proficiency on the PSSA math exam.
- More students who met a usage target in math increased PSSA performance levels from 2016-17 to 2017-18 than students who did not meet the usage target, though this was not true for the ELA assessment.

Contents

About the Blended Learning Initiative (BLI)

In the 2016-2017 school year, 39 schools were selected to be part of Year 1 of the Blended Learning Initiative (BLI). Each BLI school chose a blended learning model (a la carte or station rotation) and a blended learning program from a list of approved vendors. The vendor list included programs for math, reading/literacy, social studies, and science. Overall, there were 10 vendors and 12 programs, as some vendors have more than one program. For example, the programs "Kid Biz," "Teen Biz," and "eScience" all belong to the vendor Achieve3000.

Across the 39 schools, there was variation in the number of classrooms that participated in the BLI. This determined the number of Chromebook carts each school received as part of the BLI. There were over 200 classrooms at the 39 schools that participated in BLI, with the majority of classrooms using a station rotation model. At some schools, all BLI classrooms used the same program, while other schools used more than one program and/or vendor. This report looks at implementation and outcomes during school year 2017-18, the second year of the initiative.

What the evaluation examined

Research questions

In the second year of the initiative, we examined four primary research questions:

1. Did schools and teachers implement blended learning as intended?
   a. How much did schools use the blended learning programs? Did students meet recommended usage amounts provided by vendors?
   b. Did teachers and principals access data on student usage and growth?
   c. Did teachers use student data from the blended learning programs to differentiate during small group instruction?
   d. Did schools organize vendor training to provide professional development for teachers?
2. Did teachers and schools receive needed support to implement blended learning?
   a. Were teachers satisfied with the provided professional development?
   b. Were teachers and principals satisfied with the support they received for the project?
   c. What were the benefits and challenges teachers encountered in implementing the Blended Learning Initiative?
3. Did students who met the recommend usage target perform better on the PSSA English Language Arts (ELA) and math exams than students who did not?
4. What best practices did schools identify when implementing blended learning?

Data collection and analysis

We used four sources of data to answer the research questions: survey data, student program usage data, student PSSA scores, and case studies at two schools. These data sources and which research questions they correspond to are described in Box 1.

Box 1. Data Sources

Teacher and Principal Surveys

Survey data were used to answer Research Questions 1 and 2. Surveys were sent via email to all teachers and principals participating in the BLI (n=228 and n=37, respectively) in February 2018. Response rate for teachers was 30% (n=69) and 24% (n=9) for principals. Both groups received an email invitation to the survey plus two additional reminders. Response rates were lower than in 2016-17 (45% for teachers and 54% for principals). Descriptive statistics are presented for survey data, and open-ended items were analyzed for common themes.

Student Program Usage Data

Vendors provided monthly student program usage and growth reports to ORE as well as information on professional development for the year. This data was used to answer Research Questions 1 and 3. Students were only included in analyses if they were enrolled in the BLI school as of April 1, 2018 and were enrolled at that school for at least 90 days.

Student PSSA Scores

The PSSA (Pennsylvania System of School Assessments) is a standards-based, criterion-referenced test that is administered to all grade 3-8 students in Pennsylvania. Students receive a scale score for each assessment based on the questions they answer correctly. Using cut-points that can vary across grade and subject, the scale score corresponds to one of four proficiency levels: Below Basic, Basic, Proficient, and Advanced. For example, students with a scale score ranging from 600-904 on the third grade PSSA-English Language Arts (ELA) fall in the Below Basic category and students with scores from 905-999 fall in the Basic category.[1] This data is used to answer Research Question 3.

Interviews and Observations

ORE visited two exemplary schools (as identified by the Office of Educational Technology) and spoke with the principal, teachers, and students about the BLI and observed blended learning in the classroom. Focus groups recordings and notes were used to summarize the best practices tips identified by schools and answer Research Question 4.

What the evaluation found

Did schools and teachers implement blended learning as intended?

On average, schools did not meet recommended usage amounts

Most schools struggled to meet the recommended implementation targets provided by the vendors for rotation programs. Vendors provided 12 metrics to track program implementation in schools such as minutes on the program or lessons completed (see Table 1; some programs have more than one metric). There were eight usage metrics where zero percent of schools met the target. The dosage metrics reflect average usage across the whole school year.

Table 1. Most Schools Were Not Able to Meet Usage Targets

Program	Vendor Metric*	Average Usage Across all BLI Classrooms	# of Schools Using Program	# of Schools Meeting Target	% of Schools Meeting Target
Achieve3000	2-3 activities/week	1.1 activities/week	19	1	5.3%
Achieve3000 eScience	90-135 minutes a month	22.4 minutes/month	5	0	0%
Compass	2-3 lessons a week	--^	1	0	0%
First in Math	100 points	35.6 points	3	0	0%
Imagine Math	60-90 minutes/week	28.5 minutes/week	13	0	0%
Imagine Math	40% of lessons passed	55.1% passed	13	10	76.9%
Redbird	2 lessons/week	0.5 lessons/week	12	0	0%
Redbird	60-90 minutes/week	19.9 minutes/week	12	0	0%
ST Math	2 logins/week	2.3 logins/week	3	2	66%
Study Island	3 sessions/week	2.1 sessions/week	1	0	0%
Study Island	60-90 minutes/week	21.2 minutes/week	1	0	0%
ThinkCERCA	10 lessons	9.05 lessons	6	2	33%

*Each vendor sets their own usage target.
^According to the file provided by Edgenuity (who manages Compass), only three students assigned to a BLI teacher used the program in 2017-18, which did not meet our minimum reporting threshold.

