TechSmart Initiative for Student Success
SY 19-20 Evaluation Report
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Prepared by:
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INTRODUCTION

The Mt. Hood Cable Regulatory Commission (MHCRC) launched the TechSmart Initiative for Student Success in fall 2014, with plans to strategically invest a total of about $19 million through 2021 in local public schools to positively impact academic outcomes for all students in Multnomah County. The TechSmart Initiative provides grants and evaluation resources for Multnomah County school districts to identify effective classroom instruction that uses technology to foster improvement in academic outcomes for all students and to share the successful strategies across the school districts. The TechSmart Initiative is aligned with the collective effort of the broader community engaged in the All Hands Raised Partnership.

The MHCRC developed a Framework for Successful Technology Implementation, which drew upon research and evidence-based practice for successful implementation of technology integration in education. Pacific Research and Evaluation (PRE), as the leader of an evaluation for the TechSmart Initiative, worked with MHCRC and its staff to design an evaluation around the Framework and create a logic model with outcomes for each of the seven factors described below. A copy of this logic model is included in the evaluation planning tool in Appendix A.

The MHCRC framework encompasses seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments. The factors are not isolated from each other; many are linked and substantially overlap.

TECHSMART GOALS

The MHCRC worked closely with each school district as a planning and funding partner to develop a grant project plan tailored to each individual district's priorities.

The MHCRC invests in District efforts to close the achievement gap and make progress on the following academic outcomes key to student success:

- Kindergarten Readiness
- 3rd Grade Reading
- 8th Grade Math
- 9th Grade Credit Attainment
- High School Graduation
- English Language Learners' Annual Progress

The MHCRC has two overarching goals for the TechSmart Initiative:

GOAL 1: School districts funded by MHCRC grant investments will understand and implement effective instructional strategies and practices that use technology to foster improvement in academic outcomes for all students.

GOAL 2: The MHCRC and school districts will validate and disseminate effective instructional strategies and practices that use technology to foster improvement in academic outcomes for all students.

- **Teaching Effectiveness:** District supports regular, inclusive and shared professional development among teachers.
- **Digital Age Learning Culture:** District embraces cultural shift and views technology as positive.
- **Visible Leadership:** District leaders are actively involved and working with key communities to accomplish change.
- **Data-Driven Improvement:** Current, relevant and high-quality data from multiple sources are used to improve schools, instruction, professional development and other systems.
- **Funding & Budget:** District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.
- **Strategic Planning:** District's strategic plan reflects shared commitment to improving outcomes for students.
- **Engaged Communities & Partners:** Parents, stakeholders, community groups and others are actively and systemically involved in helping students develop, learn and achieve.

The TechSmart logic model includes short-term, intermediate, and long-term outcomes within each of these elements. This evaluation report assesses the short-term outcomes associated with each element of the framework. To assess these outcomes within each district, PRE and the MHCRC program manager worked with each district to develop an evaluation planning tool (see Appendix A). Table 1 shows when each district received its TechSmart grant funding and the project's area of focus.

Table 1. Grantee Funding Date and Focus Area

District	Year Funded	Grade	Focus Area
David Douglas SD	2014; 2018	K-3	Kindergarten Readiness (first grant); 3rd Grade Reading (first grant); 8th Grade Math (second grant); ELL (both grants)
Parkrose SD	2014	9-12	9th Grade Credit Attainment; High School Graduation; ELL
Reynolds SD	2015; 2020	7-9 9-12	8th Grade Math; ELL (first grant) 9th grade credit attainment; Attendance High School Graduation; ELL (second grant)
Portland Public Schools	2015	K-3	3rd Grade Reading; ELL
Gresham-Barlow SD	2016; 2020	K-3	3rd Grade Reading; ELL (first grant) 8th Grade Math; ELL (second grant)
Centennial SD	2018	7-9	7th-9th Grade Math and Science; ELL

Table 2 is a timeline for the TechSmart grant investments for each district. David Douglas and Parkrose were the first grantees in 2014-15 (SY 14-15). David Douglas wrapped up its initial grant in the 2016-17 school year (SY 16-17) and received a second grant and began implementing again in the 2018-19 school year (SY 18-19). Parkrose finished grant implementation in the 2017-18 school year (SY 17-18) and is not included in this report. Reynolds School District received their first grant in SY 15-16 and began implementation immediately. Reynolds received their second grant and began implementation in early 2020. Portland Public Schools received a five-year grant in 2015 and used the SY 15-16 as a planning year,

with implementation starting in SY 16-17. In 19-20, PPS received a grant extension through SY 21-22. Gresham-Barlow School District began implementation of their first grant in SY 16-17 and their second in SY 19-20. Centennial School District began implementation in SY 18-19.

Table 2. Grant Timelines

District	SY 14-15	SY 15-16	SY 16-17	SY 17-18	SY 18-19	SY 19-20	SY 20-21	SY 21- 22
DDSD								
Parkrose								
Reynolds								
PPS		Planning						
GBSD						Overlap		
Centennial								

This report describes evaluation results for the five districts who were within their grant implementation period during SY 19-20 (i.e., all districts listed in Table 2 except for Parkrose). Project descriptions for each of these school districts are included below, followed by the data collection methods used for evaluation in each district during SY 19-20, results specific to each district, and a summary of results across all grants. Each district's section of this report is organized by the Framework factors with corresponding evaluation questions and outcomes. Each section also includes a project summary as an introduction to the evaluation results.

Project Descriptions

Parkrose School District

Parkrose School District's (PSD) MHCRC TechSmart grant began implementation of its TechSmart grant in SY 14-15 and was funded through SY 17-18. This grant provided technology infrastructure and teacher PD to support one-to-one student devices at Parkrose High School and also funded PD to support high school teachers in transitioning to the use of online digital content and resources that take advantage of technology to create effective learning environments for students. PSD's goal for these efforts was to improve the district's performance on the student success indicators of 9th grade credit attainment, English language learners progress, and high school graduation.

David Douglas School District

David Douglas School District (DDSD) began implementation of its first MHCRC TechSmart grant during SY 14-15 through SY 17-18 with PreK-3rd grade classes at Earl Boyles Elementary School. The grant allowed for the purchase of equipment such as iPads, Chromebooks and Smart Boards and also funded extensive professional development (PD) to support teachers and staff members in transitioning to and understanding effective uses of online digital content and resources that utilize technology to create engaging and supportive learning environments for all students. DDSD's goal for these efforts was to improve Kindergarten readiness, 3rd grade reading outcomes, and English language learners progress.

DDSD received another grant with implementation beginning in SY 18-19 with both Mill Park Elementary School and Menlo Park Elementary School. The second grant allows for hardware and software purchases,

such as the Imagine Learning curriculum to target needs of ELL students, Smartboards, RedCat audio systems, Chromebooks, and tablets. Additionally, the second grant includes a technology integration coach to share between the two schools. Goals include increased student achievement in mathematics and closing the achievement gap of historically underserved populations.

Reynolds School District

Reynolds School District's (RSD) MHCRC 4-year TechSmart grant was funded in SY 15-16 and focuses on improving student achievement in 8th grade math, 9th grade credit attainment, and English learners' progress. Through the grant, cohorts of middle and high school math teachers receive teacher and student technology devices including Microsoft Surface Pros (teachers), short throw projectors, Dell Venues (students), and 3D printers. In addition to receiving the devices, the math teacher cohorts participate in PD sessions in the summer prior to the school year and throughout the year that focused on using technology to support math education and English language development. SY 19-20 represented one year after grant implementation was complete.

RSD's second TechSmart grant was funded in SY 19-20 and focused on expanding the work of the first TechSmart grant to the High Schools. The purpose of the Expansion of Constructivist Classrooms Across Reynolds High Schools (High School Expansion) project is to assimilate the use of instructional technology throughout the student and teacher instructional experience at the high school level. SY 20-21 will be RSD's first full year of implementation for this grant.

Portland Public Schools

Portland Public School District (PPS) received their five-year TechSmart grant in SY 15-16 and after one year of planning began implementation in SY 16-17. The TechSmart grant is supporting the K-5 Equity-Based Balanced Literacy (EBBL) framework adoption at PPS. By the end of the grant, 20 schools across the district will have the opportunity to receive professional development and pilot the technological infrastructure provided by the funding. PPS's goal for these efforts is to improve 3rd grade reading outcomes and English language learners' progress. PPS received an extension for this TechSmart grant that will provide funding through SY 21-22 and allow the district to extend TechSmart services to the district's remaining Title I schools.

Gresham-Barlow School District

Gresham-Barlow School District (GBSD) began implementation of its 4-year MHCRC TechSmart grant during SY 16-17 with Kindergarten through third grade classes at North Gresham Grade School and Kelly Creek Elementary School. The grant allows for the purchase of iPad devices for Kindergarten students and Chromebook devices for students in grades 1-3 and provides professional development (PD) to support teachers and staff members through the implementation of the grant. GBSD's goal for these efforts is to improve 3rd grade reading outcomes and English language learners' progress.

GBSD's second TechSmart grant was funded in SY 19-20 and focuses on Middle School Math. The purpose of the Embedding Technology in Middle School Math project is to provide intensive and targeted support for increasing student achievement in mathematics. The project will specifically target the achievement of 8th grade students and math credit attainment of students in 9th grade the following year.

Centennial School District

Centennial School District (CSD) began implementation of its 4-year MHCRC TechSmart grant during SY 18-19 with math and science students in grades 7 to 9. The primary focus of the grant is an integrated, hands-on, student-centered approach referred to as Project-Based Learning (PBL). The grant allows for purchase of Chromebooks for students and staff, projectors and document cameras for classrooms, digital microscopes and other experiential science technology, and Hapara licensing. The grant also includes a full-time STEM coach for the first three years, half-time STEM coach for the final year, and PBL-specific PD for teachers. CSD's goals include increasing teachers' knowledge, implementation, and use of PBL strategies and improvement in student achievement outcomes, including closing achievement gaps for historically underserved populations.

Methods

Teacher Technology Surveys

Each district completed a teacher survey at one or two time points during SY 19-20, depending on the district's preexisting teacher surveys. The teacher survey asked questions about PD activities, technology skill level, frequency and level of technology integration, most commonly used digital resources, and the culture of support for technology integration in the district. In the Spring of 2020, additional questions were included specific to the recent shift to distance learning (see Appendix B).

Teacher Interviews

PRE conducted teacher interviews with a sample of teachers from each district during SY 19-20. Teacher interview questions focused on examples of enhanced instructional strategies, the usefulness of the PD activities, the culture of support for technology integration, the impact of the grant on student subgroups, and effects on student engagement and academic outcomes. In the spring of 2020, additional questions were included specific to the recent shift to distance learning. See Appendix C for the complete interview protocol.

District Leader Interviews

PRE facilitated district leader interviews in spring 2020 with school principals, administrators, and technology coaches in each TechSmart district. Leaders discussed perceptions of teacher progress and student achievement outcomes related to the project, the district's strategic plan for technology including funding decisions, and how they were working to engage communities in their efforts. Similar to other data collection methods, leaders were asked to reflect on the recent shift to distance learning due to the COVID-19 pandemic. See Appendix D for the complete interview protocol.

Student Surveys

For TechSmart projects targeting middle and high school students, a student survey was administered to answer questions on how technology in the classroom has affected student engagement and learning, and whether student opinions about the use of technology have changed as a result of the enhanced integration. Students provided examples of technologies that they would like to see more of in the classroom. In 2020, items were added to the student survey to address the shift to distance learning. Due to the COVID-19 pandemic, Centennial SD was the only district to administer the student survey. See Appendix E for a copy of the survey.

Observations

One of the elements of the TechSmart grant is to examine how technology is supporting effective instructional practices across the TechSmart grantees. In order to learn about this key outcome, PRE partnered with the TechSmart grantees and the MHCRC to develop a rubric that can be used to rate the use of technology to support instruction. The items were created using elements of the Danielson Framework[1] as described below. Teachers were asked to self-assess using the form on the year-end

[1] The Danielson Group (2013). The Framework for Teaching Evaluation Instrument. Retrieved from http://www.danielsongroup.org/framework/

survey in SY 19-20. Historically, an online leadership observation form has been used to gather observations of individual TechSmart classes. This observation form was not completed in SY 19-20 since teachers were in a remote environment due to the pandemic.

- **Planning and Preparation**: Includes knowledge of content and pedagogy, knowledge of students, setting instructional outcomes, knowledge of and access to resources, designing coherent instruction, and designing student assessments.
- **Managing Classroom Procedures**: Includes instructional groups, transitions, materials and supplies, non-instructional duties, and efficient classroom procedures.
- **Organizing Physical Space**: Includes safety and accessibility, and arrangement of furniture and resources.
- **Communicating with Students**: Includes expectations for learning, directions and procedures, explanations of content, use of oral and written language.
- **Using Questioning and Discussion Techniques**: Includes quality of questions, discussion techniques, and student participation.
- **Engaging Students in Learning**: Includes activities and assignments, student groups, instructional materials and resources, and structure and pacing.
- **Using Assessment in Instruction**: Includes assessment criteria, monitoring of student learning, feedback to students, and student self-assessment and monitoring.
- **Demonstrating Flexibility and Responsiveness**: Includes lesson adjustment, response to students, and persistence.

Project Status Reports

Each district submits grant project status reports twice yearly through the MHCRC grants management system. PRE and MHCRC staff developed the report requirements to provide updates from each district on various elements of the logic model. Information from the status reports relevant to the TechSmart logic model is used by PRE in the evaluation of a district's progress on TechSmart goals.

Student Achievement Data

PRE receives student-level data from the Oregon Department of Education (ODE) and directly from school districts to analyze the relationship between TechSmart investments and key student outcomes. The key outcomes examined for students are included in Table 1. Outcomes regarding 3rd grade reading and 8th grade math are evaluated using data from the Smarter Balanced assessment, described below. There is a one-year time lag in the data PRE receives from ODE. As a result of this one-year time lag, the data presented in this report comes from SY 15-16, SY 16-17, SY 17-18, and SY 18-19. Student achievement data for SY 19-20 are included in this report only in those instances that districts were able to provide PRE with student achievement data directly.

Smarter Balanced Assessment

Oregon is part of a team of states working together voluntarily to develop K-12 assessments in English language arts/literacy and mathematics aligned to Oregon's Common Core State Standards. These tests are called Smarter Balanced assessments. Delivered online, these tests include questions that adapt to

each individual's performance and feature new "Performance Tasks" that mimic real-world application of students' knowledge and skills. Due to the COVID-19 pandemic, the SBAC assessment was not administered to students in SY 19-20.

ELPA Assessment

The English Language Proficiency Assessment, or ELPA, is one of the required Oregon state assessments. The No Child Left Behind Act (NCLB) mandates that English learners in kindergarten through 12th grade are assessed annually to measure their level of English proficiency. The Oregon Department of Education developed the ELPA to meet this federal requirement and to provide a common assessment for all English learners in the state of Oregon.

Beginning in 2015-16, the state of Oregon began implementation of the ELPA21 assessment. The goal of ELPA21 is to provide online assessments that are aligned with the ELP standards adopted by the Oregon State Board of Education in 2013 and that best measure English Learner's mastery of the communication demands of the Common Core State Standards and the Next Generation Science Standards. As required by federal law, ELPA21 will continue to measure English proficiency in the four language domains of reading, writing, speaking, and listening. Additionally, ELPA21 consists of more interactive item types, especially for speaking and listening, compared with Oregon's former ELPA. ELPA21 scoring is quite different from Oregon's previous ELPA. There is not a single, more traditional composite score provided for ELPA21 results. Students receive an "Overall Proficiency Determination" which is a label and not a numerical score. Students are labeled as "Emerging," "Progressing," or "Proficient." Students receive four domain-level results that are on different scales. Domain results include both a numeric score and a proficiency label. The overall proficiency descriptors for ELPA21 are included in Table 6 below. Starting with data from SY 15-16, test scores for the ELPA21 assessment are included in this report. Because ELPA21 is scored differently, we will not be able to make comparisons to historical Cohorts.

Table 6. Official ELPA21 Proficiency Descriptions

	Proficiency Level Description
Emerging	Students are Emerging when they have not yet attained a level of English language skill necessary to produce, interpret, and collaborate on grade-level content-related academic tasks in English. This is indicated on ELPA21 by attaining a profile of Levels 1 and 2 in all four domains. Students scoring Emerging on ELPA21 are eligible for ongoing program support.
Progressing	Students are Progressing when, with support, they approach a level of English language skill necessary to produce, interpret, and collaborate, on grade-level content-related academic tasks in English. This is indicated on ELPA21 by attaining a profile with one or more domain scores above Level 2 that does not meet the requirements to be Proficient. Students scoring Progressing on ELPA21 are eligible for ongoing program support.

Proficient	Students are Proficient when they attain a level of English language skill necessary to independently produce, interpret, collaborate on, and succeed in grade-level content-related academic tasks in English. This is indicated on ELPA21 by attaining a profile of Level 4 or higher in all domains. Once Proficient on ELPA21, students can be considered for reclassification.

David Douglas School District

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PROJECT SUMMARY

David Douglas School District's (DDSD) TechSmart grant focuses on math proficiency in grades 3-5, which the district determined as a primary barrier preventing students from graduating high school. To support the goal of improving student graduation rates and math proficiency, DDSD chose to implement several interventions throughout students' school careers. In part, DDSD's TechSmart goals work toward improving elementary math curriculum and instruction, especially for historically underserved populations, which are prevalent in DDSD.

The main goal of DDSD's participation in TechSmart was to increase student achievement in mathematics for grades 3-5. A Technology Integration Coach was hired to work with the two TechSmart schools (Mill Park and Menlo Park). Due to the COVID-19 pandemic, the coach supported not just the two schools but the entire district during SY 19-20. Additionally, TechSmart funds were used to support personnel costs including: Mill Park and Menlo Park Principals to support implementation, the Curriculum Director to plan summer training, Student Achievement Specialists to provide training for LearnZillion and Google Classroom, the District Math Specialist to support the online components of the math curriculum, and the Mill Park and Menlo Park Language Coaches to support teaching in math discourse strategies.

FINDINGS

The evaluation findings from the SY 19-20 evaluation at David Douglas School District are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

METHODS

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Data collection efforts for the SY 19-20 evaluation at DDSD are summarized below. Survey and interview quotes have been edited for grammar and brevity.

Teacher Survey: A teacher survey was administered online to teachers in both September 2019 and June 2020. A total of 20 teachers completed the baseline survey and 14 teachers completed the year-end survey.

Teacher Interviews: PRE conducted phone interviews with six teachers involved in the TechSmart grant. Three of the participating teachers worked at Mill Park and three teachers worked at Menlo Park.

District Leader Interviews: PRE conducted two interviews with leaders from DDSD, including the district's Technology Integration Coach, who now supports the entire district, as well as one principal from Menlo Park.

Leadership Observations: Observations were scheduled to be completed in Spring of 2020 but were not completed due to the COVID-19 pandemic.

Student Achievement: Statewide assessments were scheduled to be completed but did not occur due to the COVID-19 pandemic. David Douglas was able to provide Math Inventory assessment data for part of the year.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

According to DDSD's project plan, the district planned to provide ongoing embedded coaching and training using their Professional Learning Team (PLT) structure, modeling and co-teaching with the coach, professional development (PD) for the Augmentation and Modification levels of SAMR, and ongoing support for LearnZillion math management and Google Classroom integration. While the Technology Integration Coach was initially meant to split time supporting only Menlo Park and Mill Park elementary schools, once distance learning was mandatory for the district starting in March 2020, the coach ended up supporting the entire district in the transition to online learning. Professional development and training were provided on a group and individual basis. A resource website was created in SY 19-20 on use of technology for self-paced learning. Similar to the previous academic year, the coach was frequently emphasized as an essential component of TechSmart work. Both teachers and leaders described his success as a coach and his importance to the perceived success of TechSmart implementation within the district and the transition to distance learning. When one teacher was asked whether they had suggestions for improving the PD model, she said:

> *I actually do not, because [the Technology Integration Coach] would send emails with all the different types of things you could do. When we would meet about one thing, he would mention other things… I really feel that it was really well done. I could have him come in and help me anytime. He was constantly informing us.*

The value of the Technology Integration Coach was reiterated among all teachers who were interviewed. Almost all teachers described the PD provided as being tailored to different skill levels, although one teacher felt the group PD was slightly tailored more toward the first step of SAMR technology level. This teacher did clarify, "I feel like lots of PD, not just [the] tech program, but PD in general, is rarely individualized or modified." This same individual went on to explain that in terms of individual training the coach was "amazing…he's available at the drop of a hat. When he was in the building, he would come into the classroom just to troubleshoot, or on many occasions, I emailed or texted him."

When asked about the model of PD, one teacher spoke to both the group and individual PD and said:

> *Our coach would do a whole group [PD] at our staff meetings… a lot of times it would be a quick here's something that might be valuable in the classroom. Then we could sign up for him to come do individual coaching or to get started in our classroom - he would come in and get Chromebooks started in the class with everyone signed on and it was invaluable. I used our coach on a weekly basis…I have him come in my room, either teach me, and I would teach or we would co-teach, and make sure all the kids were set up, and then I could go from there.*

As shown in Figure 1, the majority of TechSmart teachers reported receiving between 1-8 hours of both group and individual PD during the school year. Group PD and individual PD were both perceived as useful with **over 71.43% indicating both types of PD were very or extremely useful**.