Teachers reported that they accessed program data on students and used it to inform instruction

Over half of BLI teachers (65%) who responded to the teacher survey in February 2018 indicated that they accessed student progress data daily or weekly through the blended learning vendor sites,

and the majority of teachers who responded to the survey (81%) accessed it at least monthly (Figure 1). Twelve out of thirteen[1] principals who responded to the survey said they accessed data directly from the vendor site at least monthly. Eleven out of thirteen principals reported reviewing student progress data with teachers at least monthly, and eleven said they used student progress data to initiate conversations with teachers about blended learning in their classrooms at least monthly. Most teachers who responded to the survey (80%) said they used student progress data from the adaptive online program to scaffold instruction, and just under half (44%) said they use data for this purpose at least weekly (Figure 1). Teachers also reported using data from the adaptive online program to create student groups (77% of survey respondents said they used this data to create groups at least a few times a year).

Figure 1. Teachers Identified How Often they Access and Use Student Data
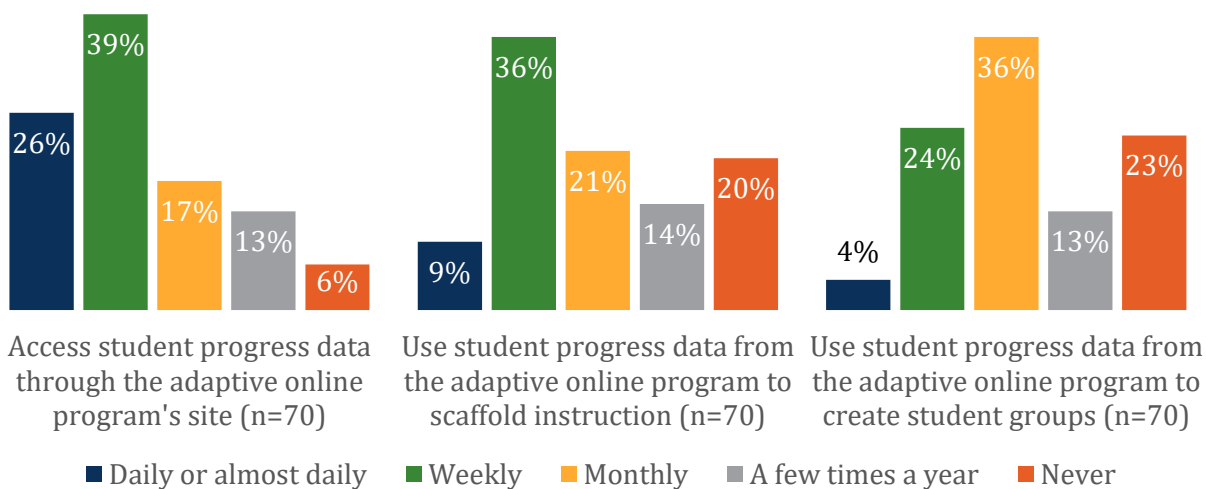
We asked teachers to answer these questions about each vendor they use, so the n size reflects some teachers being counted more than once if they responded for more than one vendor.

Frequency of professional development varied by vendor

According to vendor-provided information, most vendors provided professional development (PD) to BLI schools, with the exception of Pearson, who did not train schools in the 2017-18 school year. The average number of times BLI schools received professional development from vendors varied from 0 to 4.1 times per year (some schools did not receive professional development, which resulted in District averages less than one; see Table 2). Teachers were asked to rate the usefulness of the professional development provided by vendors, and the percent who rated the sessions as good or excellent varied from 60% to 84%.

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[1]We asked principals to answer these questions about each vendor they use, so the n size reflects some principals being counted more than once if they responded for more than one vendor.

Table 2. Professional Development (PD) Session Content Varied by School Needs

Vendor	Number of BLI Schools Using Vendor	Number of BLI Schools not Receiving PD	Average Number of Times BLI Schools Received PD during 2017-18 School Year	Description of PD	Teacher Survey Ratings of PD (% Rating Usefulness as Good or Excellent)*
Achieve3000	21	1	2.6	Sessions included using data, analyzing reports, literacy routines, and custom sessions.	68% (n=22)
Compass (Edgenuity)	1	0	1	Session offered an overview of the program.	-
Edgenuity	2	1	1	Sessions included introduction to the system and troubleshooting issues for teachers.	-
First in Math	3	1	1	Sessions were based on school needs.	-
Imagine Math	13	2	1.5	Sessions varied based on school needs. The first session typically covered getting started (program overview, classroom upload, tracking progress). The second session focused on reporting, usage analytics, classroom coaching, and customizing pathways.	77% (n=17)
Pearson Gradpoint	1	1	0	No training provided to schools during SY 2017-18.	-
Redbird	12	3	0.83	In-person and virtual trainings based on school needs.	60% (n=5)

ST Math	3	2	0.33	Session covered implementation planning/tips and data. Schools could also choose to watch self-guided courses online (two of the three schools used this option).	-
Study Island	1	Vendor did not provide information on professional development.			-
ThinkCERCA	7	0	4.1	Schools were offered the following sessions: Planning Meeting, Refresher Training, Best Practices Session, Check-In Support, Mid-Year Reflection, Spring Drop-In Support, and End of Year Growth Review.	84% (n=6)

*Survey results are only displayed when there were at least 5 teachers who responded about that vendor.

Did teachers and schools receive needed support to implement blended learning?

All principals were satisfied with the support they received from the Office of Educational Technology

Most teachers (83%) were very satisfied with the support they received from the BLI Teacher Coordinator at their school (if they had one; see Figure 3). All principal respondents to the survey were satisfied with the support they received from the Office of Educational Technology, both the Technology Integration Specialists and the Office of Educational Technology leadership (Figure 4). Additionally, all principals found the support provided around increasing teacher comfort level with online programs to be very or somewhat helpful (Figure 5).

Figure 3. Teacher Satisfaction with the Support they Received from Stakeholders
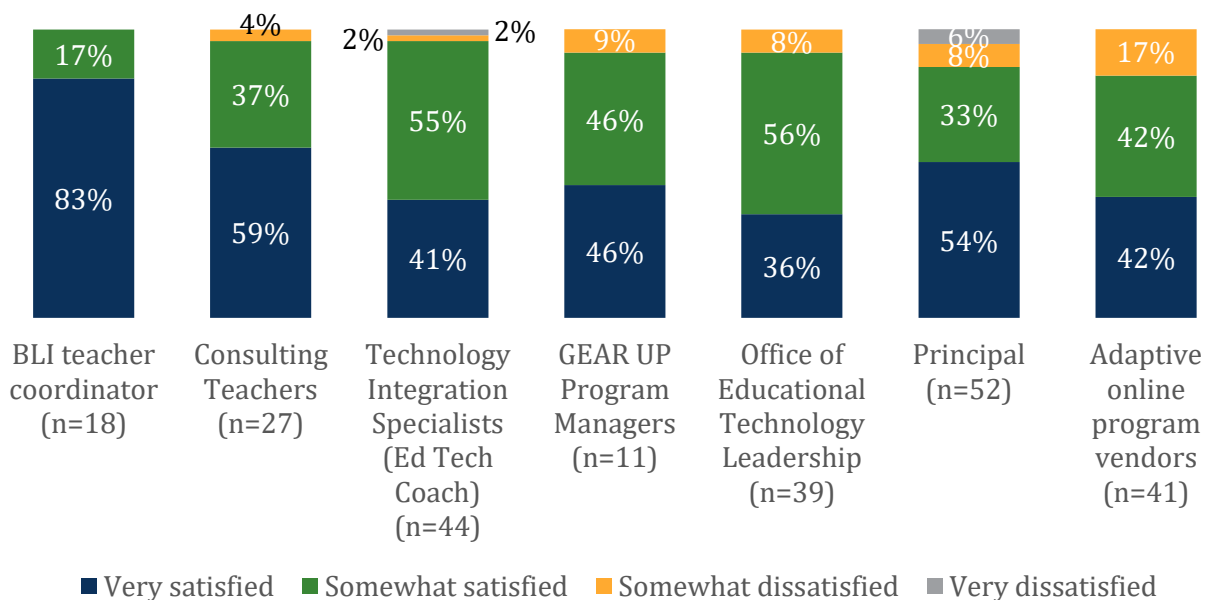
Figure 4. Principal Satisfaction with the Support they Received from Stakeholders
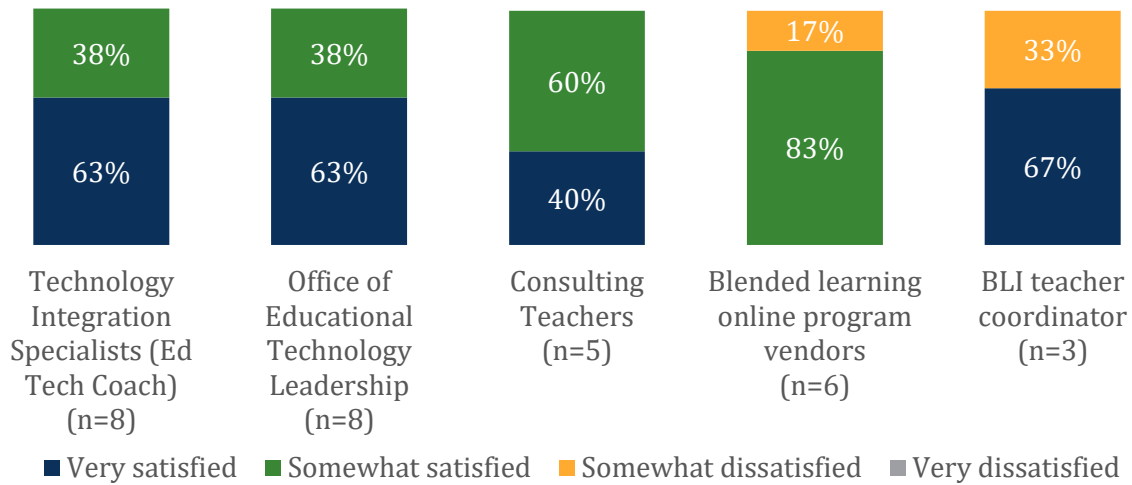