Figure 1. David Douglas Hours of PD

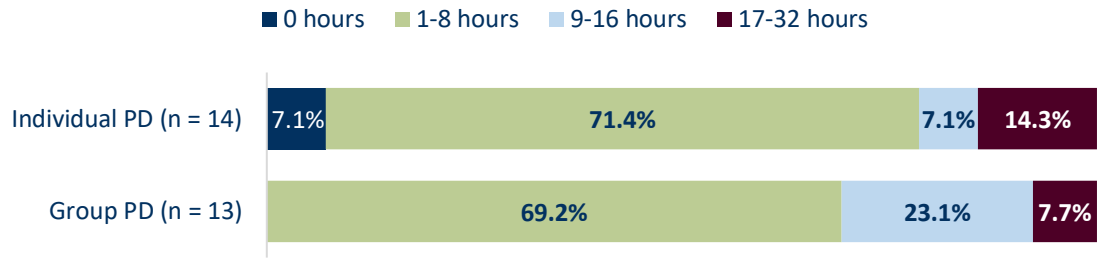
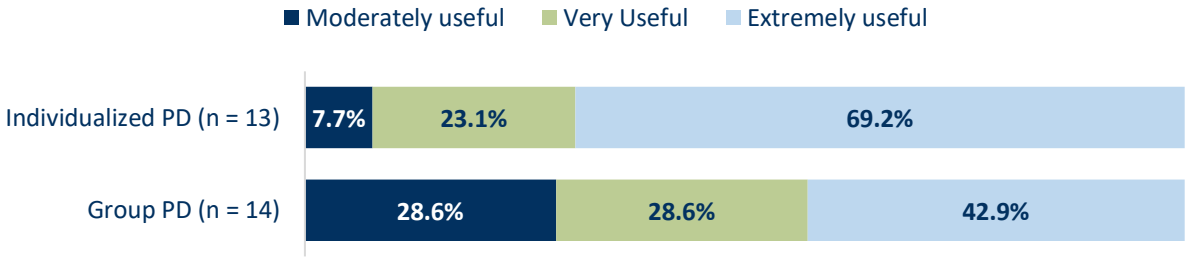


Figure 2. David Douglas End of Year Teacher Ratings of PD Usefulness



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

How is professional development impacting teacher instruction?

Key Findings:

- The Technology Integration Coach was consistently described as a valuable, helpful, and necessary resource to integrating technology into instruction.
- Teachers reported gains in four out of the five dimensions of technology integration in instructional strategies.
- Teachers experienced the largest gains in using technology to differentiate instruction and to analyze data about student learning.
- At the beginning of the school year, most teachers self-rated as Level 3 (out of 5), but at the end of the school year the majority self-rated as Level 4.

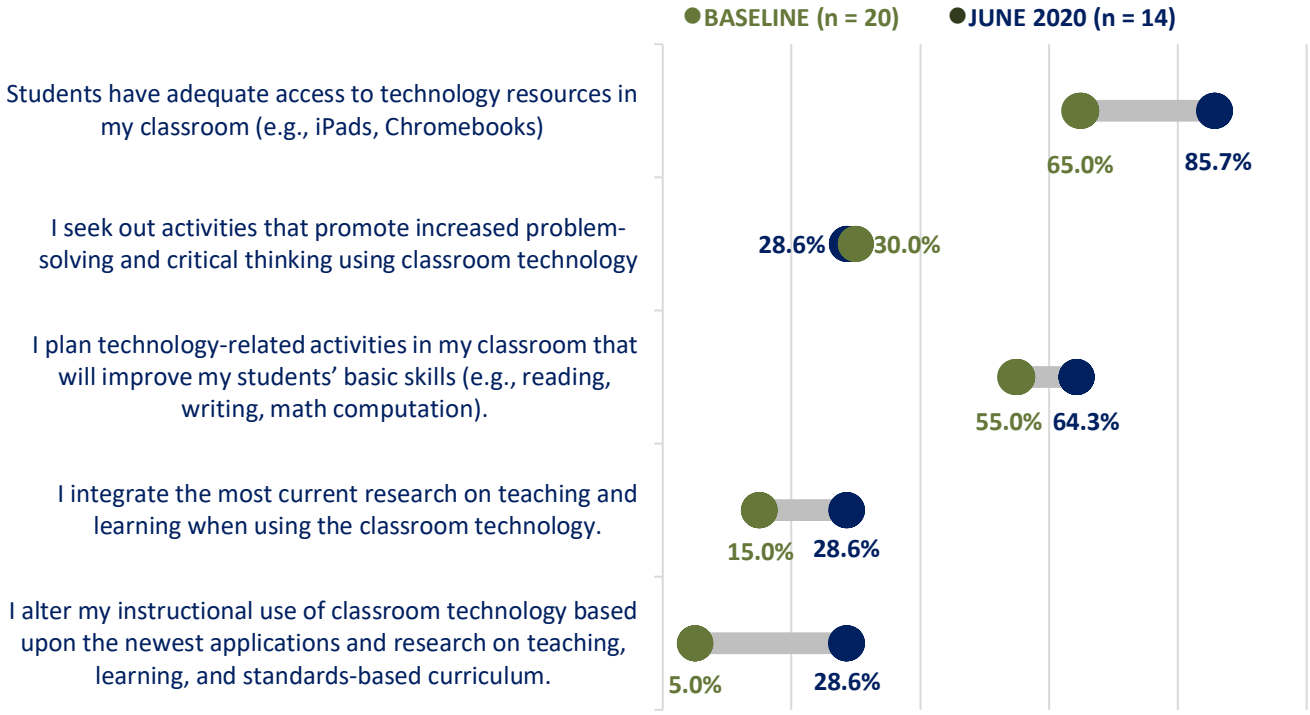
The teacher survey asked how effective the PD model has been in impacting teacher instruction. The 12 teachers who responded to this question highly praised their school's PD model and credited most of the success to the talents of the DDSD Technology Integration Coach (see Table 1). Many teachers and leadership emphasized in their interviews that having the technology expertise provided through the grant was especially valuable in the mandatory transition to distance learning that occurred due to the COVID-19 pandemic. This theme will be discussed further in a later section.

Table 1. David Douglas Feedback on PD Model (n = 12)

[The PD model was] absolutely necessary.
Having and using a Smartboard has been a game changer. It is very engaging for students.
I can't imagine what a nightmare this distance learning situation would have been without [the Technology Integration Coach] and all of our tech expertise we've gained through this grant. [The Technology Integration Coach] hosted so many teach classes, and he had a resource for quick videos to everything we needed to teach distance learning. I work mostly 1:1 with [the Technology Integration Coach] in a causal setting asking questions. Or, I access the website he created for access to links. I think that's the most effective model for me.
I think it only works if you have an amazing coach and [the Technology Integration Coach] is amazing.
It has been great. We have the technology and someone able to help us with it as the need arises.
It was very individualized and effective: people seemed to be able to get support right where they needed it instead of a one size fits all model. Our tech specialist was very available to anyone who needed support or wanted to further develop their skills based on what I have heard from other staff. My only suggestion is to maintain the flexibility of the person in this position as it seemed well utilized.
[The Technology Integration Coach] is an invaluable resource to our school.
Meeting different teachers at their level to differentiate professional development.
So helpful! [The Technology Integration Coach] has been great. He always has ideas and is ready to help. He is so patient and teaches me how to do things, not just doing them for me.
The tech grant has been crucial for making it through this time. Distance learning without the experience, extra devices, and training would have been so much harder for my class of students with special needs. Being able to edit videos, try out new systems and make high quality recording makes such a difference. I think if we continue a distance learning model, creating support for families to learn technology, and making sure they have access to what they need is an important step for making it successful.
The TechSmart grant professional development has helped improve my teaching by making it more relevant to my students. They are growing up in a technology world and it's what they know! They like it, and they want to use it. The more I know how to use and integrate technology into my instruction, the more relevant I feel with my students, and they are more engaged.
Very! Thanks to [the Technology Integration Coach] who was always ready to help in any way possible and is always readily available to answer questions.

Teachers started off SY 19-20 at various levels of incorporating technology into their instructional strategies. Teachers reported gains in using updated applications and research, integrating research in instruction, planning technology-related activities, and students having access to technology resources skills (Figure 3). There was a less than 2% difference between baseline and end of year responses regarding seeking out activities that promote problem-solving and critical thinking using technology.

Figure 3. David Douglas Instructional Strategies
(% True of Me/Very True of Me)



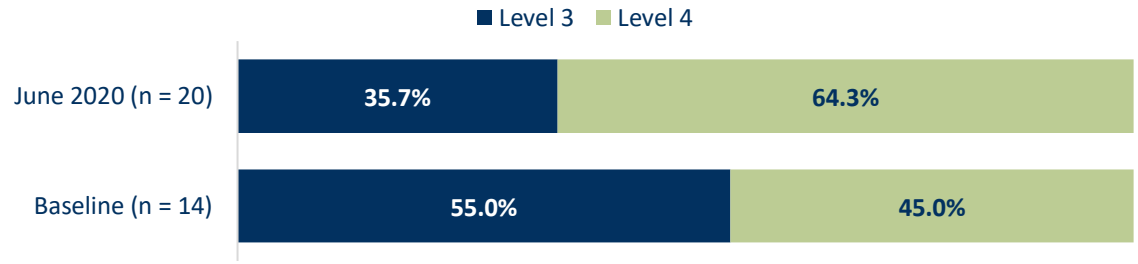
Teachers reported their technology skill level on the beginning-of-year and end-of-year surveys by rating themselves at one of the following five levels:

TECHNOLOGY SKILL LEVEL

1. I get someone else to do technology-based tasks for me.
2. I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.
3. I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.
4. I use a variety of technology tools and I use them efficiently for all aspects of my job.
5. I use technology efficiently, effectively, and in creative ways to accomplish my job.

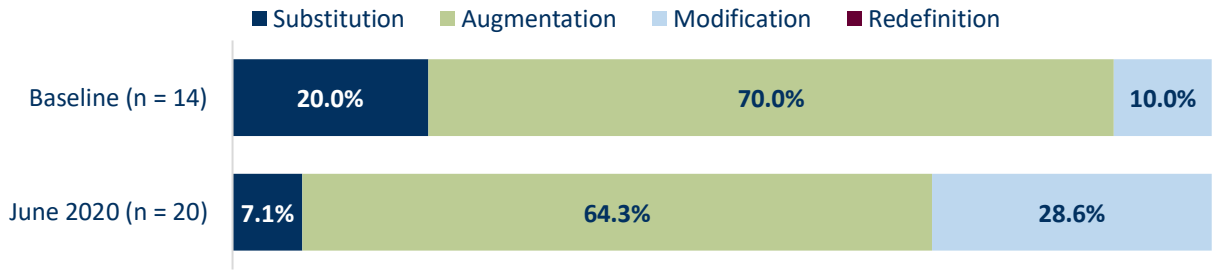
All teachers self-rated as a Level 3 or higher at the beginning of the school year. However, there was an increase in the percentage of teachers who identified as Level 4 by the end of the school year as displayed in Figure 4 below.

Figure 4. David Douglas Teachers' Technology Skill Level



Teachers self-reported progressing to the next part of the SAMR Cycle (Substitution, Augmentation, Modification, Redefinition) by the end of the year compared to the beginning. At the start of SY 19-20 **only 10.0% of teachers identified as in the Modification stage compared to 28.6% by the end of the year**.

Figure 5. David Douglas Teacher Self-Ratings on SAMR Cycle



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

What new instructional strategies are teachers reporting?

Key Findings:

- Many teachers listed FlipGrid as an effective instructional support for their students.
- Teachers have increased their use of Smartboards and find that it is helpful in promoting student involvement as well as organizing and managing the classroom.

Teachers were asked to provide examples of new technology related instructional strategies that they believe have been effective in their classroom instruction and rate the strategies on a scale of one to five, with five being the most effective. Teachers were able to list up to two effective practices. Table 2 shows the ways in which teachers described use of technology, along with the effectiveness ratings. Only nine teachers answered these questions, and **five teachers listed FlipGrid with an average score of 3.8 regarding effectiveness**.

Table 2. David Douglas Teachers: How New Technology is Being Used for Instruction

Instructional Supports	Effectiveness Rating
FlipGrid	3.8 (n = 5)
Online Worksheets	3.0 (n = 1)
Imagine Math	4.0 (n = 1)
Peer Edit	4.0 (n = 1)
Video Lessons	4.5 (n = 2)
Google Classroom	5.0 (n = 1)
Interactive Games (such as Klahoots)	5.0 (n = 1)
Keyboarding Without Tears on Chromebooks	5.0 (n = 1)
Slideshows	5.0 (n = 1)
Unique Learning Systems	5.0 (n = 1)
Different Options for Online Work (such as posting annotated work samples online, adding audio/video narrations, etc.)	4.0 (n = 1)

Teachers were asked to self-assess their use of technology to support instruction using a rubric on the year-end survey. Teachers **reported most frequently using technology to support instruction for planning and preparation** (Table 3).

Table 3. David Douglas Teachers: How Technology is Used for Supporting Instructional Practices (1 = Not at All, 2 = Very Little, 3 = Somewhat, 4 = To a Great Extent)

	(n = 14)
Planning and Preparation	3.6
Managing Classroom Procedures	3.4
Engaging Students in Learning	3.4
Communicating with Students	3.4
Using Assessment in Instruction	3.1
Demonstrating Flexibility and Responsiveness	3.0
Using Questioning and Discussion Techniques	2.7
Organizing Physical Space	2.4

In teacher interviews, participants explained in more detail how technology has enabled them to try new teaching strategies. Multiple teachers explained the usefulness of the Smartboards in providing visual models of what was being taught, having access to an interactive white board, playing music to indicate transitions, and providing directions for small group rotations. Teachers felt that the Smartboard helped them to run the class in a more organized way. The Technology Integration Coach reflected this same sentiment saying, "I saw a lot of teachers using their Smartboard more effectively….Teachers were doing their LearnZillion math lessons on the Smartboard. I worked in a class where she displayed their formative assessment data on the board and talked through it with the students."

Another teacher had specific praise regarding her new practice of using Google Slides:

I do my lesson planning on Google Slides all day, every day… I love it because everything is integrated there, my videos they're integrated there, my web links, they're integrated there, my learning targets, my assessments, my links to other curriculum, everything's in one place, the kids know what to expect. That has just been super helpful.

A few teachers explained how Google Classroom allowed them to have a more integrated approach in assessing students work – providing feedback and comments and having them easily access resources to conduct more research. One teacher said, "I do most of my stuff on Google Classroom and so kids do assessments there, kids do writing assignments there, I often assign videos there or websites, we're doing research, so most of this stuff is there."

Teachers explained how using FlipGrid allowed students to be more involved and centric in their own educational process. One teacher stated, "I do use FlipGrid, so I do have kids responding via video which I really like, and I would like to do more of." Another teacher agreed, "I use FlipGrid that will allow kids to share their learning without having me directly there. That is a powerful way to learn."

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

How are the new instructional strategies impacting student engagement?

Key Findings:

- Student engagement continues to increase with the use of technology especially in areas of visual projects, group work, and the Smartboard.
- Some teachers are concerned that the students' reliance on technology may be outweighing the benefits, which is a concern the Technology Integration Coach welcomes as an area of growth.

In interviews, all six teachers provided feedback that indicated that student engagement has increased with more frequent technology integration and new instructional strategies. According to the teachers interviewed, students enjoy using their computers and teachers remarked how impressed they are with their students' ability to learn how to use new technology. Students seem to enjoy using Google Documents to do reports online and finding photos to illustrate their content. According to one teacher, some students do even better if they are able to report out using a slideshow instead of a written paper, she stated, "If they can do a slideshow and have some visuals to go along with it, it is 100 times better than if they were just in the classroom sitting there writing a paper."

One teacher explained how Smartboards increase the level of interaction in the class, "Our Smartboards have been amazing. Just making it more interactive; kids are part of that lesson and showing those samples in a way that it's visual for the whole class." The Technology Integration Coach touched on this same sentiment and stated, "Using the Smartboard was highly, highly engaging for the students."

A few teachers commented on how technology has facilitated group work in a more engaging way. Students are able to work together on a project and use collaborative tools that they can all access and see. Referring to virtual breakout rooms, one teacher said:

> *When we did a breakout room, they were so engaged that whole time and never had to deal with a circuit of behavior. Those are the things you want when you are teaching, is the kids are so into it that they just don't even realize they're reading and doing all that.*

Using Epic books has been useful to engage students in reading, as they enjoy the videos and songs that accompany the books. It was explaining the students' excitement for Epic books that one teacher mentioned her concern that physical books in her classroom were no longer being touched. This was a sentiment a few teachers mentioned - that students are so engaged with using their computers that they worried there is not enough balance with screen time – especially in the current season of distance learning. This balance is currently a focus of the Technology Integration Coach in having teachers move through the SAMR model in professional development. The coach explained:

> *We have really worked on the SAMR model on intentional use of technology instead of just for games or for mindless work. That even caused a teacher to think, 'Oh, yes, do I have to use all this tech stuff?' Their goal was actually using technology less and more on an intentional level instead of just using technology for everything, which was great when you have to question what's effective, what's not, and what could be done better, tactile or on technology. It's great. That's what we want to do.*

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Are the new instructional strategies showing promise for improving academic outcomes?

Key Findings:

- Preliminary data indicates that Mill Park and Menlo Park (the two Treatment groups) students are behind their counterparts at Lincoln Park and Ventura Park (the corresponding Comparison groups) when comparing Math Inventory scores.
- Menlo Park 5th graders have a higher percentage of students at or above grade level on Math Inventory scores compared to Ventura Park.
- Technology programs such as Imagine Learning have allowed teachers to better differentiate their teaching for each student, allowing for more learning to occur across all students.

Due to the sudden shift to distance learning, DDSD was not able to assess students through the Smarter Balanced Math Assessment as planned. However, the district provided Math Inventory data for Fall and Winter in SY 19-20. The number of students who took the Math Inventory assessment in Fall and Winter are presented in Table 4. Treatment schools are in yellow and Comparison schools are in gray.

Table 4. David Douglas Treatment & Comparison Schools Grade 3-5 # of Students who took Math Inventory

	Grade 3 Fall	Grade 3 Winter	Grade 4 Fall	Grade 4 Winter	Grade 5 Fall	Grade 5 Winter
Mill Park (Treatment)	n = 81	n = 74	n = 70	n = 61	n = 73	n = 68
Lincoln Park (Comparison)	n = 92	n = 86	n = 109	n = 103	n = 96	n = 91
Menlo Park (Treatment)	n = 70	n = 67	n = 75	n = 73	n = 73	n = 69
Ventura Park (Comparison)	n = 47	n = 44	n = 71	n = 69	n = 68	n = 66

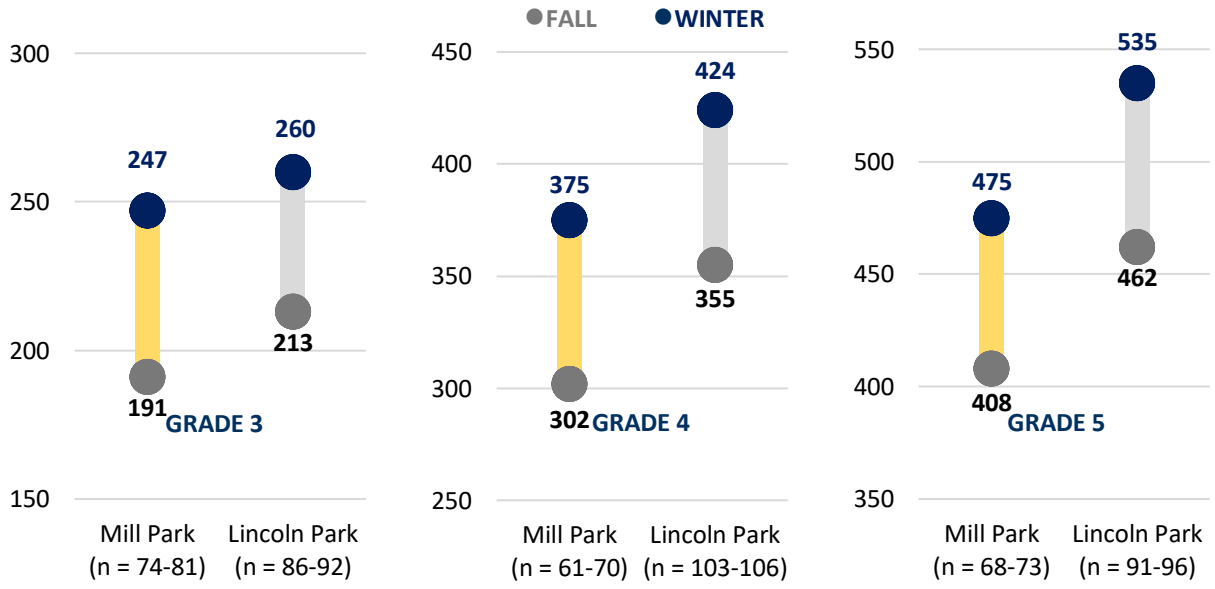
Mill Park Grade 3 students achieved higher gains in their Math Inventory scores from Fall to Winter 2019 compared to the gains achieved in the Comparison group at Lincoln Park (+56 vs +47), see Table 5. **Mill Park Grade 4 students also achieved higher gains** compared to Lincoln Park (+73 vs +69).