	Technology Integration Specialists (Ed Tech Coach) (n=8)	Office of Educational Technology Leadership (n=8)	Consulting Teachers (n=5)	Blended learning online program vendors (n=6)	BLI teacher coordinator (n=3)
Somewhat dissatisfied				17%	33%
Somewhat satisfied	38%	38%	60%	83%	
Very satisfied	63%	63%	40%		67%

■ Very satisfied ■ Somewhat satisfied ■ Somewhat dissatisfied ■ Very dissatisfied

Figure 5. Principal Satisfaction with the Support they Received from the Office of Educational Technology

	Very helpful	Somewhat helpful	Somewhat unhelpful
Increasing teacher comfort level with online programs (n=8)	38%	63%	
Establishing norms in a blended learning classroom (n=8)	63%	25%	13%
Interacting with vendors (n=8)	38%	50%	13%
Setting up a blended learning classroom for success (n=8)	38%	50%	13%
Implementing a rotation model (n=8)	38%	50%	13%
Accessing and analyzing data to determine if students are meeting the recommended usage target (n=8)	38%	38%	25%

■ Very helpful ■ Somewhat helpful ■ Somewhat unhelpful ■ Not at all helpful

Teachers said the BLI provided benefits in scaffolding instruction but that students struggled with working independently

Teachers said that the Blended Learning Initiative provided a benefit in having more opportunities to scaffold instruction (71% of teachers said there was a great or moderate benefit; see Figure 6).