Table 5. David Douglas Treatment & Comparison Schools Grade 3-5 Math Inventory Scores

	Grade 3 Fall	Grade 3 Winter	Grade 3 Gains	Grade 4 Fall	Grade 4 Winter	Grade 4 Gains	Grade 5 Fall	Grade 5 Winter	Grade 5 Gains
Mill Park	191	247	+56	302	375	+73	408	475	+67
Lincoln Park	213	260	+47	355	424	+69	462	535	+73
Menlo Park	190	272	+82	366	438	+72	431	539	+108
Ventura Park	218	320	+102	375	456	+81	478	542	+64

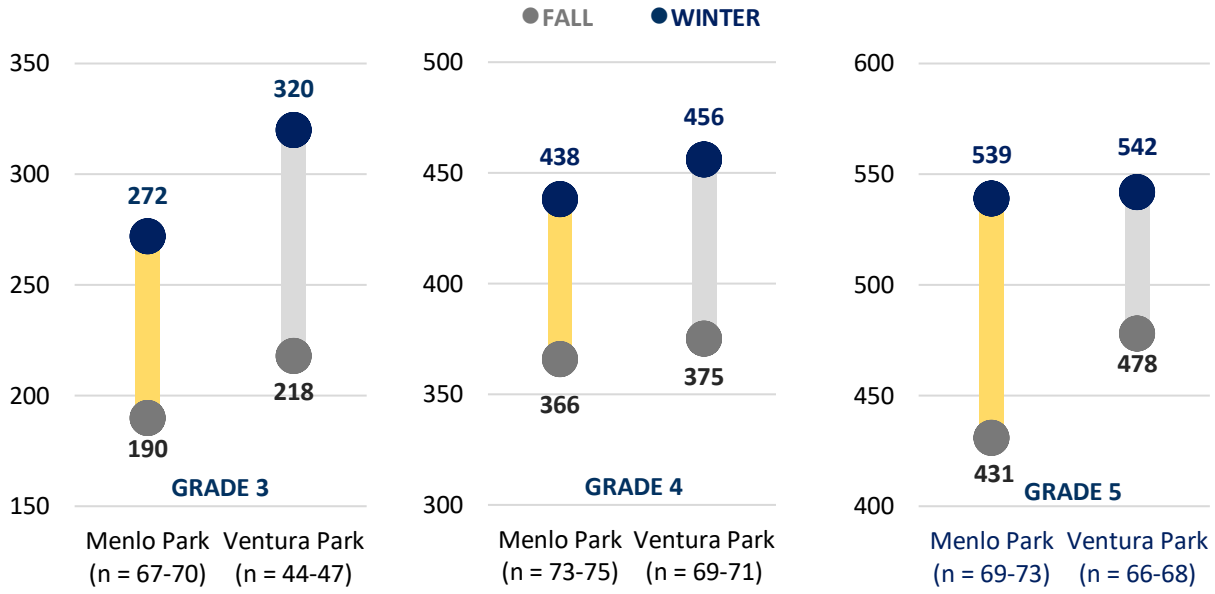
While the Treatment schools did experience gains above the gains in Comparison schools in select grades, the overall scores for grades 3-5 remained higher in the Comparison school (Lincoln Park) than the Treatment school (Mill Park), see Figure 6.

Figure 6. Mill Park and Lincoln Park Grade 3-5 Math Inventory Scores



Menlo Park grade 5 students demonstrated almost double the gains compared to their Comparison group at Ventura Park (+108 vs +64) – see Table 5 above. When comparing Menlo Park to its Comparison school, Ventura Park, a similar overall pattern was observed in that the scores were higher across all grades at the Comparison school (Ventura Park), see Figure 7.

Figure 7. Menlo Park and Ventura Park Grade 3-5 Math Inventory Scores



In addition, **Menlo Park grade 5 students also surpassed the percentage of Ventura Park students who were considered to be "Proficient" or "Advanced"** which indicates whether students are at or above grade level for their Math Inventory scores. This finding complements the previous finding related to Menlo Park's grade 5 students and may indicate a positive impact of the grant on these students' scores.

Table 6. David Douglas Treatment & Comparison Schools Grade 3-5 Math Inventory Scores

	Grade 3	Grade 4	Grade 5
Mill Park	14%	14%	13%
Lincoln Park	27%	25%	33%
Menlo Park	26%	30%	32%
Ventura Park	29%	33%	25%

Qualitative data were also gathered regarding the impact of technology on learning from leader and teacher interviews. One teacher generally spoke of the helpfulness of data to gauge students' progress continually through Imagine Learning. One of the leadership interviewees agreed and explained that programs like Imagine Learning "make it easier for teachers to differentiate per student" and "allow kids to keep learning." Another teacher mentioned being able to see data from the reading program to see how students progressed and explained:

I go back and use the program and look over what they have read and… look at some of their weaknesses, I did mini conferences based on the computer program. Everything I am doing every day is geared towards having them have a higher skill set in every area.

Another teacher illustrated how FlipGrid has allowed students to improve their fluency and problem solving by recording themselves, watching their recordings, and seeing where they can improve. A few other teachers agreed that writing in Google Docs has improved student's ability to see where their errors are and gives them the opportunity to correct their writing before submitting their assignment.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Do instructional practices show promise for improving student academic outcomes with at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

- Programs like Imagine Learning provide access to languages beyond the staff capacity at Mill Park and Menlo Park and allow for English Learners to participate on their own terms.
- Google Translate has been helpful for communication between teachers and newcomer students.
- Having the ability to differentiate learning for each student through adaptive technology has helped to address the achievement gap for at-risk students.

All teachers and school leadership interviewed were able to share examples of how technology has improved support for at-risk student subgroups. Teachers spoke specifically of the benefits certain technology like Imagine Learning and Imagine Math has brought to different levels of students, one teacher said, "I think that it really helped differentiate our curriculum to meet the kids where they were at using technology." Another teacher was able to succinctly provide three examples of how technology has addressed the achievement gap by recounting how she used Google Translate with a newcomer student, an iPad for one of her students with autism to help him communicate with other students, and witnessed how students who struggle reading were able to shine when working with their MakerBit projects. She summarized the impact on the achievement gap by stating:

I think technology allows kids to control their learning in different ways. Maybe one student is going to do it in a speaking way, while the other one can type it out. Maybe it is more important that I get a kid to record himself and then go back and type something, and that it is typing for him at first and then he goes back to edit. Using that assistive technology allows kids to get what is inside them out.

Several interviewees emphasized how powerful access to translation through Imagine Learning and Google Translate has been for Englisher Learner students and especially newcomer students. One leadership staff member explained, "The Imagine Learning program is accessible in multiple languages. Students can access their work in their native language, and the program scaffolds it towards learning English – we have access to 25-30 languages. What staff has that ability? Even at home, their family can actually help because they can read the language." This point was emphasized in a few other interviews– that with so many languages spoken across the student population, technology has allowed for learning that would have been otherwise impossible. Teachers also were able to share stories of how newcomer students were able to use Google Translate in order to complete assignments. One teacher told a story about how a student who spoke no English was able to copy and paste assignments into Google Translate, complete the work, and then translate it back to English to complete the assignment. While interviewees acknowledge these translation programs are not perfect, they emphasized it has been enough to communicate and have noticed the positive impact it has had on these students to be able to read and write their native language while in school.

During the year-end survey teachers were asked about the strategies they have used with at-risk subgroups. Table 7 lists teachers' comments from the year-end survey. Differentiation was the primary theme from these responses followed by increased opportunity for participation using visual aids and translation programs.

Table 7. David Douglas Teachers' Use of Technology-Supported Instruction with At-Risk Subgroups

ELLs can work on something different than the rest of the class. It helps to differentiate.
Finding relevant role models; video and audio-based work; virtual manipulatives.
Technology is very accessible to my students many times when traditional delivery is not. It is a very good tool to use for differentiation and creating individualized support. I also use technology for classroom management in terms of digital timers for transitions, movement/sensory breaks, social skills instruction, and engagement, etc.
I used Google Classroom to post assignments individually to ELLs. The lessons would involve iMovies and Flipgrids, so I could communicate with kids during distance learning. Google Voice, Remind and Google Translate have been helpful in communicating messages to families.
I am using reading and math programs that are adaptive. They meet the students where they are at.
I was able to differentiate reading instruction by assigning students, for examples, articles from Readworks that has K-8 passages. I assigned at-level instruction in EPIC books, including cultural materials. For writing, the speech to text feature was used for students who needed or wanted to use that feature. For ELL and ALL students, being able to quickly and easily add or pull up images for visual aids was used consistently.
Technology has allowed my students to have meaningful work at their level that is accessible and independent so my small group instruction could be manageable. It has created a variety of ways to approach a problem to match the student's needs.
Our entire class used a digital reading/language intervention that was leveled specifically to their language and reading needs.
Showing visuals, guiding toward learning website that are individualized to student skills.
Specialists utilized Google Classroom to provide differentiated and/or specialized instruction for example speech.

Write in answers on the survey aligned with interviewee's comments regarding the ability to differentiate learning for students operating at different levels as well as allowing for different forms of communication beyond speaking and writing in English.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

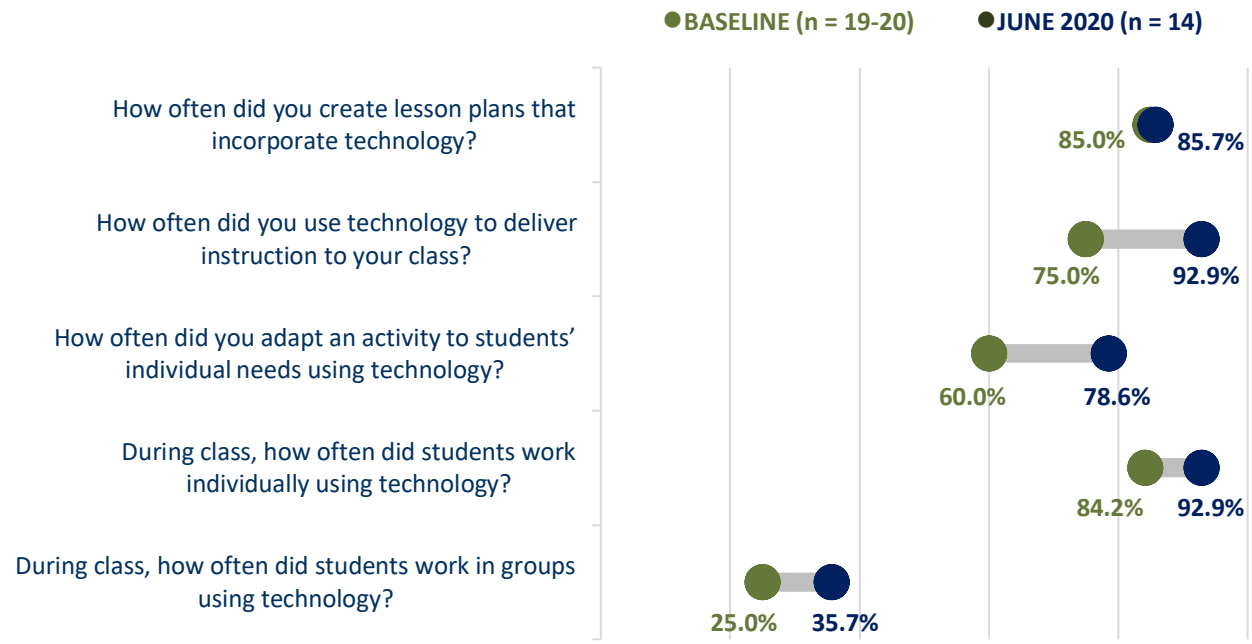
Has the use of technology to support instructional practices increased?

Key Findings:

- A majority of teachers are using technology to deliver instruction to their class and to adapt activities to their students' individual needs.
- There has been an increase of FlipGrid use which has been beneficial for English Learner students practicing speaking in English.
- Overall, there is an increase in using technology such as Google Classroom and Seesaw throughout the entire district due to the shift to distance learning.

Figure 8 illustrates the frequency with which DDSD teachers integrated technology in five different ways at the end of SY 19-20. **More than three-quarters (78.6%) of teachers indicated they** do each of the following a moderate amount or a great deal: **create lesson plans incorporating technology, use technology to deliver instruction, use technology to adapt an activity to a students' individual needs, and have students work individually using technology**. One behavior occurred less frequently, as only a third of teachers (35.7%) indicated they have students work in groups using technology a moderate amount or a great deal.

Figure 8. David Douglas Frequency of Technology Integration
(% A Moderate Amount/A Great Deal)



The district status report also indicated several ways in which technology use to support instructional practices has increased. According to the report, teachers were able to access Flocabulary, which is a website that helps students learn literacy and language using music. Due to an increase of free extended trials offered at the beginning of the pandemic, teachers also were able to try Dreambox math, which is a website where students practice their math skills similar to Imagine Math. The district language coaches and teachers are using FlipGrid to increase student discourse with students. This was a highly effective tool especially for English Learners as they can practice speaking and watching recordings of themselves. The report confirmed that use of FlipGrid has continued after the switch to distance learning. Due to the switch to distance learning, the Technology Integration Coach also affirmed that now every single teacher in the district is using Google Classroom, Seesaw, or some other platform for instruction and that there have been large increases in the use of technology due to that shift.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Is the learning management system useful for identifying effective instructional practices (more efficient, easier, data driven)?

Key Findings:

- While there is no formal learning management system in place for the district, DDSD uses data from several different tools and assessments to inform data-driven instruction, understand progress, and differentiate among students' needs.

Although DDSD has not implemented a learning management system (LMS), the district is utilizing several tools to collect data and inform data-driven instruction. The status report lists the following tools and resources in use within the district: Math inventory as a math data collection tool; DIBELS assessment as a reading data collection tool; Smarter Balanced assessment data to guide instruction; and Imagine Learning data to differentiate instruction.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

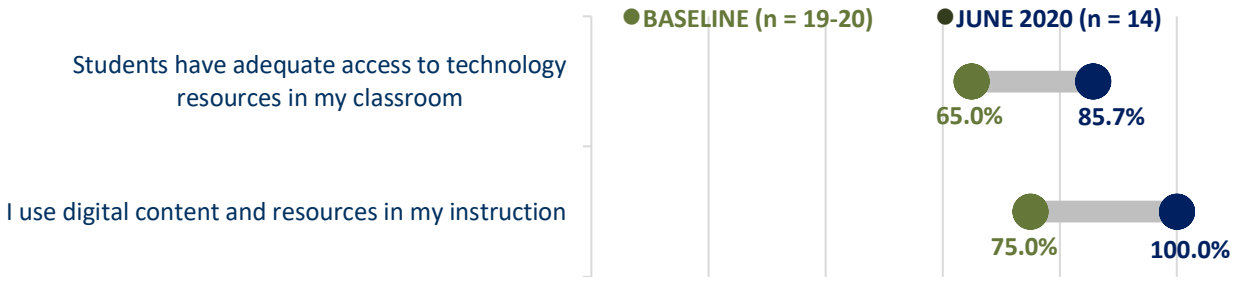
Do teachers have increased access to and use of digital content and resources?

Key Findings:

- Teachers have increased their use of digital content and resources in their instruction at the end of the school year compared to the beginning.
- According to teachers, students are more comfortable using digital tools for learning at the end of SY 19-20 compared to students at the end of SY 18-19.

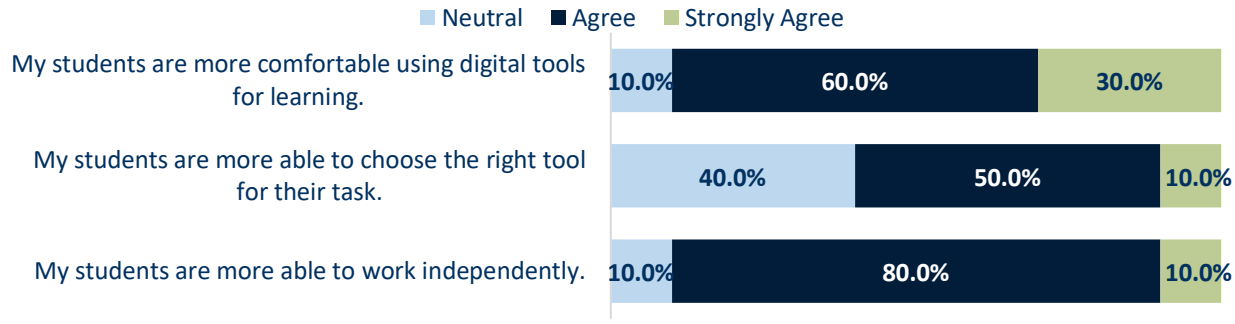
David Douglas teachers provided reports of how often they use digital content and resources during instruction and the adequacy of students' access to technology resources in their classrooms in the year-end teacher surveys. As previously reported, a **total of 100.0% of teachers indicated they use digital content and resources in their instruction** either a moderate amount or a great deal, while **85.7% of teachers reported** that it is true or very true **that students have adequate access to technology resources** in their classrooms. Compared to the beginning of SY 19-20, this was an increase of 20 percentage points.

Figure 9. David Douglas Digital Content Use and Access to Technology



Additionally, teachers were asked to rate a series of statements comparing their current students to students from their previous year of teaching. As shown in the figure below, **90.0% of teachers agreed or strongly agree that their students were more comfortable using digital tools for learning and more able to work independently at the end of SY 19-20 than previous years**. Additionally, 90.0% of teachers agreed or strongly agreed that their students were able to work independently.

Figure 10. David Douglas Year-End Student Technology (n = 14)



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

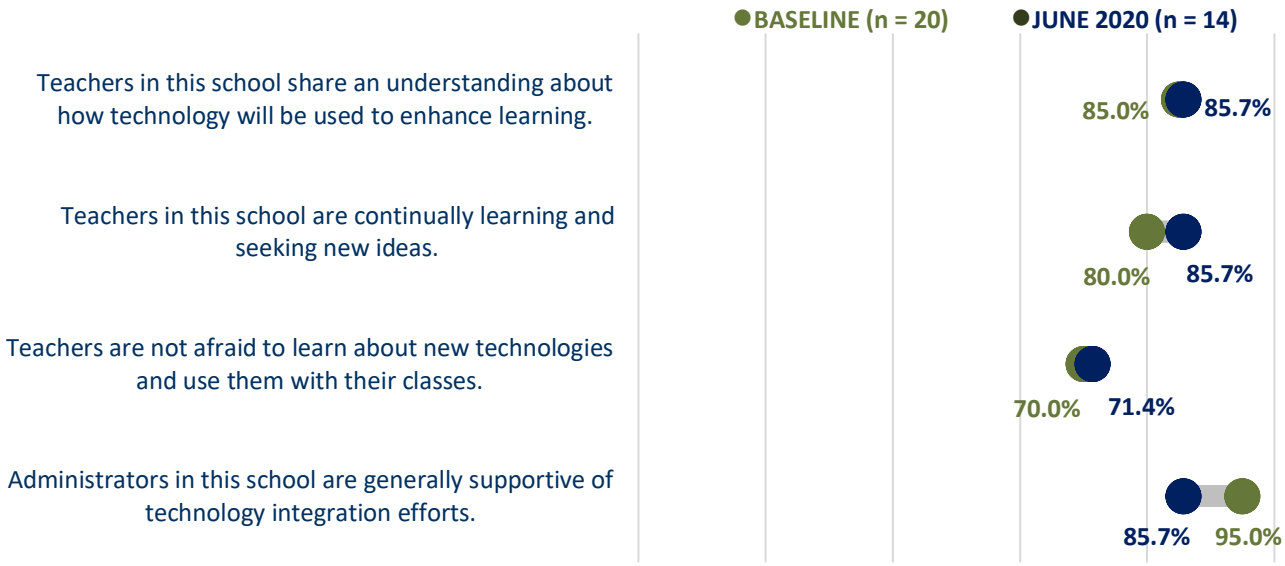
Is there evidence of district wide support for technology integration?

Key Findings:

- Teachers at David Douglas started the SY 19-20 feeling that there was a culture of support for technology integration and this persisted throughout the year.
- Teachers interviewed feel the most support for technology integration from the Technology Integration Coach and the coach felt supported by district leadership to carry out his role.

During the teacher survey, teachers were asked to rate their agreement with several statements regarding school culture of support for technology integration. Figure 11 displays results of teacher ratings from baseline (Fall 2019) compared to June 2020. By the end of SY19-20, **95.0% of teachers agreed or strongly agreed that administrators were supportive of technology integration efforts**, a gain of 9.3 percentage points compared to the beginning of the year. Over 70.0% of teachers agreed with all four statements regarding a culture of support even at baseline indicating David Douglas was in a strong position to start.

Figure 11. David Douglas Teacher Perceptions of Support for Technology Integration (% Agree/Strongly Agree)



In line with results of the teacher surveys, qualitative interview data supported the idea that DDSD is building a strong culture of support for technology. Interview participants emphasized the value of the Technology Integration Coach for providing direct support and building culture within the participating schools. Most teachers interviewed clarified that they were unsure how the district at large was supporting them but felt very supported by the coach.

The Technology Integration Coach was able to help provide more context to this question and explained that he is aware he is a main resource for the district but has experienced the freedom to do so by being supported by district leadership. He stated:

> *It's wonderful. They are so trusting, and they are so supportive of what I do. All they do is back me up. They go into classrooms and do their observation then they give me time during staff meetings if I need it. I have felt nothing but support from them and it's great because they support me so much. The teachers see that and then it just is infectious throughout the whole building.*

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Do parents have an increased understanding and utilization of districts' technology assets?

Key Findings:

- Teachers have increased their use of communication techniques with parents and guardians through technological tools such as iMovie, Google Meet, and ClassDojo.
- Similar to last year's findings, teachers would like to use technology more effectively to help them directly communicate to parents who do not speak English.
- In relation to their Comparison school, Menlo Park parents perceived their child was more equipped for reaching their educational goals during distance learning.

The discussion around use of technology for parents centered around the transition to distance learning which is discussed in more detail later in this report. Teachers were able to speak on their ability to use technology to communicate with parents during this transition. One teacher described how she was able to use iMovie technology to create an instructional video for how to get onto the virtual classroom and text it out to parents. This was very effective in reaching parents who were not responding to emails. Another teacher provided examples for how she has been able to connect with parents through FaceTime and Google Meet for various reasons such as IEP meetings. Using Google Meet was a strategy another teacher echoed in efforts to communicate with parents. One teacher mentioned the app called ClassDojo and explained she used it successfully to communicate videos, pictures, and messages with parents.

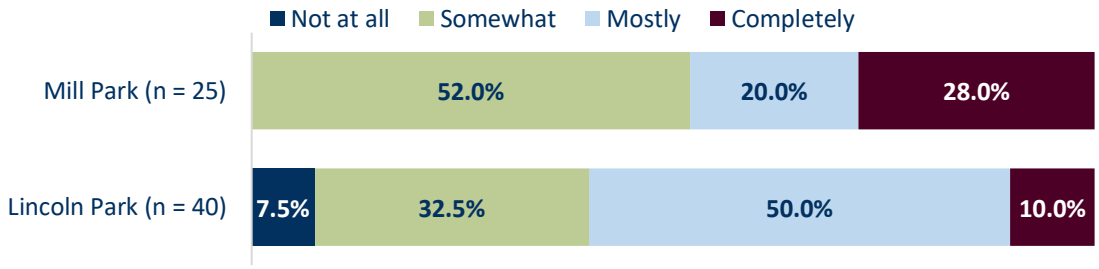
A few teachers discussed the issues that have come up with using translation technology to help them directly communicate to parents without a translator. This was a theme that also emerged in last year's report. One teacher explained, "Language issues are a big deal and so it would be nice if the technology could help us more with that…I think there's some fear in mistranslations, whether it be an audio or something written or that the meaning won't come across quite right." This same teacher went on to

explain that communication was a concern prior to the implementation of the grant, "There are definitely some barriers for us as far as parent involvement and in terms of communication, it's been a longstanding issue." The need for teachers to directly communicate with parents who speak a language other than English was repeated by a few other interviewees.

While most examples were drawn from experiences with distance learning, one teacher described how they were able to effectively use Smartboards during Multicultural night to engage parents and families.

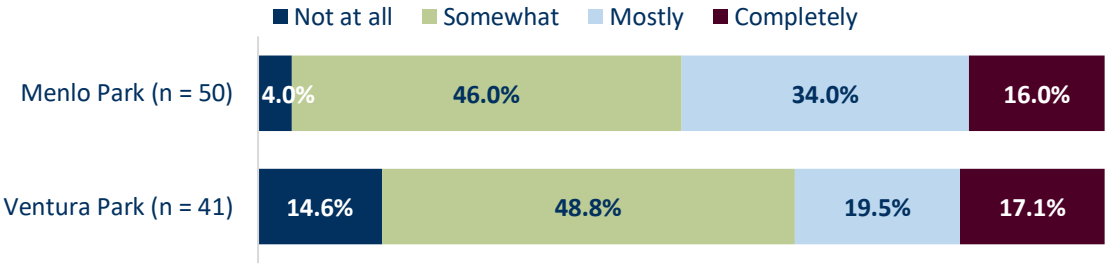
The school district also sent out a parent survey specific to access to technology during distance learning. One item on that survey asked parents and guardians if the lessons and school materials their child receives helps them to reach their educational goals. While the surveys were answered by parents representing all grades (Kindergarten to 5th grade), data was provided for both Mill Park and Menlo Park along with their Comparison schools. Figure 12 below displays Mill Park to its Comparison school, Lincoln Park. **Parents from Lincoln Park reported a higher percentage of completely or mostly (60.0%) having materials that help their child reach their educational goals during distance learning** compared to Mill Park (48.0%).

Figure 12. Mill Park and Lincoln Park Parent Perceptions of Having Materials for Education During DL



The Comparison school for Menlo Park is Ventura Park. For the same survey item, **half of Menlo Park parents surveyed answered that they completely or mostly (50.0%) have materials during distance learning compared** to only 37.0% of Ventura Park parents.

Figure 13. Menlo Park and Ventura Park Parent Perceptions of Having Materials for Education During DL



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

How has TechSmart impacted the shift to distance learning?

Key Findings:

- Teachers at TechSmart schools felt well equipped to continue their students' learning when their school shifted to distance learning.
- Teachers were able to adopt pieces of technology integration into their online learning environment that they had been wanting to try but had not yet made the time for.
- Younger grades and parents may have needed further support in the switch to distance learning and many teachers noticed a gap in technology uptake in those groups.

Teachers and district leaders interviewed all agreed that having previous exposure to technology integration as part of the TechSmart grant prepared them in the shift to distance learning. Teachers felt strongly that both they and their students were well equipped to shift to an online learning environment. Many teachers cited their previous experience with setting up, managing, and onboarding their students on Google Classroom as a significant advantage – one teacher explained, "We had already been using Google Classroom. Kids already knew what to do. It was easy to come up with a plan right at the start." The Technology Integration Coach affirmed these sentiments and described the TechSmart teachers' transition to distance learning as "almost seamless." Due to the current iteration of the TechSmart grant focused on grades 3-5 a few teachers expressed that it was much easier for those grades compared to the lower grades. One teacher iterated she felt a large divide between the upper and lower grades:

> *We need more technology for younger grades. The younger students can't use Chromebooks, they need iPads…I felt very prepared to do Google classroom. We were already using it. I'm so grateful for the grant. The grades who were not in the grant couldn't get their students logged on, compared to 3-5 graders who already knew how. Honestly, we couldn't get Kindergarten and 1st grade to even log on!*

Other teachers specifically mentioned how their previous training with FlipGrid allowed them to create a flipped classroom in their virtual environment. One teacher described her experience, "I've always been interested in doing the flipped model, but I had a hard time figuring out how to make that work in the classroom. Then distance learning became the flipped model because I was video recording myself with a lesson and the kids were watching it. There are obviously other bumps in that too, but I think that forced the issue, which in some ways was good."

In addition to interviews, a survey item was also included on the end of year teacher survey that asked, "How has your experience with technology integration over the past two years impacted the shift to distance learning that resulted from COVID19?" The results are presented below and affirm what was

stated in the interviews. Teachers primarily spoke of the advantage of already using Google Classroom in the shift to distance learning as well as the ability to conduct a flipped classroom.

Table 8. David Douglas: How Experience with Technology Integration Impacted Shift to Distance Learning

I'm glad I had the PD I did, because these 4 months would have been even more grueling.
YES! In a most positive way. For example, I was already familiar with and using Google Classroom, so the shift to distance learning was a little bit easier for me because I had that platform intact.
I was not afraid or unable to do distance learning. I had already been using Google Classroom every day in my class and continued to do so. My schema was so used to using and learning new technology that I just started to google "how to" clips for anything I needed to know.
I feel I was prepared to implement distance learning because of the use of technology in the classroom prior to COVID-19.
Without this tech integration, I would not have been using Google Classroom already in school. This would have made distance learning MUCH more difficult for myself and the kids. I am thankful that I was already using this and other tech stuff before distance learning began.
Honestly, the grant enabled us to transition pretty well because most classrooms were already incorporating a digital component like Google Classroom or FlipGrid. Our families were not prepared to use technology though. This was a huge struggle to even get kids on the platform when at home… This could have been a whole lot more stressful without the tech background knowledge.
I am SO glad our team were Google Ninjas before all of this! It greatly helped me already having the knowledge of how to navigate Google Classroom, assign lessons, and my students knew how to access it as well.
Great impact!! I had already started using Seesaw in my classroom and already had parents and families connected. I had already been sharing videos and having parents comment, etc. So, when schools shut down, it was not too bad of a transition to continue using that platform. We had to adjust to live teaching sessions on Google Meet, but we all figured that out and it worked great. Had I not been doing all that before the COVID shutdown, I would have been totally overwhelmed. Because I had been integrating the technology and because I had built up my basic technology skills and Luan had helped me become so much more competent, I had more confidence in moving into a virtual teaching world.
The use of Google Meet was totally new to me and I feel comfortable using it now. It was the only way to connect/see students and it was the best part of distance learning.

A few teachers expressed they hoped that the progress regarding technology integration due to COVID-19 continues once schools return to in-person. While teachers were clear that the shift to distance learning has been hard and the circumstances are not ideal, some felt the changes were ultimately good for their schools. A teacher explained that she hoped that other teachers now felt empowered to expect and demand more out of the technology the district provides. Another teacher said:

> *We all sort of stay stuck in our comfort zones, and you tippy-toe into something new. In a way distance learning forced us to do a lot of those changes, those pedagogical changes like you're talking about in our instruction rather than just tiptoeing through it and complaining, 'I can't make this happen. It's too hard. It's too much.'*

One interviewee did state that it was hard to get parents adjusted to distance learning and marked it as a potential avenue where her school could continue to provide support. She explained, "A lot of our families are illiterate, so adding a tech piece to it is just as scary as it was to a lot of teachers, especially doing distance learning. I think there needs to be some training on the part of parents too and some basic computer skill learning."

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Are districts identifying effective instructional practices and disseminating information and results to other districts?

Key Findings:

- The East County Technology Consortium was formed to help provide support for those implementing technology integration at the district level and has been invaluable to the DDSD Technology Integration Coach.

The year-end status report indicated that DDSD participated in the East County Technology Consortium meetings, which occur regularly and cover implementation, coaching tips, reporting tips, and other related topics. The Technology Integration Coach explained that this consortium discusses how "their grants have been impacting the district and talk about strategies and the things that are coming out of that." He went on to say, "it was great to meet them once a week and I learned so much from them." Individuals participating in this consortium have been able to exchange ideas such as a scale for measuring new technology integration. The coach affirmed that the consortium still met after distance learning and reflected having that connection to others with the same goals was "invaluable" because it can be "pretty isolating, it was really beneficial to talk to other people that did the same thing I did."

Another interviewee in leadership expressed that they were able to share out to the school board in the winter of SY 19-20 about the impact of the grant. She clarified that most of the sharing happens during grade level meetings and teachers will share effective practices in a more organic environment.

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Do teachers feel increased support from district leaders regarding technology integration?

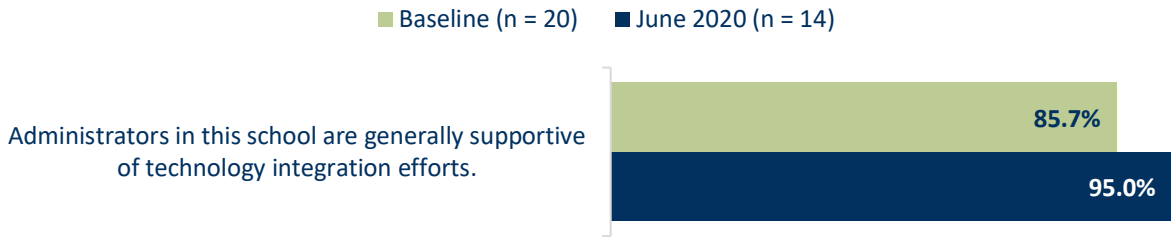
Key Findings:

- Teachers feel supported by the district providing the Technology Integration Coach but are concerned about how the district will support technology efforts after the grant ends.

During interviews, teachers spoke directly to the value of the Technology Integration Coach, as emphasized in other sections above. Teachers were less sure and had less to speak about related to district leadership. A few teachers mentioned in their interviews that they were concerned about how their technology integration would be supported if there was not a coach.

By the end of SY 19-20, **95.0% teachers who participated in the year-end survey agreed or strongly agreed that administrators at DDSD are generally supportive of technology integration efforts**.

Figure 14. David Douglas Teacher Perceptions of a Culture of Support for Technology Integration (% Agree/Strongly Agree)



DATA-DRIVEN IMPROVEMENT

Current, relevant, and high-quality data from multiple sources are used to improve schools, instruction, professional development, and other systems.

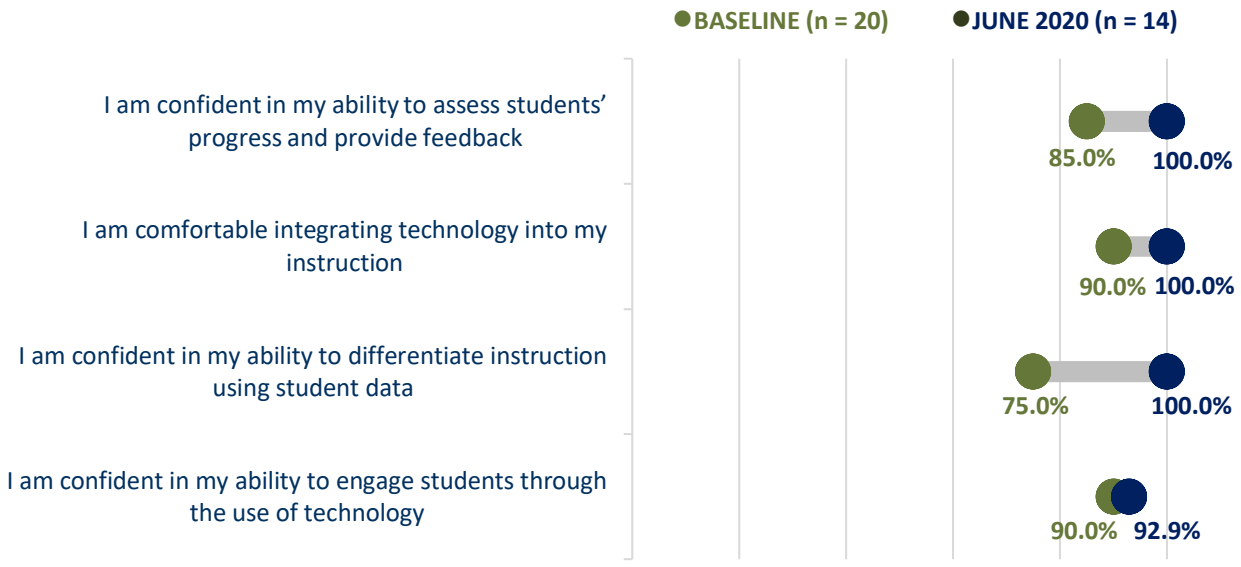
How are schools using data to improve instruction, professional development, and student performance?

Key Findings:

- Teachers started in a strong position with using technology in their instruction and demonstrated a growth in confidence throughout the school year.
- Teachers are using formative assessment data to guide their instruction but did note that the ability to do so has changed during distance learning.

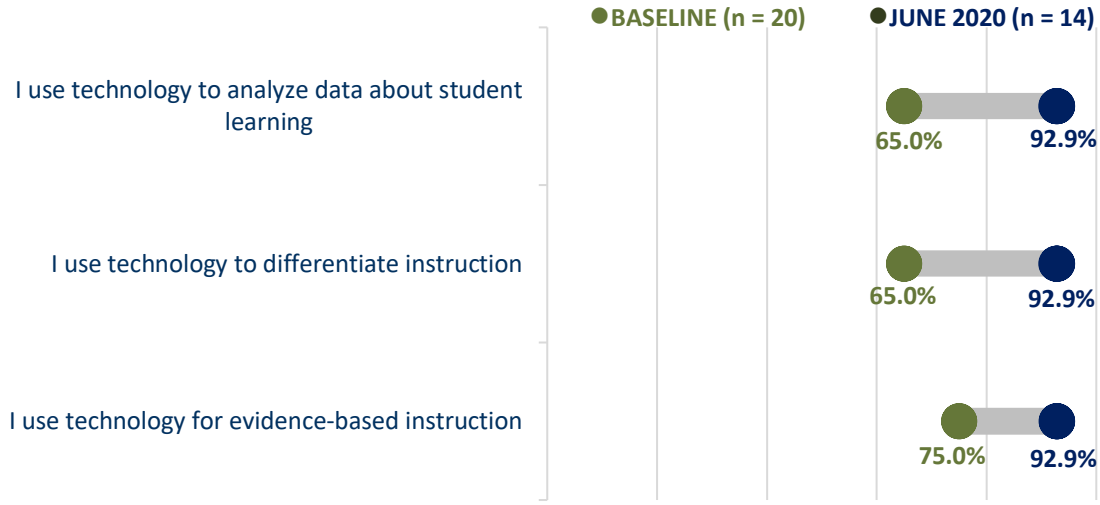
During the year-end survey, teachers provided agreement ratings for several statements about data-driven improvement. Results are shown in Figure 15. By the end of the school year, **all teachers (100.0%) agreed or strongly agreed that they were comfortable integrating technology into instruction, assessing students' progress and providing feedback, and differentiating instruction using student data**. A total of 92.9% agreed or strongly agreed that they were confident in their abilities to engage students through use of technology.

Figure 15. David Douglas Data-Driven Improvement
(% Agree/Strongly Agree)



Teachers increased their use of technology by end of the year compared to the baseline in every dimension measured. **The largest gains (27.9 percentage points) were in using technology to differentiate instruction and to analyze data about student learning**.

Figure 16. David Douglas Instructional Technology Use
(% A Moderate Amount/A Great Deal)



Teachers were also asked about formative assessment in the interviews. Teachers listed different sources such as Math Inventory, DIBELS, Imagine Learning, Imagine Math, MobyMax. Google Forms, Kahoot, FlipGrid, and Typing Club. One teacher shared:

> *There's a program I found where they can take a math multiplication test, and then they can send it to me in email. I can see the time that they took them, and the amount that they did correctly. That's super cool compared to pencil and paper test.*

While teachers were all able to share examples of how they used formative data to guide classroom instruction, one teacher clarified, "During distance learning, that was thrown out the window. I tried to collect data on what I could, but I had a third of my class that was in crisis. They were concerned more about shelter and things like that."

FUNDING & BUDGET

District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.

Have districts identified at least one opportunity for repurposing resources to support technology integration?

Key Findings:

- The district has been able to provide additional technology to younger grades due to the resources provided to the schools through TechSmart.

Due to the increased needs for Chromebooks in the shift to distance learning, the district felt that the grant did allow schools to redirect resources to support each family having access to the technology they needed. One of the staff members explained that the district distributed 3,500 Chromebooks in the Spring. They provided one Chromebook for every two students in the household, two Chromebooks for every three to four students in the household, and so on and so forth.

One teacher explained in their interview, "This grant has been a huge blessing for our district and our building for sure, because what it did is also provided an opportunity to free up some technology for some of our younger grade levels."

STRATEGIC PLANNING

District strategic plan reflects shared commitment to improving outcomes for students.

Does the district's strategic plan reflect shared commitment to improving outcomes for students?

Key Findings:

- It was unclear through district interviews whether the district's strategic plan specifically aligned to improving outcomes for students through use of technology integration.

District leaders described how they are working to incorporate technology into strategic plans. One principal stated, "It has to do with equity. We want to get every kid what they need. That is different for every child…and with math, that's the big goal."

The district's Technology Integration Coach described a concern echoed by teachers in their interviews regarding what will happen to the technology support for the district when the grant is over. The coach was clear to say that the shift to distance learned also shifted his role to supporting the entire district and described receiving several hundreds of emails each day during the shift. It was unclear what the district would have done if his position was not already in place. He stated:

> *It was great because we did things that we learned from our grant; I was able to use that to coach other teachers. I really hope that sheds a light on the importance of technology coach, because we are not getting any less technology. We're getting way more technology and again, what we learned over these last five years is that you can have as much technology as you want but if you don't provide teachers support, and training and coaching, it's a waste of money.*

The coach was clear to say that technology decisions should be absorbed into the overall district budget. The ultimate support would be to create a position for a permanent technology coach. A few teachers expressed that they wanted the district to continue the work that had been started by the grant. One teacher explained:

> *I do worry that there is this cycle of we get really excited about something and give you a ton of resources and PD and then the next year we get really excited about something else and we totally forgot about that thing we were so excited about before. I really hope that the structure and the PD and the resources continue for many years in the future, including beyond the grant itself. Because I think that things fall away if the support isn't there and so I'd really like to see a long-term plan on this.*

EVALUATION INSIGHTS

The SY 19-20 evaluation at DDSD produced the following insights:

- The district's Technology Integration Coach was consistently emphasized as the critical contributor to DDSD's success thus far in implementing TechSmart within Mill Park and Menlo Park schools as well as managing the shift to distance learning. Teachers explained the coach's valuable role in their PD and their ability to support their students.
- Teachers seem engaged in transforming their instruction using the technology involved with implementing TechSmart. Many interview participants referenced how teachers are not only replacing activities or adding activities that involve technology but using the technology to drive instruction through the ability to differentiate among students' needs and support student achievement.
- Teachers reported substantially higher average skill levels with technology broadly, as well as with specific tools (e.g., Smartboards, FlipGrid) from the beginning to end of SY 19-20. Teachers also reported higher comfort levels with technology.
- Student achievement data were not available as planned, but Math Inventory data from Fall and Winter indicated certain grades at both Menlo Park and Mill Park had higher gains than the Comparison schools. Recommendations for future analysis would be to have Math Inventory data disaggregated by subgroups or at the student level for more sensitive analysis.
- DDSD teachers seemed particularly engaged in providing instruction that benefits and targets to those students from at-risk subgroups. Many participants described use of the adaptive technology such as Imagine Math to support equity in access to learning. Other participants discussed how Chromebooks, Smartboards, and other devices have increased their ability to differentiate learning and provide activities that satisfy and challenge a wide variety of levels of student ability.
- Culture seems to be generally positive regarding support for instructional practices that integrate technology. The majority of teachers indicated that they share understanding about how to use technology, seek out new ideas, and are not afraid to learn about and use new technologies. The technology integration coach was emphasized as important to building the culture of support.
- Menlo Park and Mill Park grade 3-5 teachers felt especially prepared in the shift to Distance Learning that occurred due to COVID-19 in SY 19-20. Teachers indicated a sense of preparedness that enabled them to continue instruction remotely through the technology they had already integrated into their classes.