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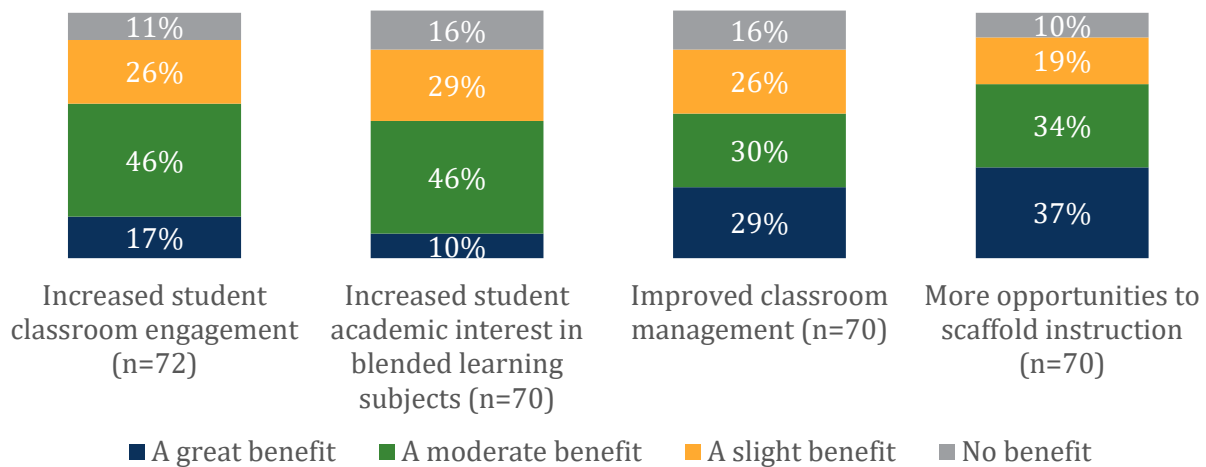Other benefits included increased student classroom engagement, improved classroom management, and increased student academic interest in blended learning subjects (63%, 59%, and 56%, respectively, of responding teachers said there was a great or moderate benefit).
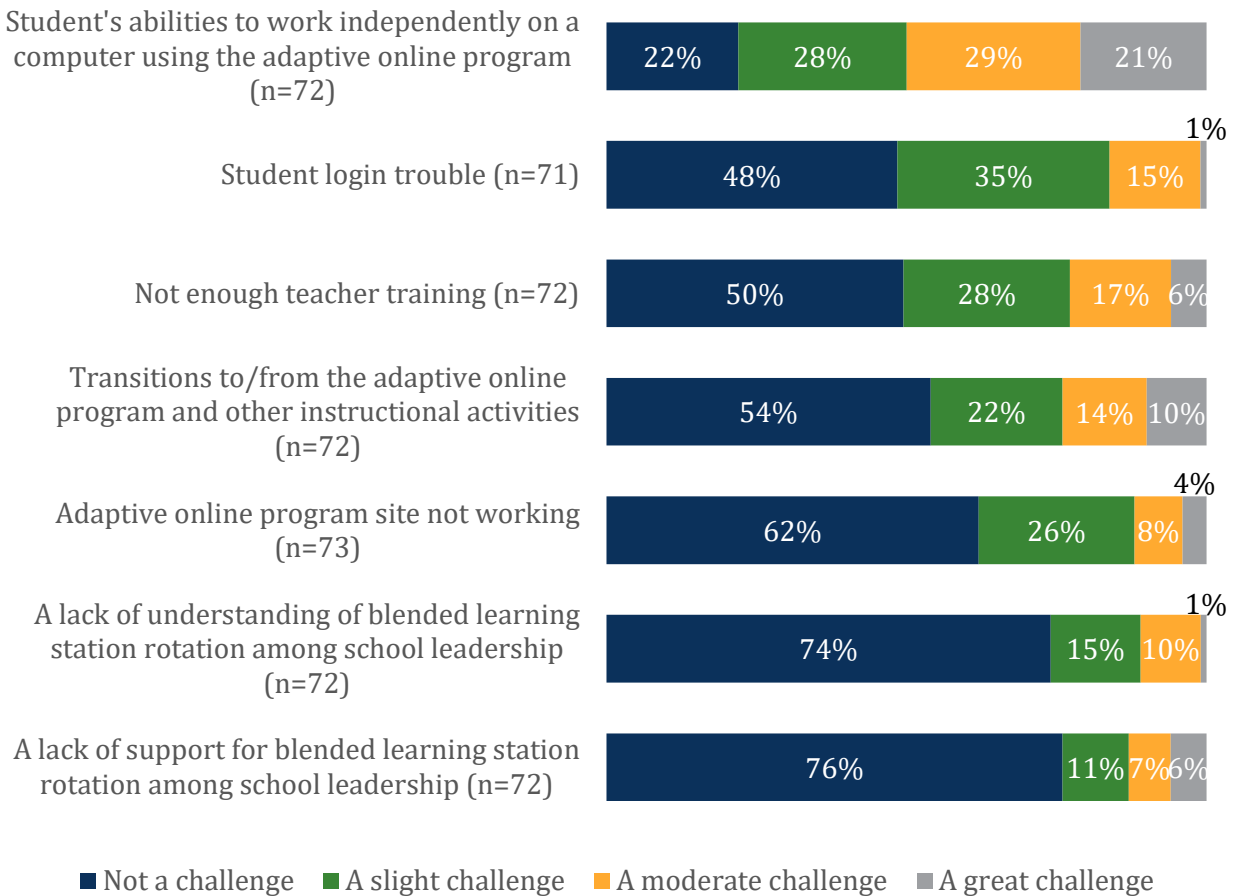
The main challenge that teachers identified was students' abilities to work independently on a computer while using the online adaptive program (78% of teachers said this was at least a slight challenge; see Figure 7). About half of teachers also identified student login trouble and not enough teacher training as challenges. A smaller amount of teachers (43%) said they sometimes or often have trouble accessing the WiFi or with the hardware (Figure 8).

Figure 6. Teacher Impression of Benefits for their Classroom from the BLI

| Increased student classroom engagement (n=72) | Increased student academic interest in blended learning subjects (n=70) | Improved classroom management (n=70) | More opportunities to scaffold instruction (n=70) |

■ A great benefit   ■ A moderate benefit   ■ A slight benefit   ■ No benefit

We asked teachers to answer these questions about each vendor they use, so the n size reflects some teachers being counted more than once if they responded for more than one vendor.

Figure 7. Extent of Challenges Teachers Experienced Implementing the BLI

	Not a challenge	A slight challenge	A moderate challenge	A great challenge
Student's abilities to work independently on a computer using the adaptive online program (n=72)	22%	28%	29%	21%
Student login trouble (n=71)	48%	35%	15%	1%
Not enough teacher training (n=72)	50%	28%	17%	6%
Transitions to/from the adaptive online program and other instructional activities (n=72)	54%	22%	14%	10%
Adaptive online program site not working (n=73)	62%	26%	8%	4%
A lack of understanding of blended learning station rotation among school leadership (n=72)	74%	15%	10%	1%
A lack of support for blended learning station rotation among school leadership (n=72)	76%	11%	7%	6%

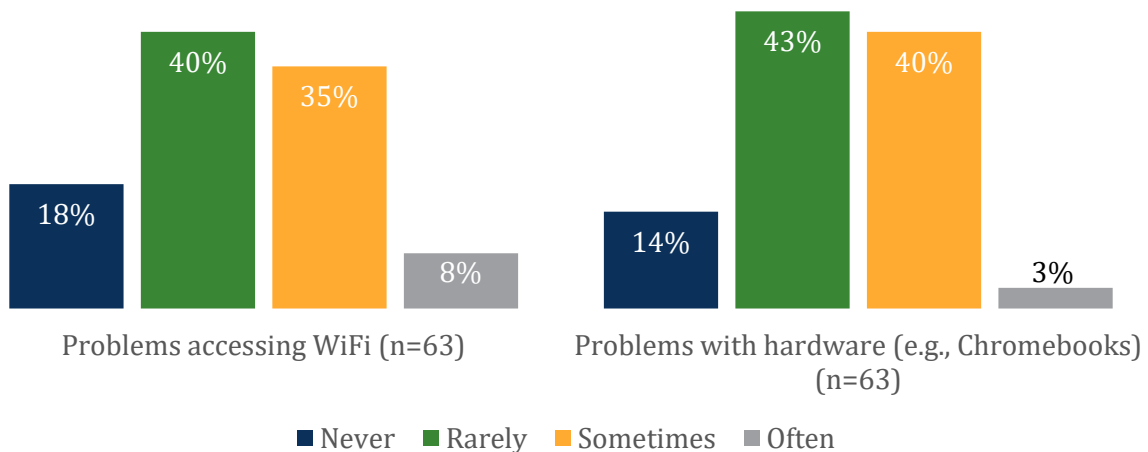■ Not a challenge ■ A slight challenge ■ A moderate challenge ■ A great challenge

We asked teachers to answer these questions about each vendor they use, so the n size reflects some teachers being counted more than once if they responded for more than one vendor.

Figure 8. 43% of Teachers Sometimes or Often Have Problems Accessing WiFi or With Hardware

	Never	Rarely	Sometimes	Often
Problems accessing WiFi (n=63)	18%	40%	35%	8%
Problems with hardware (e.g., Chromebooks) (n=63)	14%	43%	40%	3%

■ Never ■ Rarely ■ Sometimes ■ Often

Did students who met the recommend usage target perform better on the PSSA ELA and math exams than students who did not?

More students who met a usage target achieved proficiency on the PSSA exam

We compared performance and progress on the PSSA English Language Arts (ELA) and math exams for students who met a usage target compared to students who did not. We counted a student as having met a usage target if they used a program in that subject area and met at least one usage target for at least one program (some programs had more than one usage target and some students used more than one program). A list of usage targets is in Table 1. Overall, only 16.9% of students using an ELA program in the BLI met at least one usage target on at least one ELA program, though more students using a math program met at least one math usage target (47.0%; see Table 3). About half of students (49.8%) who participated in the BLI and had PSSA scores in 2017-18 met proficiency (achieving a level of Proficient or Advanced) on the ELA exam (Table 4). For math, this percentage was closer to a quarter (27.9%).

Table 3. More BLI Students Met a Usage Target in Math than ELA

	Not Meeting Usage Target		Meeting Usage Target	
	#	%	#	%
ELA*	2,922	83.1%	595	16.9%
Math^	2,463	53.0%	2,184	47.0%

*Out of those students using an ELA program who met the target for at least one metric for at least one ELA program.
^Out of those students using a math program who met the target for at least one metric for at least one math program.

Table 4. About Half of BLI Students Met Proficiency in ELA and a Quarter in Math

ELA Met Proficiency in 17-18		Math Met Proficiency in 17-18	
#	%	#	%
2,867	49.8%	1,620	27.9%

The number of students with a reading score in 2017-18 was 5,753 and the number with a math score was 5,815.

When looking at proficiency on the PSSA among students who met a usage target compared to students who did not, more students meeting an ELA usage target met proficiency (58.4% versus 45.9%; see Figure 9). This difference was statistically significant (Chi-Square=29.398, p=.00). The pattern was the same for the math exam, with 41.7% of students meeting a usage target achieving proficiency compared to 14.8% of students who did not meet a usage target (Figure 10). This difference was also statistically significant (Chi-Square=383.451, p=.00). Although a Chi-Square test provides important information about the association between meeting a usage target and meeting PSSA proficiency, it does not indicate a causal relationship (i.e., this cannot prove that meeting the usage target on a BLI program causes students to meet proficiency on the PSSA).

Figure 9. More Students Meeting an ELA Usage Target Met PSSA Proficiency than Students Not Meeting Usage Target

Did not meet ELA usage target (n=2,681)   Met ELA usage target (n=563)

■ Below Basic or Basic   ■ Proficient or Advanced
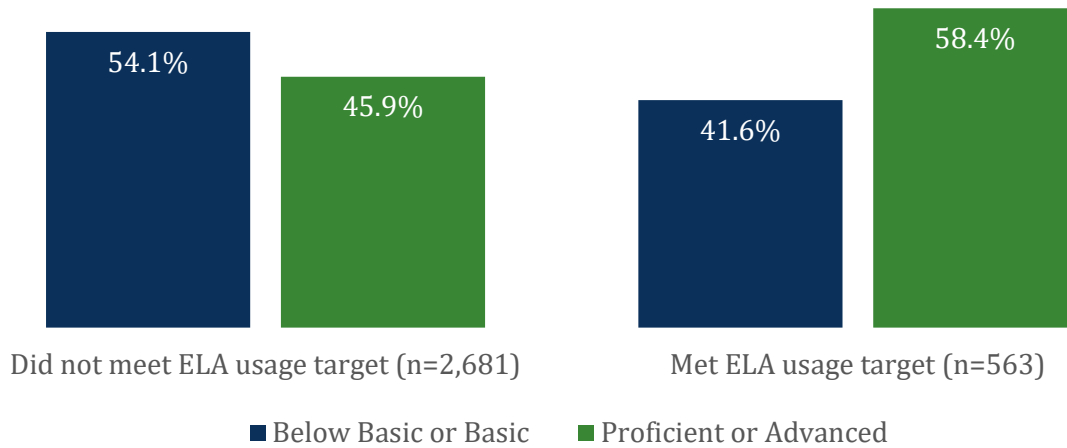
Only includes students using an ELA program who had a PSSA score in 2017-18. Difference was statistically significant (Chi-Square=29.398, *p*=.00).