Reynolds School District

SY 19-20 TechSmart Evaluation Report

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Prepared by:
Pacific Research and Evaluation, LLC

November 2020

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PROJECT SUMMARY

Reynolds School District's (RSD) MHCRC first TechSmart grant (Grant 1), which concluded in Spring of 2019, focused on improving student achievement in 8th grade math, 9th grade credit attainment, and English learners' progress. Funding for the first grant supported middle and high school math classroom technology and related teacher professional development (PD). District administrators implemented a staggered-rollout strategy where they onboarded a cohort of math teachers every school year for the first three years of the grant. By school year 2018-2019 (SY 18-19), RSD had full implementation of technology-rich math curriculum across all middle schools and 9th grade students at the high school. In addition, the first grant helped fund technology for the Project Lead the Way curriculum, a STEM-based, nationwide education program being offered to 7th through 9th grade students as an elective course to increase student engagement in math and science. This report will document progress in sustaining grant activities during the school year following grant completion (SY 19-20).

In SY 20-21, RSD will begin implementation of its second TechSmart grant (Grant 2). The latest funding has a goal of extending and scaling the success of the first grant to support students and instructors at both Reynolds High School and Reynolds Learning Academy, the district's alternative high school. Specifically, the second grant focuses on instructional strategies that use a constructivist approach and an equity-driven digital curriculum, as well as technology supports provided by 1:1 Chromebooks, short throw projectors, and Schoology. The grant professional development (PD) centers on collaborative professional learning communities (PLCs) and instructional lab cycles, with support from the district's instructional technology coach.

METHODS

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Survey and interview quotes have been edited for grammar and brevity. Data collection efforts for the SY 19-20 evaluation in RSD are summarized below.

Teacher Survey: A post-implementation teacher survey for Grant 1 was administered in June of 2020. A total of 8 teachers completed the Grant 1 survey. Additionally, a baseline teacher survey for Grant 2 was administered in May of 2020. A total of 29 teachers completed the Grant 2 baseline survey; however, 5 of these teachers reported participating in Grant 1 and were thus excluded from all analyses. In total, 24 qualifying teachers completed the Grant 2 baseline survey.

District Leader Interviews: PRE interviewed one district administrator from RSD, the Director of Instructional Technology. This interview provided information related to both Grant 1 and Grant 2.

Leadership Observations: The walk-through tool was not completed during SY 19-20 due to the COVID-19 pandemic.

Student Achievement: Math credit attainment was examined for Grant 1 Treatment Group students and a historical Comparison Group and analyzed by at-risk subgroup. Additionally, both ELPA and Smarter Balanced math assessment results were examined for Grant 1 Treatment Group and Comparison Group students.

RSD chose to focus on these strategies based on the success Grant 1 implementation, and on continued need at other grade levels of the district. According to their latest project plan, RSD's failure rate in 9th grade math reduced from 56% in 2015 to 28% in 2019. However, RSD continues to work to reduce a digital divide that impedes student access to technology and the internet at home. With their second TechSmart grant, RSD hopes to extend the outcomes of the first grant to full implementation at the high school level.

The primary vehicle for instructional changes at RSD centers on a PD plan that focuses on establishing PLCs within each high school and across departments and utilizing lab cycles for collaborative co-teaching, classroom observation, and data analysis. During lab cycles, teachers implement an instructional practice, collect student data, and work together with their PLC to determine next steps. Additionally, teachers receive at least one "late start" PD period per month that is focused on TechSmart-related instructional practices and student assessment data.

Because RSD completed their final year of project implementation for Grant 1 in Spring 2019, SY 19-20 represents the post-implementation year for Grant 1, as well as the baseline (pre-implementation) year for Grant 2. This report thus focuses primarily on information and data related to Grant 1, with all cohorts presented together as an overall, combined evaluation. Where available, baseline data for Grant 2 are presented in Appendix 1, in preparation for the first formal evaluation of Grant 2 next year.

FINDINGS

The findings from the SY 19-20 evaluation at Reynolds School District are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

During SY 19-20, a total of 2,642 students received Chromebooks as part of Grant 2. Additionally, the RSD Instructional Technology department conducted PD sessions for all staff twice per month for both January and February. School closures related to the COVID-19 pandemic led to cancellation of all planned Instructional Technology department PD sessions for March through June, as well as cancellation of the previously scheduled weekly late start PD sessions. However, RSD adapted the PD model to engage smaller groups, training teachers on basic methods for distance instruction, student engagement, and recording. Additionally, four 30-minute sessions were hosted each week during May and June to further support PD needs and meet teachers' requests. These sessions most often focused on differentiated use of Schoology (the district's learning management system) and use of Office365 programs. Other topics included video conferencing, creating and using fillable PDFs, and posting lessons and linking videos through OneNote and OneDrive.

In their annual status report, RSD reported that the demands of the shift to distance learning led them to conduct "much more frequent, albeit informal, engagement with teachers to survey their PD needs." The

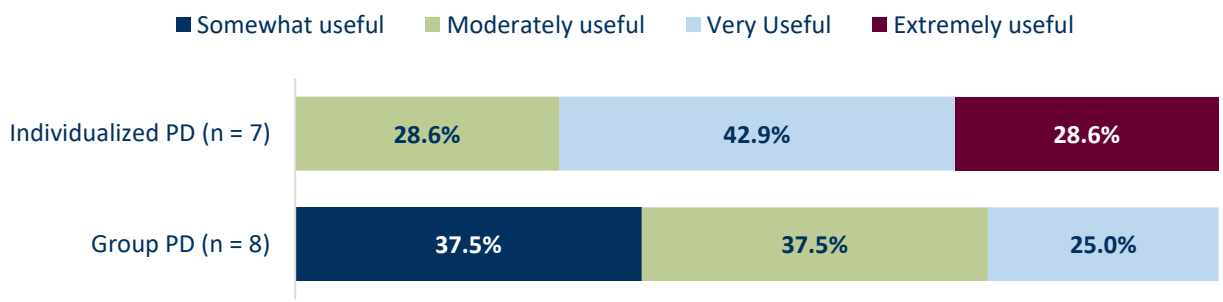
report notes that the district was able to establish a baseline of teacher understanding of technology tools and methods more quickly than if teacher buy-in were more incremental. Given that teachers have now received baseline trainings in device use and digital applications, RSD plans to focus on intermediate and advanced PD for teachers.

As shown in Table 1, half of TechSmart teachers who responded to the post-implementation survey for Grant 1 reported receiving **between 1-8 hours of both group and individual PD** during the 19-20 school year. Individual PD was rated as more useful than group PD (see Figure 1).

Table 1. Reynolds School District Hours of Group PD (n = 8)

Hours of Group PD	Group PD	Individual PD
0 hours	0.0%	12.5%
1-8 hours	50.0%	50.0%
9-16 hours	37.5%	25.0%
17-32 hours	12.5%	-
33+ hours	0.0%	12.5%

Figure 1. Reynolds Grant 1 Teacher Ratings of PD Usefulness



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

How is professional development impacting teacher instruction?

Key Findings:

- Grant 1 teachers shared generally positive responses to the value of the PD model, emphasizing that the PD they received allowed them to smoothly transition to distance learning.
- Teacher use of instructional strategies that include technology increased over the course of the grant in some cases and decreased in others.
- Overall, teachers' self-reported technology skill levels appear to have generally increased over time.

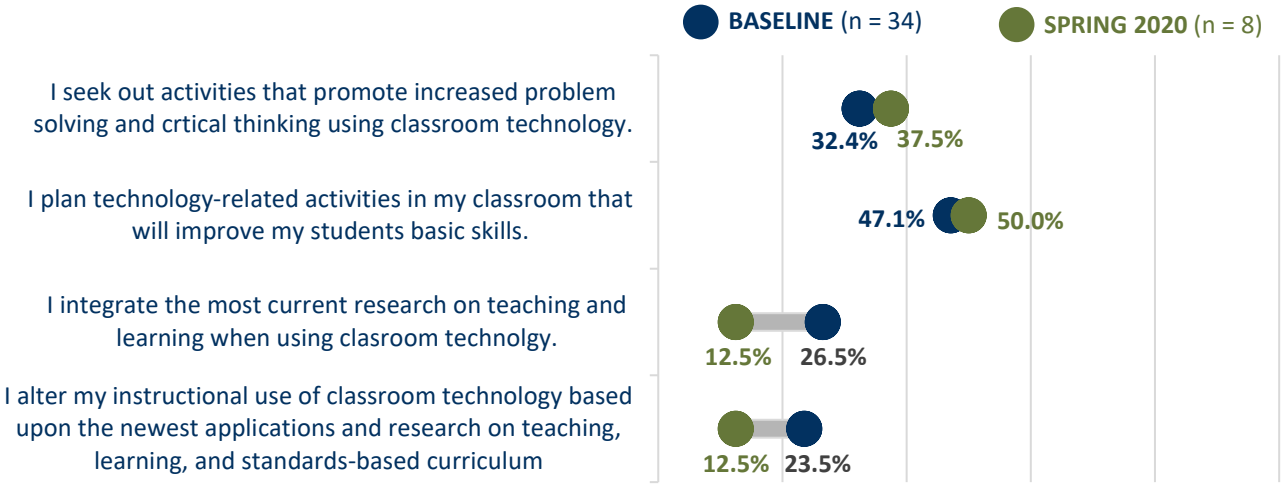
The post-implementation Grant 1 survey asked how effective the PD model has been in impacting teacher instruction. The four teachers who responded to this question shared generally positive views of the PD model (see Table 2). Two of the four teachers expressed that the PD they received as part of TechSmart allowed them to transition smoothly and easily to online instruction, and that they would have struggled without the existing knowledge of technology implementation in their classrooms. Another teacher expressed enjoying the PD and wishing for it to continue.

Table 2. Reynolds School District Feedback on PD Model from Grant 1 (n = 8)

Although I feel strongly that students should know how to use technology and use the basic tools that are common to the workplace, I don't find that technology typically enhances the learning of basic mathematical concepts.
I have LOVED working with my cohort, but at the end of the day, I tended to go back to the "easy" non-tech teaching. The pandemic, however, changed all of that! I feel very competent in my ability to find activities, deliver instruction, and provide feedback using technology. How's that for looking at the bright side of a bad situation?!
I enjoyed the collaboration. We did not meet this past year, and that was disappointing.
The tools I learned through TechSmart have served me well in the classroom and have been especially beneficial as we have gone to online learning. I would not be half as familiar with all of the Microsoft products as I am now and would not have been able to implement online instruction as effectively.

Teachers who participated in Grant 1 also reported the extent to which they are integrating technology into various instructional practices at baseline and in the Spring of 2020, one year following completion of Grant 1 implementation. The use of technology-specific instructional strategies increased over time for two of the four behaviors measured but decreased substantially over time for both integrating current research and altering instruction based on the newest applications and research (See Figure 2).

Figure 2. Reynolds Instructional Strategies for Grant 1
(% True of Me/Very True of Me)



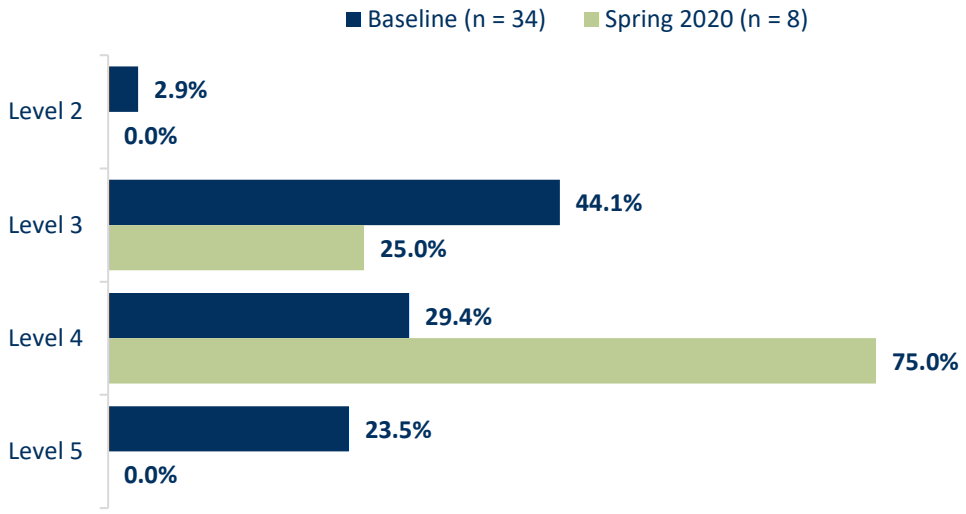
Teachers rated their technology skill level on the beginning-of-year and end-of-year surveys by placing themselves at one of the following five levels:

TECHNOLOGY SKILL LEVEL

1. I get someone else to do technology-based tasks for me.
2. I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.
3. I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.
4. I use a variety of technology tools and I use them efficiently for all aspects of my job.
5. I use technology efficiently, effectively, and in creative ways to accomplish my job.

By Spring of 2020, all participating Grant 1 teachers reported a technology skill level of at least three, with 75% of teachers rating themselves as level four. At baseline, more teachers rated themselves at level five and level three, but substantially fewer teachers rated themselves as level four. Overall, it appears self-reported technology skill level increased over time for most teachers.

Figure 3. Reynolds Grant 1 Teachers' Technology Skill Levels



In his interview, the district's Director of Instructional Technology shared details about how the PD program continued throughout SY 19-20. He said, "Grant 1 continued pretty well this year. The middle school staff received their iPads (through grant 2), but a lot of staff kept laptop carts provided through the first grant. The PD that we were doing through lab cycles stopped when the pandemic caused school closures, but the concept of collaboration amongst the math staff at the buildings continued. At the high school level, the math teachers had formed a really solid PLC over the past few years through the math grant."

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

What new instructional strategies are teachers reporting?

Key Findings:

- Teachers most commonly reported using technology to differentiate instruction.
- Teachers reported most effectively using technology to support instruction for planning and preparation, engaging students in learning, and communicating with students.
- District leadership provided anecdotal support for the benefit of new instructional strategies for student outcomes and teacher engagement.

Grant 1 teachers provided examples of technology-related instructional strategies that they believe have been effective in their classroom instruction and rated the strategies on a scale of one to five, with five being the most effective. Table 3 shows the ways in which teachers described use of technology, along with average effectiveness ratings. Teachers most commonly reported using **technology to differentiate instruction**. In addition to the strategies listed below, teachers also listed tools such as Kahoot! and Kahn Academy.

Table 3. How New Technology is Being Used for Instruction by Reynolds Grant 1 Teachers

Instructional Supports	Effectiveness Rating
Differentiating instruction	4.3 (n = 3)
Online lessons and learning activities	3.5 (n = 2)
Microsoft Office programs (Powerpoint, Excel)	3.5 (n = 2)
Small group work	4.0 (n = 1)

Grant 1 teachers were asked to self-assess their use of technology to support instruction using a rubric on the teacher survey. Teachers rated their use of technology to support instruction highest in the areas of **planning and preparation, engaging students in learning, and communicating with students** (See Table 4).

Table 4. Technology Used by Reynolds Grant 1 Teachers for Supporting Instructional Practices
(1 = Not at All, 2 = Very Little, 3 = Somewhat, 4 = To a Great Extent)

	(n = 8)
Planning and Preparation	3.6
Managing Classroom Procedures	2.6
Organizing Physical Space	2.6
Communicating with Students	3.1
Using Questioning and Discussion Techniques	2.5
Engaging Students in Learning	3.1
Using Assessment in Instruction	3.0
Demonstrating Flexibility and Responsiveness	3.0

During his interview, the district's Director of Instructional Technology shared that he felt instructional practices adopted during the grant show promise for improving student academic outcomes. He said:

> *While I don't have data to back this up, I believe the new instructional practices show a lot of promise. One reason is that the students' use of the devices went up. For a lot of students, a device is not a big deal. For kids, they are immersed in it, even writing papers on their phones. Kids are really starting to see the value. I would have loved to see the data, but just seeing that kids were excited to get the devices and starting to see value was great. Teacher engagement is up too, and the momentum is starting to build.*

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

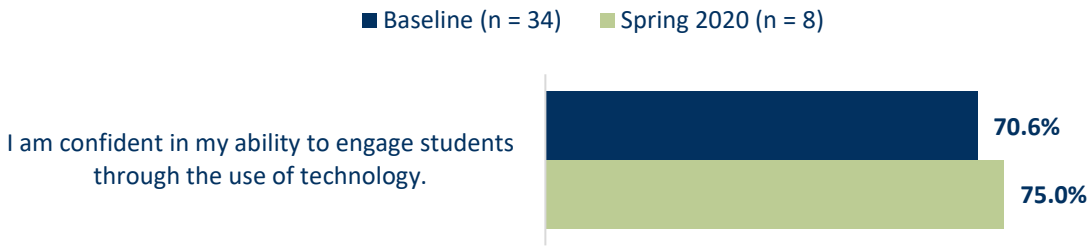
How are the new instructional strategies impacting student engagement?

Key Findings:

- Teacher reports of confidence in their abilities to engage students through use of technology increased over the course of Grant 1.

While student survey data were not collected in SY 19-20, teacher survey data indicated a change in teachers' confidence engaging students with technology. The percentage of Grant 1 teachers who reported confidence in their ability to engage students through the use of technology increased from baseline to June of 2020, as shown in Figure 4 below.

Figure 4. Reynolds Grant 1 Teachers' Confidence in Ability to Engage Students



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Are the new instructional strategies showing promise for improving academic outcomes?

Key Findings:

- The Treatment Group had significantly higher math credit attainment than the historical Comparison Group in 7th grade and 9th grade, but not in 8th grade.
- The historical Comparison Group had more students meeting or exceeding achievement standards on the Smarter Balanced math assessment than the Treatment Group.
- Evidence was mixed regarding whether new instructional strategies show promise for improving academic outcomes. Math credit attainment data showed some promise, while Smarter Balanced math assessment data did not.

Student Achievement Data

To examine the impact of Grant 1 in RSD, comparative analyses were conducted using a historical Comparison group. A concurrent Comparison group was not created for RSD because over the course of the grant, students may have moved in and out of TechSmart teacher classrooms. The Treatment cohorts are made up 6th grade student cohorts who had TechSmart math teachers during SY 15-16 (Cohort 1), SY 16-17 (Cohort 2), and SY 17-18 (Cohort 3). The historical Comparison Group is made up of those students who were RSD 6th graders during the 2012-13 school year and was selected because the student information system at RSD changed in 2012-13. Data are not available for the 2011-12 school year, so the Comparison Group overlapped by one year with grant implementation. The table below presents the number of students in the Treatment groups (Cohort 1, Cohort 2, and Cohort 3) and the historical Comparison Group by year. In all subsequent analyses, the three Treatment cohorts are combined to create one Treatment group, which is compared as a whole to the historical Comparison group.

Table 5. Sample Sizes for Reynolds Grant 1 by Cohort

Grade	Cohort 1		Cohort 2		Cohort 3		Historical Comparison	
	Year	N	Year	N	Year	N	Year	N
6th	2015-16	163	2016-17	628	2017-18	554	2012-13	754
7th	2016-17	149	2017-18	552	2018-19	521	2013-14	754
8th	2017-18	125	2018-19	481	2019-20	505	2014-15	666
9th	2018-19	104	2019-20	517			2015-16	465

Figure 5 below presents the at-risk indicators for the Grant 1 Treatment and Comparison Group students in RSD. A total of 75.5% of Treatment Group students in are students of color; this percentage is somewhat lower in the Comparison Group. The Treatment Group had 37.6% of students with Limited English Proficiency (LEP), and 12.1% were Special Education students, both of which are slightly lower percentages than in the Comparison Group.