Figure 10. More Students Who Met a Math Usage Target Met PSSA Proficiency than Students Not Meeting Usage Target

Did not meet math usage target (n=328)   Met math usage target (n=857)

■ Below Basic or Basic   ■ Proficient or Advanced
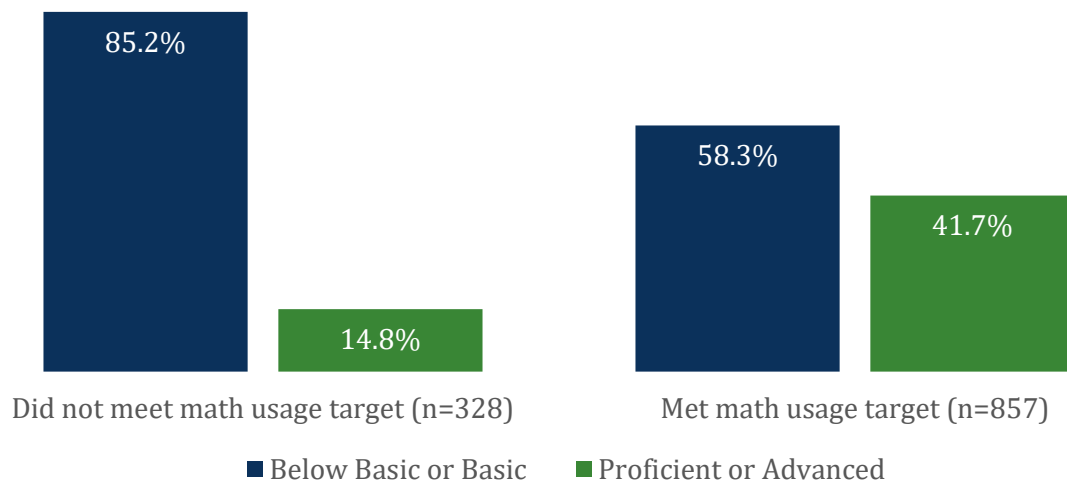
Only includes students using a math program who had a PSSA score in 2017-18. Difference was statistically significant (Chi-Square=383.451, *p*=.00).

Students who met a usage target also had statistically significantly higher scale scores on the PSSA (Table 5). For ELA, there was a 33.9 point difference between those who met the usage target and those who did not (*t*=-7.178, *p*=.000). The difference for math was even higher, at 87.1 (*t*=-24.441, *p*=.000).

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Table 5. Student Meeting Usage Targets had Higher PSSA Scale Scores in Both ELA and Math

	n^	Mean ELA PSSA Score	Difference+	n∨	Mean Math PSSA Score	Difference∫
Students Who Did Not Meet Usage Target	2681	993.9		2209	894.2	
Students Who Met Usage Target*	563	1027.8	33.9	2053	981.3	87.1

*On at least one metric for at least one ELA/Math program.
^Out of those students using an ELA program and who had PSSA scores in both years.
+Difference was statistically significant (t=-7.178, p=.000).
∨Out of those students using a math program and who had PSSA scores in both years.
∫Difference was statistically significant (t=-24.441., p=.000).

Meeting a usage target remains strongly related to PSSA scale scores even when controlling for demographics. We ran a regression on PSSA scale score in 2017-18 and the models for both ELA and math were significant (ELA: $F_{(7, 3236)}$ = 189.077, p=.000 with an R^2 of 0.290; math: $F_{(7,4254)}$ = 329.296, p=.000 with an R^2 of 0.351). Even when controlling for demographics, meeting the usage target was a significant and positive predictor of both ELA and math scale scores (Table 6).

Table 6. Meeting a Usage Target was Related to Scoring Higher on the PSSA

	PSSA ELA[1]			PSSA Math[2]		
Variable	B	S.E.	β	B	S.E.	β
Met usage target	20.089	4.048	0.074***	57.252	3.167	0.231***
English Language Learner	-66.282	6.061	-0.168***	-67.192	5.609	-0.155***
Black	-58.924	3.602	-0.276***	-70.127	3.692	-0.267***
Hispanic	-54.279	4.645	-0.195***	-65.509	4.466	-0.206***
Asian	36.955	5.156	0.117***	84.639	5.503	0.204***
Male	-26.198	3.054	-0.128***	-1.489	3.077	-0.006
Special Education Student	-98.287	4.689	-0.313***	-86.384	4.695	-0.232***

*p<.05, **p<.01, ***p<.001
The ELA model only includes students using an ELA program and the math model only includes students using a math program.