Figure 5. Reynolds Grant 1 Treatment and Comparison Group At-Risk Indicators (n = 2,091)

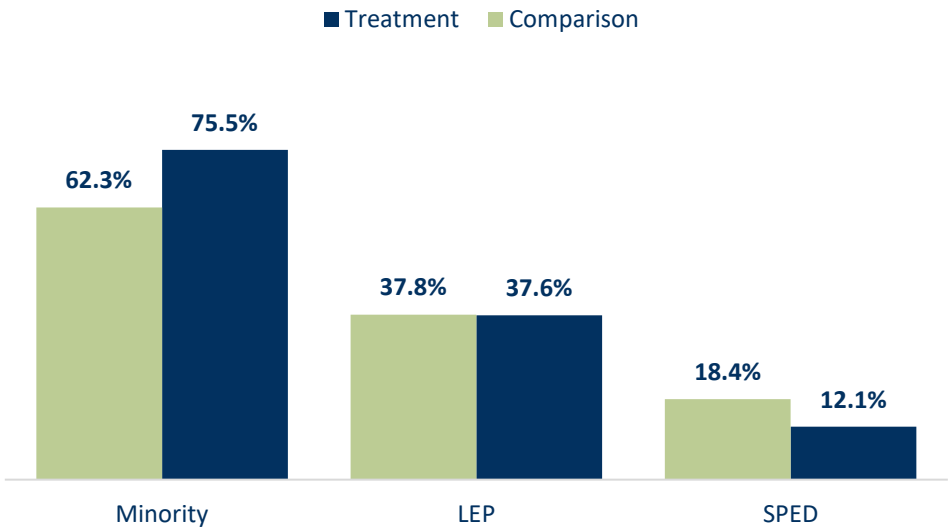
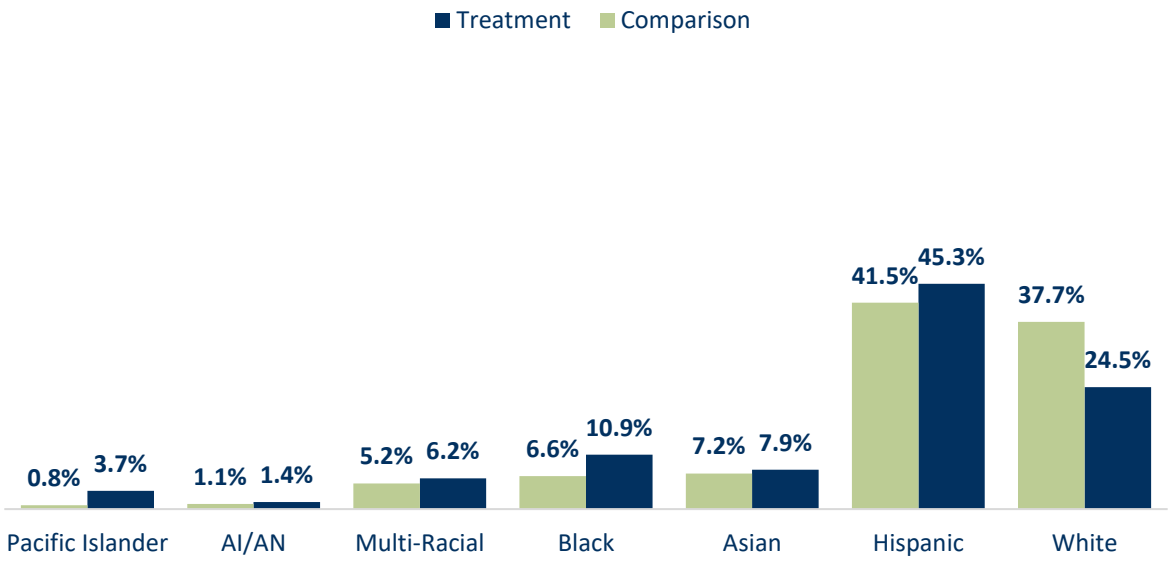


Figure 6 below provides a summary of the breakdown of student race/ethnicity in the Treatment and Comparison groups. The Treatment Group has a lower percentage of White students than the Comparison Group and higher percentages of every minority group, though the differences in the minority groups are not substantial.

Figure 6. Reynolds Grant 1 Treatment and Comparison Group Race/Ethnicity (n = 2,091)



The Reynolds TechSmart grant focuses on improving student achievement in math, as measured by math assessment data, credit attainment data, and English learners' progress. To explore whether instructional practices are showing promise for improving students' credit attainment, PRE examined math credit attainment for the Treatment Groups and historical Comparison Group. Credit attainment data were not available for the historical Comparison Group in 6th grade due to a change in the student information system at the end of the 2011-12 school year and were also not provided by the district for the Comparison Group in 10th grade. Note that math credit counts reset in 9th grade, at the start of high school.

To explore whether instructional practices are showing promise for improving students' credit attainment, PRE examined math credit attainment for Treatment Group students and their Comparison Group.

Math Credit Attainment

Table 6 shows that that Treatment Group students and their Comparison Group differed in math credit attainment across all grades when comparing math credit attainment across a single year and when comparing cumulative math credit attainment. During 7th grade, the Treatment Group had significantly higher math credit attainment for the year, $t\ (4{,}060.5) = 7.66$, $p < .001$, and cumulatively, $t\ (3{,}544.2) = 57.1$, $p < .001$. The Treatment Group also had higher single-year credit attainment in the 9th grade, $t\ (2{,}036.2) = -1.78$, $p < .001$, but not cumulative math credit attainment, $t\ (1621.4) = 2.3$, $p < .05$. Average math credit attainment was higher in the Comparison Group for 8th grade for a single year, $t\ (3{,}709.2) = 10.0$, $p < .001$, and cumulatively, $t\ (2{,}417.6) = 81.9$, $p < .001$.

Table 6. Reynolds Grant 1 Math Credit Attainment

	Treatment (Single Year)	Comparison (Single Year)	Treatment (Cumulative)	Comparison (Cumulative)
6th grade	0.91 (n = 1,342)	—	0.83 (n = 1,342)	—
7th grade	0.86 (n = 1,227)*	0.56 (n = 754)	1.84 (n = 1,227)*	1.47 (n = 754)
8th grade	0.69 (n = 1,033)	0.95 (n = 666)*	2.64 (n = 1,033)	2.75 (n = 666)*
9th grade	0.64 (n = 499)*	0.58 (n = 465)	0.66 (n = 499)	0.72 (n = 465)*
10th grade	0.63 (n = 90)	—	1.40 (n = 90)	—

**Denotes a significant difference, p<.05*

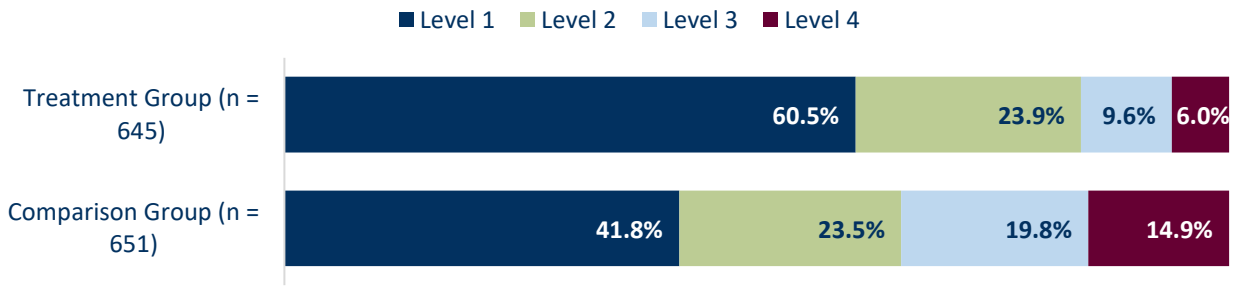
Smarter Balanced Math Assessment

The Smarter Balanced assessment system is aligned to Common Core state standards and determines students' progress toward college and career readiness. The end-of-year Smarter Balanced math assessment was given to students to measure math achievement. Scores from 8th grade are presented for the Treatment Group and the historical Comparison Group.

Based on scaled scores, students fall into one of four achievement level categories. Level 1 indicates a student has not met the achievement standard and needs substantial improvement, Level 2 indicates the student has nearly met the achievement standard and may require further development, Level 3 indicates the student has met the achievement standard and demonstrates progress toward mastery, and Level 4 indicates the student has exceeded the achievement standard and demonstrates advanced progress toward mastery. For 8th grade, a score under 2504 indicates Level 1 achievement, a score of 2504-2585 indicates Level 2 achievement, a score of 2586-2652 indicates Level 3 achievement, and a score of 2652 or more indicates Level 4 achievement.

Figure 7 presents the percentage of students in the Treatment Group (Cohort 1 and Cohort 2) and historical Comparison Group who achieved Level 1, Level 2, Level 3, and Level 4 scores. The historical Comparison group had substantially more students at Level 3 and Level 4 (i.e., meeting or exceeding the achievement standard) with a total of 34.7% of students, compared to only 15.6% of Treatment Group students. Likewise, the Treatment Group had substantially higher percentages of students at Level 1 (60.5%) and Level 2 (23.9%) than did the historical Comparison Group.

Figure 7. Reynolds Grant 1 8th Grade Smarter Balanced Assessment Levels



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Do instructional practices show promise for improving student academic outcomes with at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

- Math credit attainment results in at-risk subgroups largely mirrored results from the full sample, with the Treatment Group showing evidence of higher math credit attainment in 7th and 9th grade across all at-risk subgroups, but not in 8th grade.
- ELPA assessment data provided evidence of promise for improving student academic outcomes in at-risk subgroups, as the percentage of students rated as progressing increased over time.
- Smarter Balanced math assessment data showed higher percentages of students at Level 3 and Level 4 scores in the Comparison Group than the Treatment Group.

Student Achievement Data

To better understand whether technology-supported instructional practices are showing promise for improving academic outcomes with at-risk student subgroups, math credit attainment was examined by subgroup for Treatment Group and Comparison Group students. Math credit attainment data for grades 6 and 10 were not available in the Comparison Group, so only grades 7 through 9 are included in Table 7 below. As shown in the table, all differences between Treatment and Comparison groups were statistically significant, except between SPED students in the Treatment Group and Comparison Group in 9th grade (likely not statistically significant due to limited statistical power from a small sample size). In general, trends in at-risk subgroups mirrored trends in the full sample, particularly in the LEP and students of color at-risk subgroups. That is, in general, the Treatment Group had significantly higher math credit attainment in 7th and 9th grade, but the Comparison Group had higher math credit attainment in 8th grade.

Table 7. Average Math Credit Attainment for Reynolds Grant 1 At-Risk Subgroups

	7th Grade		8th Grade		9th Grade	
	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
All Students	0.86 (1,227)*	0.56 (754)	0.69 (1,033)	0.95 (666)*	0.64 (499)*	0.58 (465)
LEP Students	0.89 (467)*	0.54 (285)	0.67 (415)	0.99 (256)*	0.61 (170)*	0.47 (195)
SPED	0.77 (146)*	0.52 (139)	0.66 (121)	0.80 (122)*	0.70 (48)	0.41 (84)
Students of Color	0.87 (933)*	0.55 (470)	0.68 (802)	0.97 (417)*	0.61 (393)*	0.52 (301)

**Denotes a significant difference, p<.05*

ELPA Assessment

Table 8 below presents the ELPA21 results for Treatment Group students in 6th, 7th, 8th, and 9th grade. Note that, while data from all three cohorts are available for 6th and 7th grades, only data from Cohort 1 and Cohort 2 are available for 8th grade, and only data from Cohort 1 are available for 9th grade. In general, although sample sizes are smaller in later grades, it appears that the percentage of students rated as "emerging" remains relatively stable over time, while the percentage of students rated as "progressing" increases over time. The percentage of students rated as "proficient" seems to decrease over time.

Table 8. ELPA21 Results for Reynolds Grant 1 Treatment Group Students

Proficiency Determination	6th Grade (n = 383)	7th Grade (n = 295)	8th Grade (n = 145)	9th Grade (n = 18)
Emerging	5.5% (21)	5.4% (16)	4.1% (6)	5.6% (1)
Progressing	81.7% (313)	84.7% (250)	89.0% (129)	88.9% (16)
Proficient	12.8% (49)	9.8% (29)	6.9% (10)	5.6% (1)

Smarter Balanced Math Assessment

Figure 8 below presents the Smarter Balanced math assessment results for 8th grade LEP students from Cohort 1 and Cohort 2 (combined into a single Treatment Group) and the historical Comparison group. The historical Comparison Group showed higher percentages of LEP students at Level 3 and Level 4 scores on the Smarter Balanced math assessment, indicating higher percentages of students meeting or exceeding the achievement standard. In total, 17.6% of historical Comparison Group LEP students achieved Level 3 or Level 4 scores, while only 3.4% of Treatment Group LEP students achieved Level 3 and Level 4 scores.

Figure 8. Reynolds Grant 1 8th Grade Smarter Balanced Assessment Levels for LEP Students

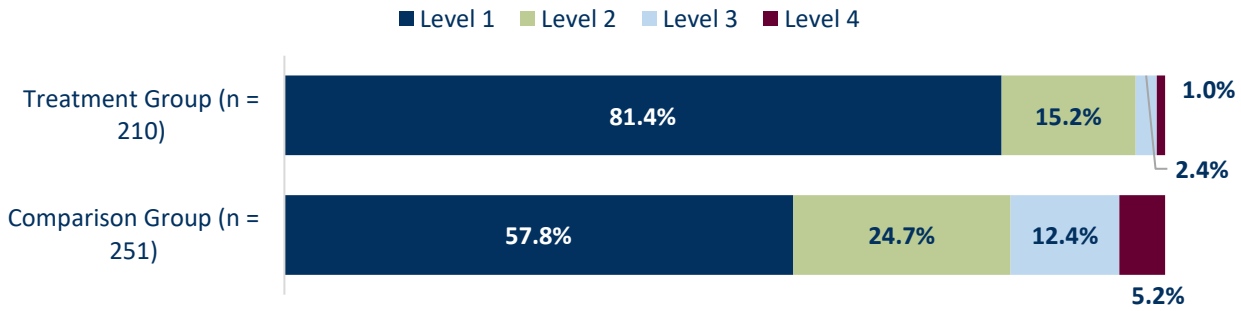


Figure 9 below presents the Smarter Balanced math assessment results for 8th grade SPED students from the Treatment Group (Cohort 1 and Cohort 2) and the historical Comparison Group. The historical Comparison Group showed higher percentages of SPED students meeting or exceeding the achievement standard (i.e., Level 3 or 4 scores), but the difference was minimal compared to all students and compared to other at-risk subgroups. A total of 11.5% of historical Comparison Group SPED students achieved Level 3 or 4 scores, while a total of 5.9% of Treatment Group SPED students achieved Level 3 or 4 scores.

Figure 9. Reynolds Grant 1 8th Grade Smarter Balanced Assessment Levels for SPED Students

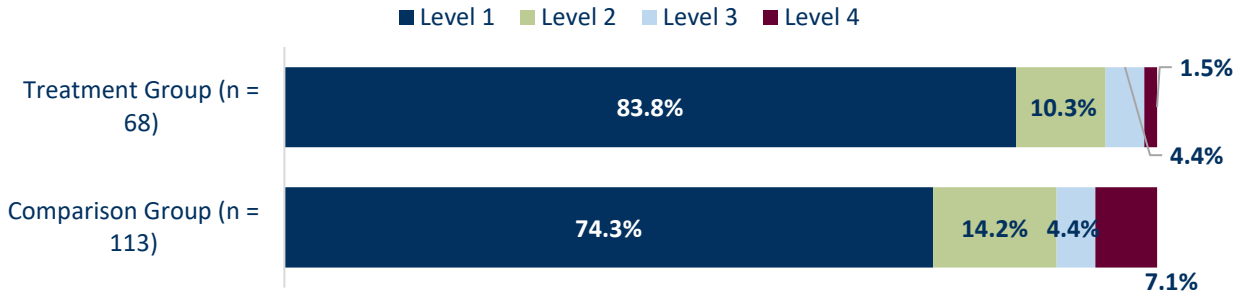
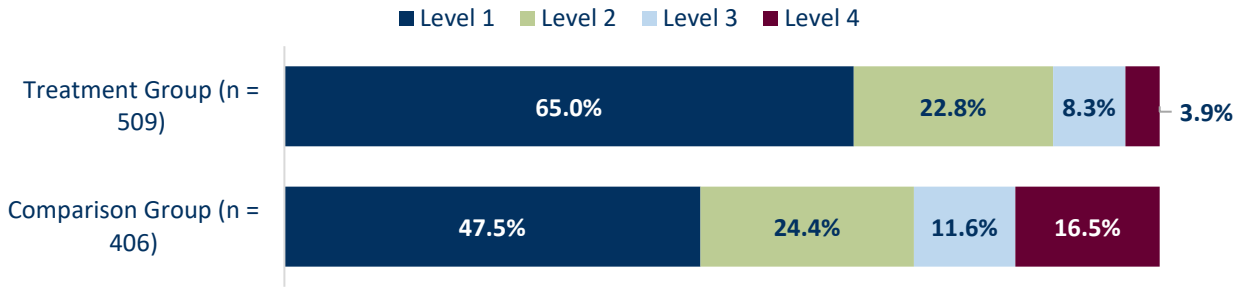


Figure 10 below presents the Smarter Balanced math assessment results for 8th grade students of color from the Grant 1 Treatment Group (Cohort 1 and Cohort 2) and historical Comparison Group. The historical Comparison Group showed higher percentages of students of color meeting or exceeding the achievement standard (i.e., Level 3 or 4 scores). A total of 28.1% of historical Comparison Group students of color achieved Level 3 or 4 scores in 8th grade, while a total of 12.2% of Treatment Group students of color achieved Level 3 or 4 scores in 8th grade.

Figure 10. Reynolds Grant 1 8th Grade Smarter Balanced Assessment Levels for Students of Color



On the post-implementation survey, teachers discussed strategies they have used with at-risk subgroups. Table 9 lists teachers' comments from the survey, with the exception of one teacher who specified that they do not use technology to support instruction for at-risk subgroups. Themes from Grant 1 teacher responses included differentiation of instruction and access/ability to participate in lessons and activities.

Table 9. Grant 1 Teachers' Use of Technology-Supported Instruction with At-Risk Subgroups

Self-paced and blended classrooms.
I have made videos using screencast-o-matic to be viewed as needed and available on Schoology.
Email has played an important role in communication
Khan allows me to create weekly lessons that scaffold from the 4th to 7th grade. That allows students an access point from which to build. In addition, the lessons, videos, and hints are available to students wherever they have technology, so there are less barriers to a student that is determined to learn.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Is the rate of student growth in one or more AHR outcomes greatest for at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

- While there was some evidence of an achievement gap between at-risk subgroups and all other students in the Treatment Group, the evidence was present in only some grade levels. In other grade levels, there was evidence that at-risk subgroups actually outperformed all other students, particularly for math credit attainment.
- Smarter Balanced math assessment results indicated an achievement gap remains between at-risk subgroups and all other students.

PRE examined math credit attainment data across the Treatment Group to assess how student progress may differ for at-risk subgroups as compared to non-at-risk subgroups. Results are presented below and include data from all Grant 1 students in grades 6 through 10.

Math Credit Attainment

As shown in Figure 11 below, non-LEP TechSmart students earned more math credits in grades 8 and 9, but LEP TechSmart students earned more math credits in grades 6, 7, and 10. All differences were statistically significant ($p < .05$). This provides some evidence that TechSmart may have benefitted LEP students, particularly at the beginning and end of Grant 1.

Figure 11. Math Credit Attainment for Reynolds LEP Subgroup

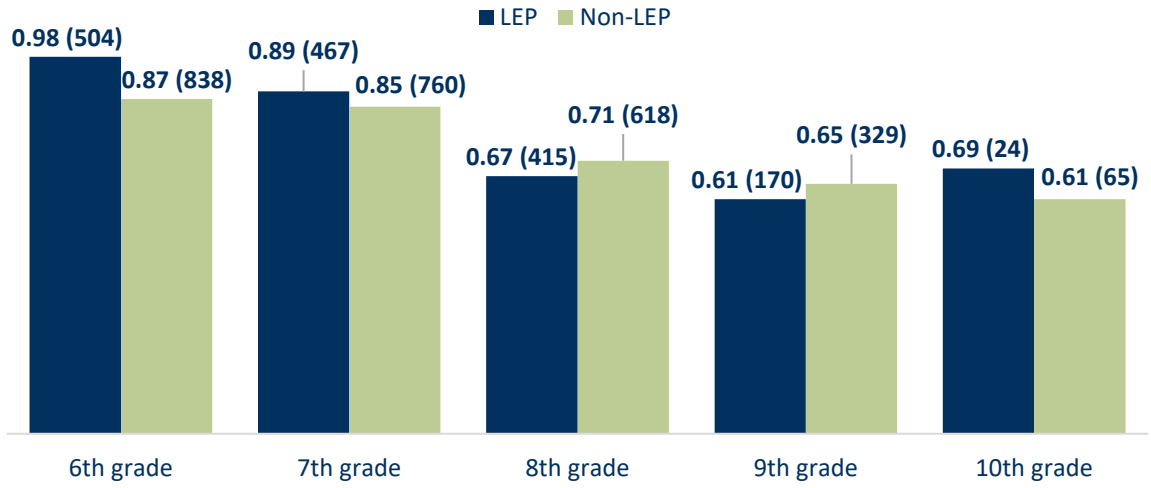


Figure 12 shows math credit attainment for Cohort 1 TechSmart students of color and all other students. There were no statistically significant differences between these two groups in any year except 9th grade, when non-minority students had significantly higher math credit attainment than students of color. Although the differences were not statistically significant, students of color attained more math credits in grades 6 and 7 on average.