More students who met a usage target in math increased performance levels from 2016-17 to 2017-18 than students who did not meet the usage target

In addition to proficiency and scale scores within 2017-18, we also looked at changes in performance levels from 2016-17 to 2017-18. Out of the BLI students who had PSSA scores in both years, about a fifth (21.5%, see Table 7) had an increase from 2016-17 to 2017-18 on their performance level for ELA. The percentage who moved up a performance level for math was smaller (15.6%).

Table 7. About Half of BLI Students Had an Increase in their PSSA Scale Scores

ELA Performance Level Increase 2016-17 to 2017-18		Math Performance Level Increase 2016-17 to 2017-18	
#	%	#	%
1,085	21.5%	800	15.6%

The number of students with reading scores in both years was 5,042 and the number with math scores in both years was 5,114.

Students who met a usage target in an ELA program increased performance levels at about the same rate as those who did not meet the usage target (21.2% compared to 21.0%; Table 8). In math, more students who met the usage target increased a performance level (18.6% compared to 13.4%), and this difference was statistically significant (Chi-Square=18.957, p=.00, see Table 9).

Table 8. Students Who Met Usage Target in an ELA Program Increased Performance Levels at Similar Rates to Students Who Did Not Meet Usage Target

	n^	% Did Not Increase a Performance Level	% Increased a Performance Level+
Students Who Did Not Meet Usage Target	82.9% (n=2,353)	79.0%	21.0%
Students Who Met Usage Target*	17.1% (n=486)	78.8%	21.2%

*On at least one metric for at least one ELA program.
^Out of those students using an ELA program and who had PSSA scores in both years.
+Difference was not statistically significant (Chi-Square=.006, p=.94).

Table 9. More Students Meeting Usage Target in a Math Program Increased a Performance Level

	n^	% Did Not Increase a Performance Level	% Increased a Performance Level+
Not Meeting Usage Target	50.2% (n=1,902)	86.6%	13.4%
Meeting Usage Target*	49.8% (n=1,888)	81.4%	18.6%

*On at least one metric for at least one math program.
^Out of those students using a math program and who had PSSA scores in both years.
+Difference was statistically significant (Chi-Square=18.957, p=.00).

What best practices did schools identify when implementing blended learning?

During the case studies, we identified five main best practices. A summary of these best practices is presented in Box 2. A full description of the best practices is in a separate report.

Box 2. Best Practices from Two Schools for Implementing Blended Learning

Summary of Best Practices Identified in Two Schools

Of the five best practices identified by our two case study schools, two were geared towards school

leaders 🏢 and three towards teachers 👥.

🏢 **Best Practice 1: School Leaders Share Responsibility for Decision-making and Implementation**

1a. Provide opportunities for teachers to be involved in the decision-making around blended learning.
1b. Identify a school-level blended learning lead.
1c. Create school-level routines and procedures but still allow for teacher autonomy.
1d. Start with some pilot classrooms and then expand.

🏢 **Best Practice 2: School Leaders Implement a Long-term and Comprehensive Plan for Training Staff**

2a. Ensure all teachers are trained on both the blended learning station rotation model and the vendor program.
2b. Be prepared to train staff generally on how to use technology, especially for those who may not be as tech-savvy.

👥**Best Practice 3: Teachers Establish Routines and Procedures at the Classroom Level**

3a. Set expectations for students at the beginning of the year...
3b. ...and the beginning of every class.

👥**Best Practice 4: Teachers Set up Classrooms to Support Blended Learning**

4a. Decide on the number and content of stations.
4b. Consider whether students or materials will move between stations at transitions.

👥**Best Practice 5: Teachers Use Blended Learning to Enrich Student Learning**

5a. Create student groups intentionally.
5b. Hold students accountable for their learning.

Summary and next steps

During the 2017-18 school year, the second year of the Blended Learning Initiative, we found:
- Most schools struggled to meet the recommended implementation targets provided by the vendors for rotation programs. However, teachers reported that they accessed program data on students and used it to inform instruction.
- Overall, teachers and principals were satisfied with the support they received (including vendor-provided training).
- Teachers said the initiative provided benefits in scaffolding instruction but identified a challenge in students struggling to work independently.
- More students who met an implementation usage target achieved proficiency on the PSSA exam. Results were more mixed when looking at the relationship between meeting the usage targets and change in proficiency level on the PSSAs from 2016-17 to 2017-18. More students who met a usage target in math increased performance levels from 2016-17 to 2017-18 than students who did not meet the usage target, though this was not true for the ELA assessment.

A second cohort of schools applied to participate in the Blended Learning Initiative beginning in the 2018-19 school year (most schools were new though some of the original cohort applied for an expansion). The Office of Educational Technology offered additional support to participating teachers through a coaching model. The Office of Research and Evaluation will continue to evaluate program implementation during the 2018-19 school year.