Figure 12. Math Credit Attainment for Reynolds Students of Color

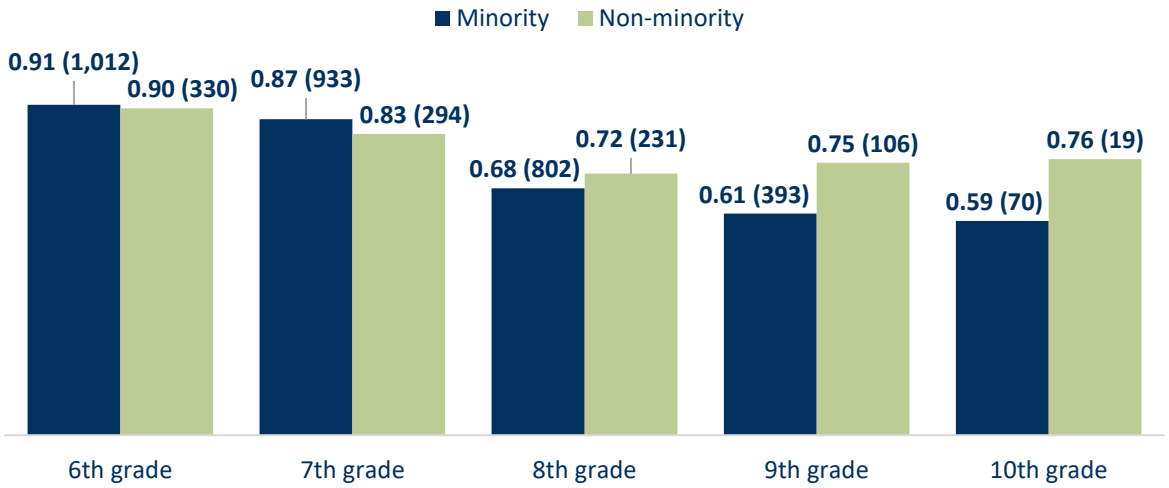
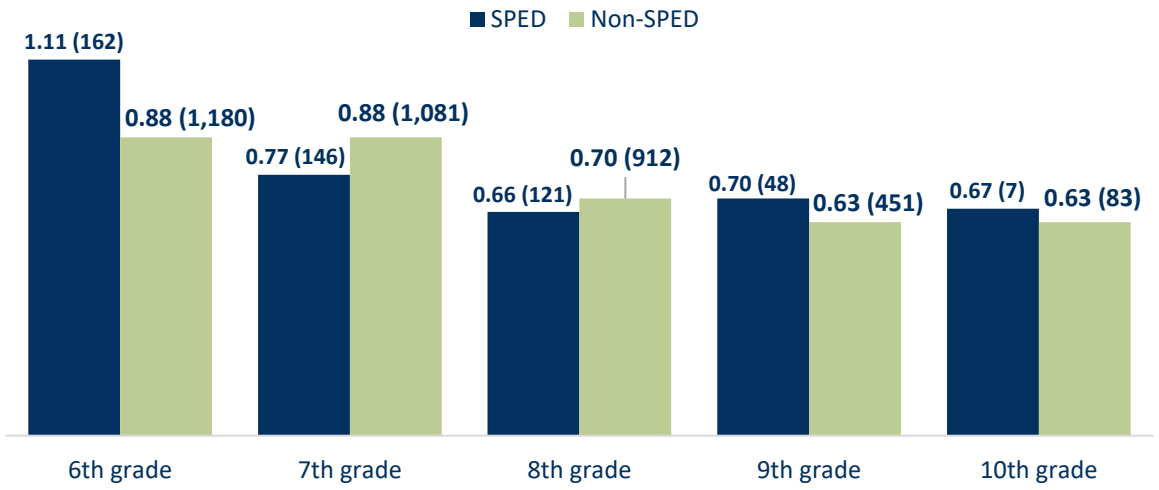


Figure 13 shows math credit attainment for SPED TechSmart students and non-SPED TechSmart students. Similar to the results for LEP students, non-SPED TechSmart students earned more math credits in grades 8 and 9, but SPED TechSmart students earned more math credits in grades 6, 7, and 10. All differences were statistically significant ($p < .05$). This provides some evidence that TechSmart may have benefitted SPED students, particularly at the beginning and end of Grant 1.

Figure 13. Math Credit Attainment for Reynolds SPED students



Smarter Balanced Math Assessment

Figures 14 through 16, below, show comparisons of Smarter Balanced math assessment scores for Treatment Group students from at-risk subgroups and all other students. At-risk subgroup students had lower average scores on the Smarter Balanced math assessment than non-subgroup students, and all differences were statistically significant. Although these results are from only two cohorts of the Treatment Group, they do not contribute evidence of promise for closing the achievement gap.

Figure 14. Grant 1 Treatment Group Smarter Balanced Math Assessment Scores for Reynolds LEP Subgroup

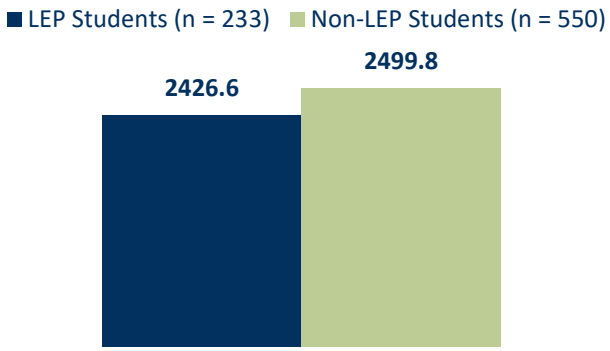


Figure 15. Grant 1 Treatment Group Smarter Balanced Math Assessment Scores for Reynolds SPED Subgroup

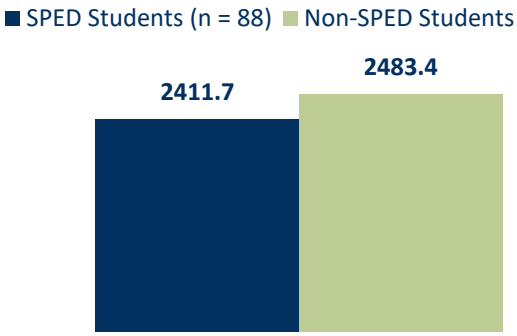
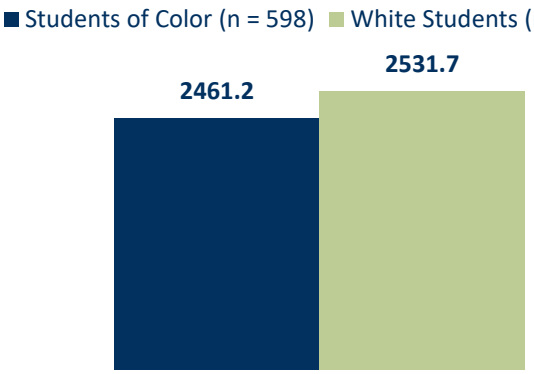


Figure 16. Grant 1 Treatment Group Smarter Balanced Math Assessment Scores for Reynolds Students of Color Subgroup



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

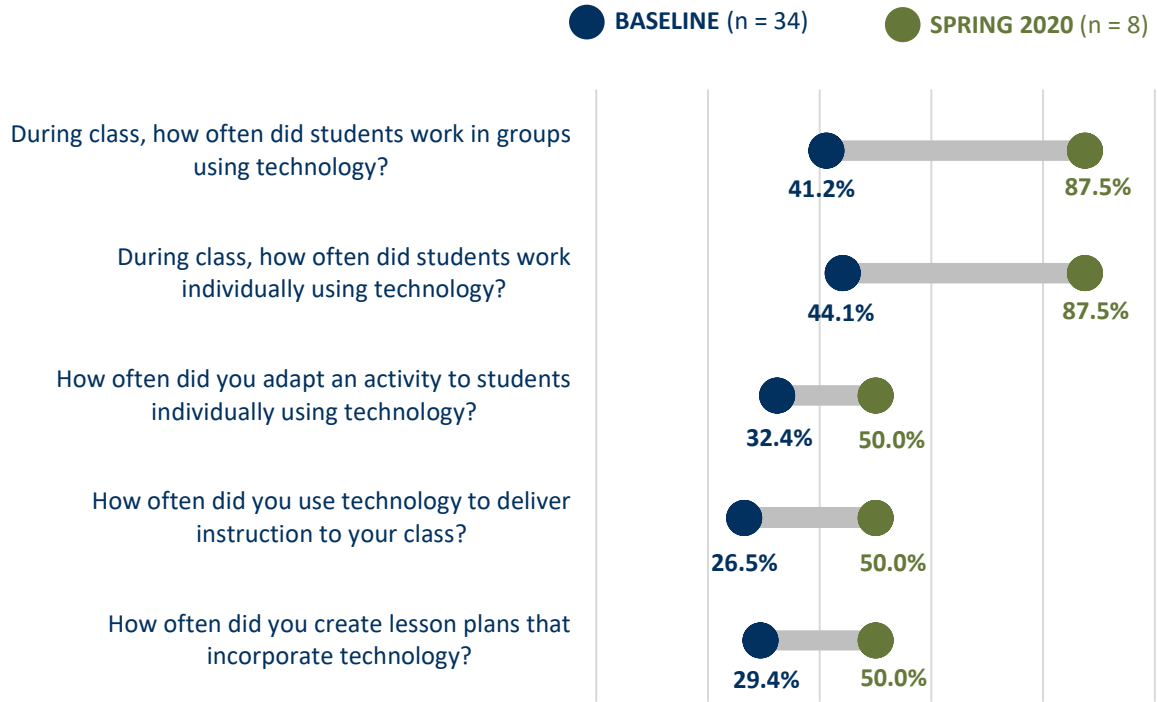
Has the use of technology to support instructional practices increased?

Key Findings:

- By Spring of 2020, 87.5% of Grant 1 teachers who completed the survey reported students working in groups and individually using technology a moderate amount to a great deal, which represents an increase over baseline.
- By Spring of 2020, 50% of Grant 1 teachers who completed the survey reported using technology to adapt activities to students individually, deliver instruction, and create lesson plans a moderate amount to a great deal, representing an increase over baseline.

In terms of frequency of technology use, the areas that saw the greatest increase from teachers were the **use of technology in group work and in individual student work** (see Figure 17).

Figure 17. Reynolds Grant 1 Frequency of Technology Integration (% A Moderate Amount/A Great Deal)



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

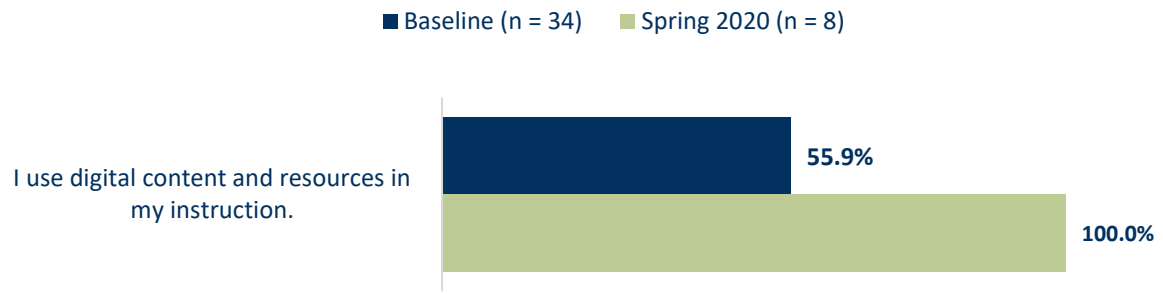
Do teachers have increased access to and use of digital content and resources?

Key Findings:

- All teachers (100%) reported using digital content and resources in their instruction by the Spring of 2020, representing a substantial increase from baseline.
- A total of 87.5% of teachers felt students had adequate access to technology in their classroom by the Spring of 2020. This does not necessarily mean that all students had adequate access to technology for distance learning.

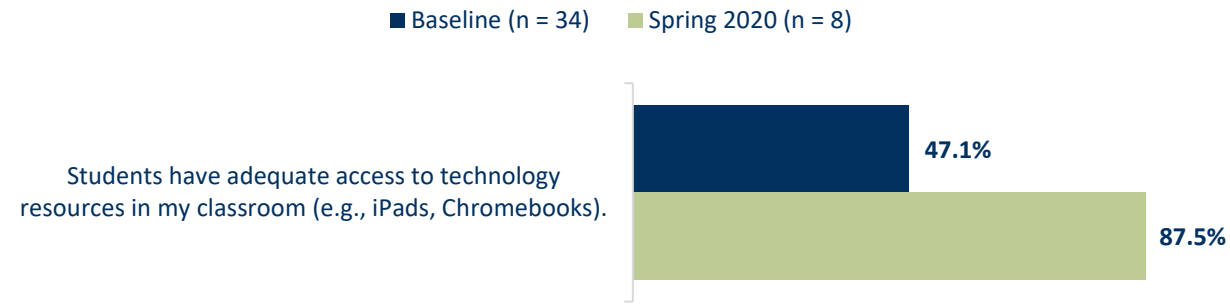
Reynolds teachers provided reports of how often they use digital content and resources during instruction. Data were provided at baseline and in June of 2020 and results are shown in Figure 18. By Spring of 2020, all (100.0%) of teachers who completed the survey reported that they use digital content and resources "a great deal" or "a moderate amount".

Figure 18. Reynolds Grant 1 Students' Access to Technology Resources (% A moderate amount/a great deal)



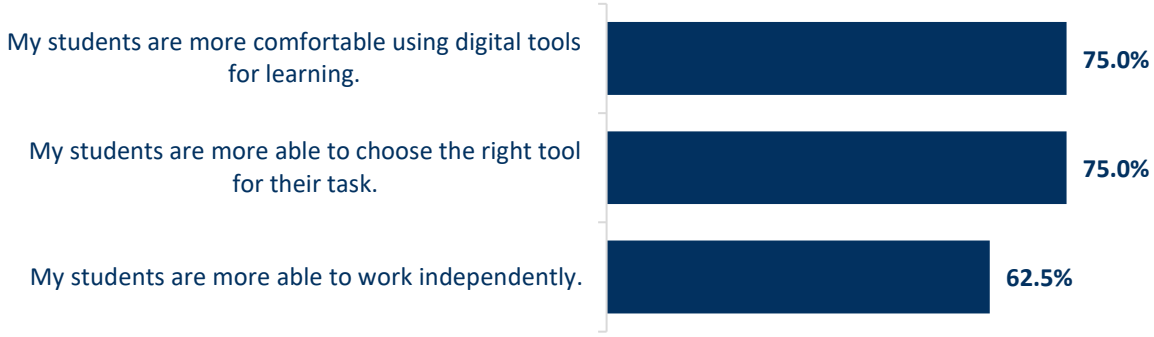
Teachers rated their perceptions of the adequacy of students' access to technology resources within their classrooms. The responses indicate that a substantially higher percentage of teachers felt students had adequate access to technology in their classroom by the Spring of 2020, as shown in Figure 19. These results do not necessarily indicate that students had adequate access to technology for distance learning.

Figure 19. Reynolds Grant 1 Students' Access to Technology Resources (% True of me/Very True of me)



Finally, teachers were asked to rate a series of statements comparing their current students to students from their previous year of teaching. As shown in Figure 20 below, 75.0% of teachers agreed or strongly agreed that their students are more able to choose the right tool for their task and more comfortable using digital tools for learning by the end of SY 19-20.

Figure 20. Reynolds Grant 1 Teachers' Comparisons of Students (% Agree/Strongly Agree) (n = 10)



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

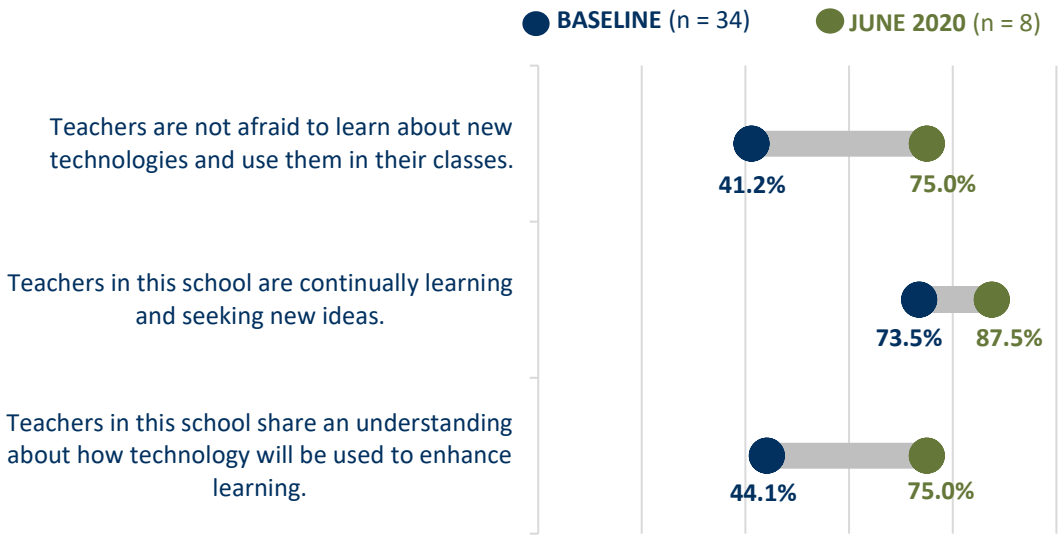
Is there evidence of district wide support for technology integration?

Key Findings:

- A higher percentage of teachers agreed with statements representing positive views of a culture of support for technology integration in the Spring of 2020 than at baseline, providing evidence the culture may have improved over time.

During the teacher survey, teachers were asked to rate their agreement with several statements regarding school culture of support for technology integration. These data, presented in Figure 21, provide evidence that RSD has made substantial progress in creating a culture of support for technology integration, as the percentage of teachers who agreed with each statement increased from baseline to Spring of 2020.

Figure 21. Reynolds Grant 1 Teachers' Perceptions of a Culture of Support for Technology Integration (% Agree/Strongly Agree)



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Do parents have an increased understanding and utilization of districts' technology assets?

Key Findings:

- The district conducted a survey related to technology and internet connectivity at home, which was used to support RSD's efforts to fill gaps in home internet connections.
- Parents had access to technology support remotely during distance learning.

Because of the closures resulting from the pandemic, the district conducted a family survey in late March regarding technology and internet connectivity at home. The year-end status report shared that the survey "helped to identify and persuade dedication of district resources to remedy the gap in home internet connection." Parents were also able to request support for technology issues remotely, and the technology services department partnered with the language services department to support speakers of diverse languages as needed.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Are an increased number of students utilizing and engaging with new technology?

Because the RSD student survey was unable to be completed in SY 19-20 due to the COVID-19 pandemic, PRE cannot report on any student data related to utilization and engagement with new technology. However, all evidence from the year-end status report and the remainder of this report indicates that it is very likely an increased number of students are utilizing and engaging with technology, particularly due to the shift to distance learning.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

How has TechSmart impacted the shift to distance learning?

Key Findings:

- Teachers shared that their own—and their students'—familiarity with technology-based tools and programs was particularly valuable during the shift to distance learning.
- Teachers described immense benefit of the PD and physical technology resources and devices set up and provided in Grant 1. The devices provided through Grant 1 allowed the district to focus resources on other students who did not yet have direct access to technology prior to the shift to distance learning.
- Leadership agreed that Grant 1 was critical in setting the district up for greater success in distance learning, emphasizing the value of the PD-based resources and technology-focused personnel that were already in place due to Grant 1 implementation.

For the SY 19-20 evaluation, teachers were asked to reflect on how their experience with TechSmart has impacted the shift to distance learning for both themselves and their students. Teachers were consistently grateful for the preparation and resources TechSmart provided. All participating Grant 1 teachers shared positive feedback regarding the value of TechSmart for the transition to distance learning. Some teachers noted that their own familiarity with technology-based tools and programs was valuable. One teacher said, "I had previously used Onenote due to TechSmart, and it was very helpful for distance learning." A second teacher shared, "It helped by giving me more experience using technology so that I was better prepared to teach through distance learning." Another teacher compared their experience to their colleagues' who had not participated in TechSmart, stating, "I was more prepared than some of my colleagues."

Other teachers focused on the value of their students having experience with technology-based tools. For example, one teacher said, "Because we were already using Khan in the classroom, the transition for the students was pretty seamless. I had more participation than some of the teachers that share our students, and the learning curve for the students to transition to on-line learning was minimal." Another shared, "My students were already practiced at online instruction. Distance learning was not much different, except that my communication was through email or Microsoft Teams instead of in person."

Additionally, some teachers described the importance and value of the training and physical technology resources provided through TechSmart implementation or by the district during the transition to distance learning. One teacher said, "It was SOOOOO helpful! We had mini-classes that we could sign up for and learn from each other." A second teacher shared:

If I didn't have my Surface Pro and access to all the apps, I don't know what I would have done! The school has been wonderful with giving us all sorts of tech training during the closure.

TechSmart Grant 1 teachers also agreed that the Chromebooks their students had received through TechSmart implementation made all the difference in their students' abilities to easily transition. One teacher said, "Even though the Chromebooks didn't always work the best for our chosen platforms, students at least had the technology at home to help with the transition." Another teacher emphasized that students would not have been able to continue their educations successfully without the technology resources provided to students. "My students would not have been able to complete their classes without their Chromebooks and access to the required apps," the teacher said.

One huge benefit of our first grant was that we have tech leaders at all of our buildings who were able to lead during staff training.

-Director of Instructional Technology

Leadership discussed how the transition went and the role TechSmart implementation played in the transition. The Director of Instructional Technology shared how vital TechSmart was in facilitating the district's ability to conduct distance instruction, through both device provisions and support for teachers to become skilled at utilizing technology and sharing their skills and knowledge with other teachers. He said:

As a result of the shift to distance learning, we had to distribute devices to K-5 families. We wouldn't have had the devices without the grants, and we wouldn't have been able to provide devices K-5. Also, our PD this Spring was hectic. Gary and Adam were spectacular. One huge benefit of our first grant was that we have staff knowledge in tech at all of our buildings who were able to help lead during staff training time in the use of Schoology, Teams, and video conferencing. TOSAs met weekly with every building throughout the district and provided Schoology training and more. Once we got to a certain level, we offered mini PD sessions to staff. Schools were able to do some of their own PD.

The year-end status report supported many of the points teachers and leaders had emphasized in surveys and interviews. One section of the report stated: "The use of technology for all children has rapidly shifted from inadequate to ubiquitous in the Reynolds School District. The forced directive to shift to distance learning would not have been possible less than a year ago. The abrupt uptick in access comes with both abundant opportunity for students, as well as significant shifts in instructional practices for most teachers."

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Are districts identifying effective instructional practices and disseminating information and results to other districts?

The year-end status report described how Instructional Technology Coaches continued to meet regularly with their peers from other TechSmart recipient districts in East Multnomah County. Due to school closures related to the pandemic, no collaborative site visits were implemented.

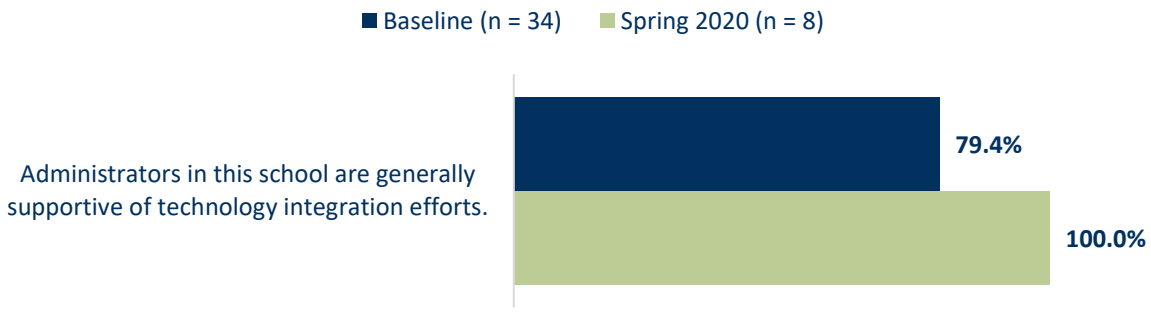
VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Do teachers feel increased support from district leaders regarding technology integration?

By Spring of 2020, all Grant 1 teachers who completed the survey agreed or strongly agreed that administrators at RSD are generally supportive of technology integration efforts, representing a substantial increase from perceptions at baseline.

Figure 22. Perception of Reynolds Administrators' Support of Technology Integration (% Agree/Strongly Agree)



DATA-DRIVEN IMPROVEMENT

Current, relevant, and high-quality data from multiple sources are used to improve schools, instruction, professional development, and other systems.

How are schools using data to improve instruction, professional development, and student performance?

Key Findings:

- At least half of all survey participant teachers reported using technology for evidence-based instruction, to differentiate instruction, and to analyze data about student learning by Spring of 2020, representing increases from baseline.
- By Spring of 2020, a total of 87.5% of all teachers who participated in the survey reported confidence in their ability to differentiate instruction and assess students' progress, as well as moderate or better use of formative assessments.

The survey asked teachers to describe how frequently they use technology for evidence-based instruction, differentiating instruction, and analyzing and using data about student learning. Half or more of all participating teachers reported using technology for evidence-based instruction, to differentiate instruction, and to analyze data about student learning by the end of SY 19-20. These data represent increases since baseline, as shown in Figure 23.

Figure 23. Reynolds Grant 1 Teachers' Instructional Technology Use (% A Moderate Amount/A Great Deal)

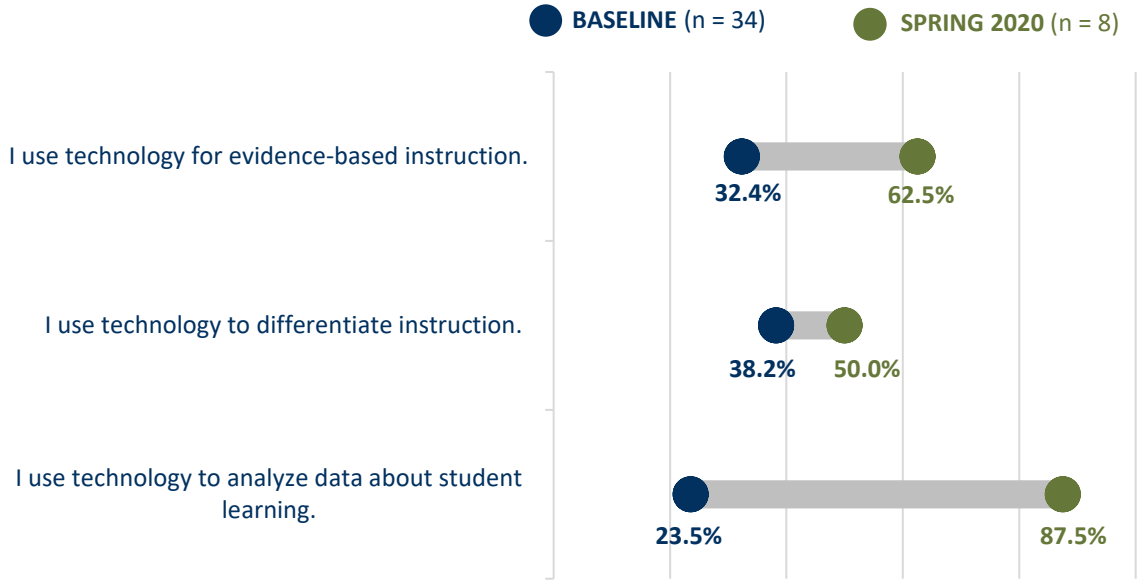
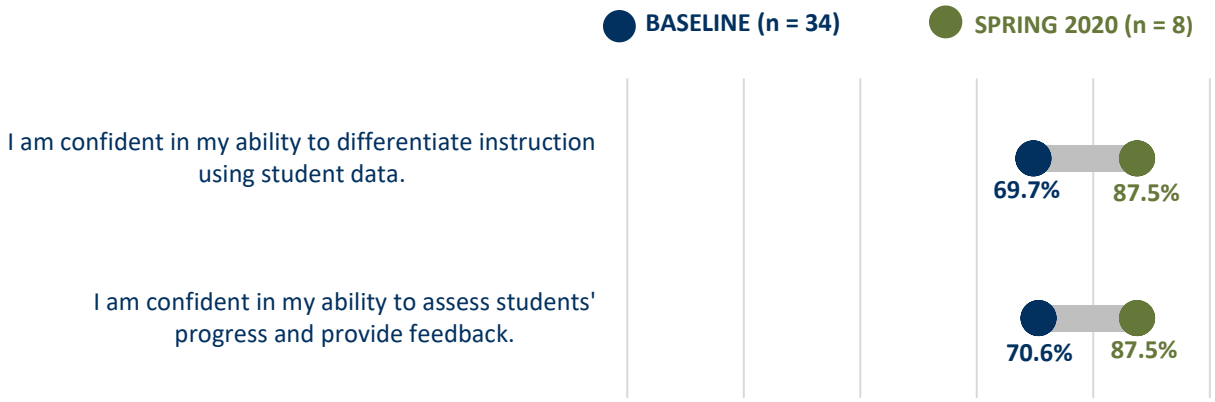


Figure 24 displays teachers' ratings of agreement with statements about data-driven improvement. The percentage of Grant 1 teachers who reported confidence increased from baseline to Spring of 2020. By the end of SY 19-20, 87.5% of Grant 1 teachers reported confidence in their ability to differentiate instruction and assess students' progress. An additional survey question asked teachers to report the extent to which they are using formative assessments. Results showed that seven of the eight participating teachers (87.5%) indicated they use formative assessments "a moderate amount" or "a great deal" by the end of SY 19-20.

Figure 24. Reynolds Grant 1 Teachers' Instructional Technology Use (% A Moderate Amount/A Great Deal)



FUNDING & BUDGET

District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.

Have districts identified at least one opportunity for repurposing resources to support technology integration?

PRE's interview with the district's Director of Instructional Technology highlighted several ways in which resources have been repurposed. First, the Director reported that replacement devices from Grant 1 were funded by the district using other funding outside of TechSmart. Second, the Director shared that coaching has been expanded by the district, with a second TOSA position added. Additionally, the Director shared that his own position was newly created.

STRATEGIC PLANNING

District strategic plan reflects shared commitment to improving outcomes for students.

Does the district's strategic plan reflect shared commitment to improving outcomes for students?

This year's leadership interview asked leaders to reflect on how the district's strategic plan incorporates technology in a way that reflects a shared commitment to improving outcomes for students. The district's Director of Instructional Technology said:

> *Our district's strategic plan has changed over the course of TechSmart in a big way. Our district's creation of a whole department to support the instructional side of technology is very strategic. We had created some desire to increase technology in other departments and grade levels during the first grant. That desire really did push us because we haven't had stable funding from the state. It pushed us to look for different opportunities in how to fund technology in the district. We received other grants because of the structure we had put into place in our first TechSmart grant. The work with MHCRC set us up to specifically look for grants for our technology and look for novel ways to support the integration of technology into the classroom. The partnership with MHCRC has set us up well and I cannot imagine the current situation without it.*

EVALUATION INSIGHTS

The SY 19-20 evaluation at RSD produced the following insights:

- While much of the planned RSD data collection was hindered by the COVID-19 pandemic, all data collected indicated that Grant 1 provided a strong foundation for RSD's transition to distance learning. Teachers and district leadership agreed that the PD, devices, and preparation provided by implementation of TechSmart during Grant 1 set the district up for much greater success in distance learning.
- The district's use of a teacher-focused PD model (e.g., lab cycles) seems to have benefitted RSD, particularly in the rapid shift to distance learning. Because TechSmart teachers were able to help provide support to other teachers, and because the district had already implemented additional PD supports, such as a Director of Instructional Technology and Instructional Technology Coaches, the district was able to provide helpful PD to teachers relatively quickly and adapt responsively to needs.
- Teacher survey data generally indicated improvement in teacher knowledge, skills, abilities, and experiences related to instruction that includes use of or relies upon technology. From baseline to the Spring of 2020, most teacher survey responses indicated more favorable views and reports.
- Generally, math credit attainment data provided the most evidence of promise for improving students' academic outcomes, both in general and for at-risk student subgroups. When comparing the Treatment Group and historical Comparison Group, the Treatment Group had significantly higher math credit attainment than the historical Comparison Group in 7th grade and 9th grade, but not in 8th grade. Within the Treatment group, there was some evidence of an achievement gap between at-risk subgroups and all other students in the Treatment Group, but only for some grade levels. In other grade levels, there was evidence that at-risk subgroups actually outperformed all other students, particularly for math credit attainment.
- Smarter Balanced math assessment data did not provide support for improved academic outcomes, as the historical Comparison Group had more students meeting or exceeding achievement standards on the Smarter Balanced math assessment than the Treatment Group. Within the Treatment Group, Smarter Balanced math assessment results also indicated an achievement gap remains between at-risk subgroups and all other students.

APPENDIX A: RESULTS SPECIFIC TO GRANT 2

While the majority of the SY 19-20 report focuses on Grant 1, some initial data for Grant 2 were collected during SY 19-20 and are reported in this appendix. These include Grant 2 teacher baseline survey data from Spring 2020, a leadership interview with the Director of Instructional Technologies, and the year-end status report.

According to the year-end status report, RSD completed the following project activities in SY 19-20: deployed Chromebooks to 95.2% of enrolled high school students between January and February; distributed devices to remaining students for a total of 2,642 students; conducted all-school PD sessions twice in January and twice in February; scheduled weekly late start PD sessions (cancelled due to pandemic); adapted PD model to engage smaller cohorts during school closure; trained teachers on basic methods of distance instruction; and offered 30-minute PD sessions on specific technology-focused topics. The year-end status report described difficulty conducting formative assessments during distance learning, but indicated that student engagement with devices increased through the second half of the school year.

The year-end status report also highlighted use of Schoology, as all teachers in the district were directed to use Schoology for distance learning. The program was widely used. The beginning of Grant 2 implementation also coincided with the first year of RSD's Verizon Innovation Learning grant. The beginning of this grant, as well as necessity of the shift to pandemic learning, led to widespread distribution of devices or planning for distribution of devices across the full district. The year-end status report stated, "The forced directive to shift to distance learning would not have been possible less than a year ago. The abrupt uptick in access comes with both abundant opportunity for students, as well as significant shifts in instructional practices for most teachers. How well the district trains and implements the latter will have significant impact on the former. Increased student academic outcomes will be better monitored within upcoming reporting periods."

The Director of Instructional Technology discussed the impact of TechSmart in SY 19-20 and shared several highlights of the district's progress toward Grant 2 implementation:

At the high school level, the math teachers formed a PLC over the past few years through the first TechSmart grant. With the rollout of the high school grant, we started distributing devices around January 14th. We were able to distribute 90% of devices to high school students by mid-February.

PD for staff began in the winter with late starts focused on teacher devices, how to use a stylus, how to hook up to a printer, and more. We did these conference-style where teachers chose what they went to depending on their familiarity with technology. We had partnered with the Northwest Nazarene Center in Idaho to bring in PD, and they had started training with vanguards and teacher leaders. We were going to roll PD out to all teachers in March, but that never happened because of school closures.

Teacher survey data provided additional insight into the starting point for RSD's second grant. Note that this appendix contains data specific only to Grant 2. Data from Grant 1 are described in the main body of this report. Within the 24 teachers who participated in the Grant 2 baseline survey, Grant 2 teachers averaged 3.9 years of teaching at the K-12 level. One group of survey questions focused on teachers' use of technology and instructional strategies. Figure 1 shows Grant 2 teachers' use of instructional strategies involving technology. About a quarter of Grant 2 teachers report engaging in technology supported instruction at grant baseline.

Figure 1. Reynolds Grant 2 Teachers' Instructional Strategies
(% True of Me/Very True of Me)

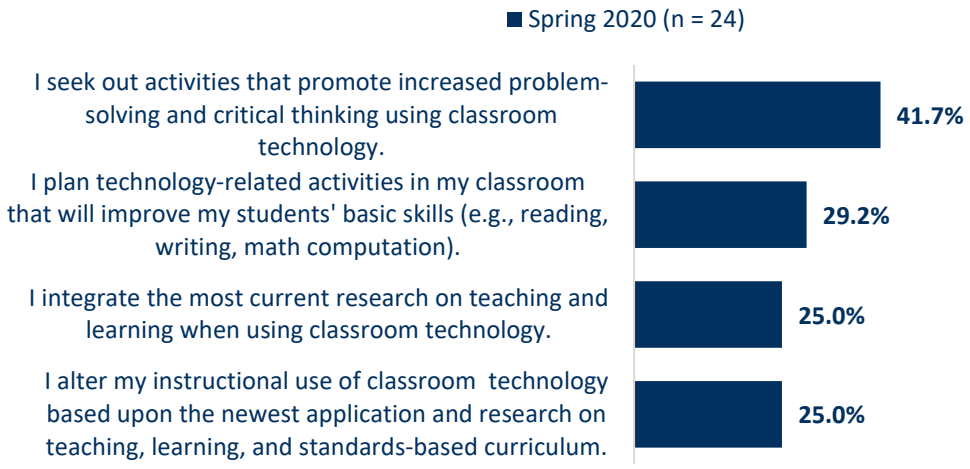
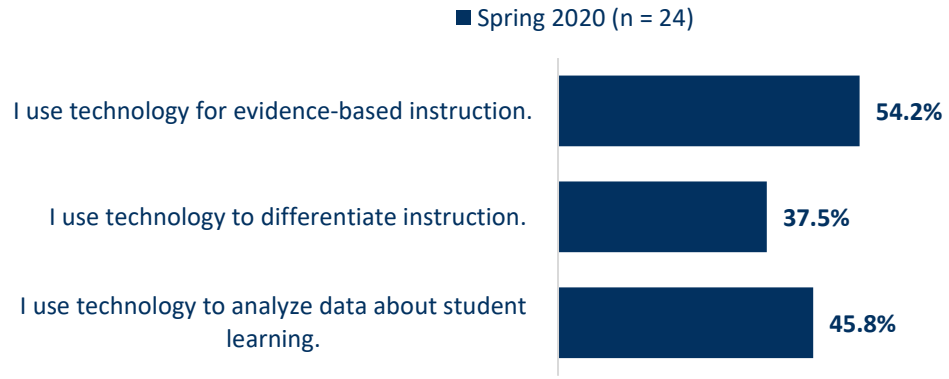


Figure 2 shows Grant 2 teachers' use of technology for various methods of instruction. At baseline, over half of Grant 2 teachers report using technology for evidence-based instruction.

Figure 2. Reynolds Grant 2 Teachers' Use of Technology for Instruction
(% True of Me/Very True of Me)



Similar to the levels of skill presented in the main body of this report, Grant 2 teachers reported their self-identified level of skill with technology, shown in Figure 3 below. The majority of Grant 2 teachers rated themselves at a level 3 at baseline.

Figure 3. Reynolds Grant 2 Teachers' Technology Skill Levels

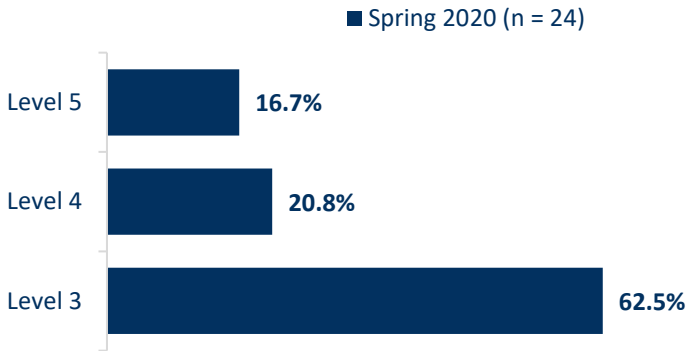


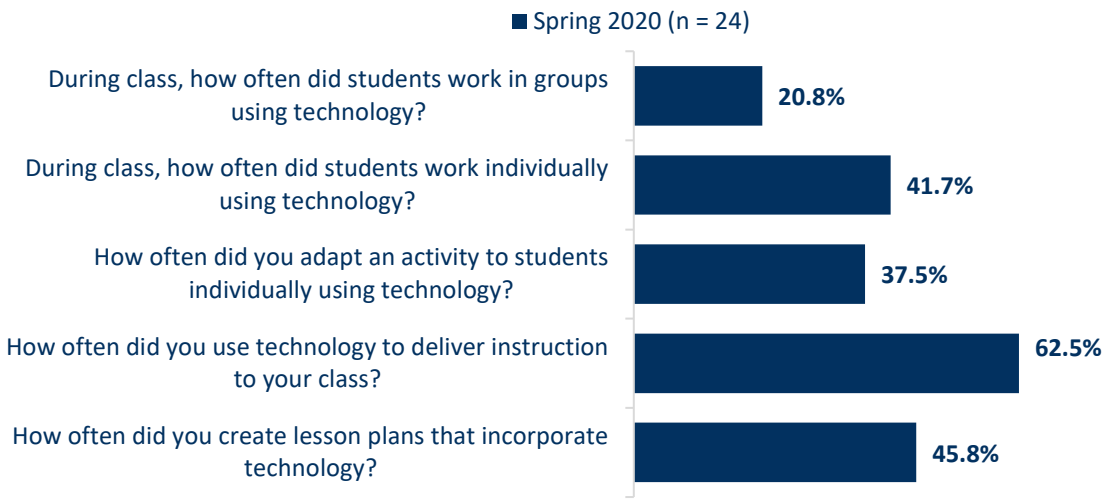
Figure 4 presents teachers' perceptions of their use of digital content and resources. Two-thirds of Grant 2 teachers said they use digital content and resources a moderate amount or a great deal at baseline.

Figure 4. Reynolds Grant 2 Teachers' Frequency of Technology Integration (% A Moderate Amount/A Great Deal)

Similarly, Figure 5 presents Grant 2 teachers' frequency of technology integration. At baseline, 62.5% of teachers reported using technology to deliver instruction, but it is important to note that these data were collected during distance learning and may not reflect true baseline data.

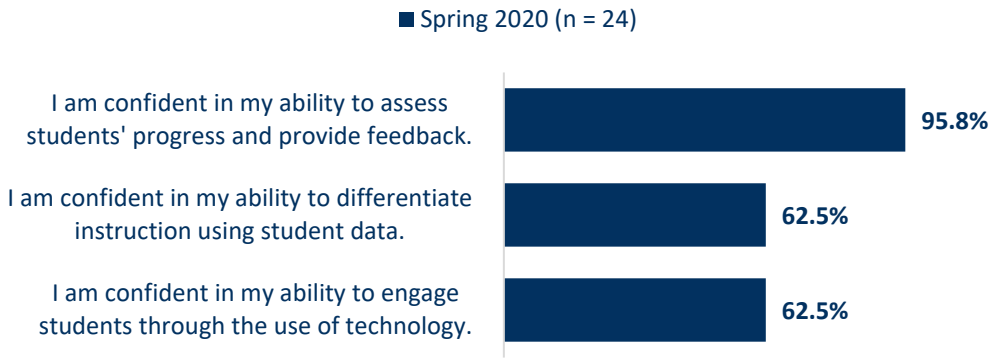
Figure 5. Reynolds Grant 2 Teachers' Frequency of Technology Integration

(% A Moderate Amount/A Great Deal)



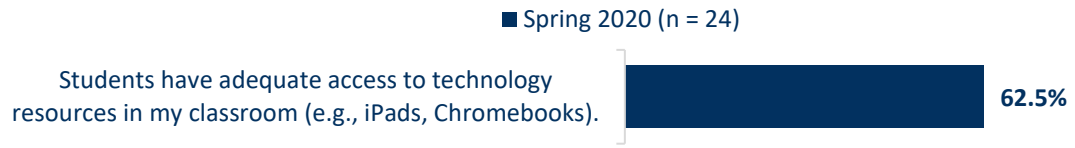
During baseline data collection, Grant 2 teachers were asked to report on their confidence using data-driven improvement strategies and engaging students through technology. Figure 6 displays results of these questions. Teachers expressed the most confidence in their ability to assess students' progress and provide feedback.

Figure 6. Reynolds Grant 2 Teachers' Confidence in Data-Driven Improvement Strategies
(% A Moderate Amount/A Great Deal)



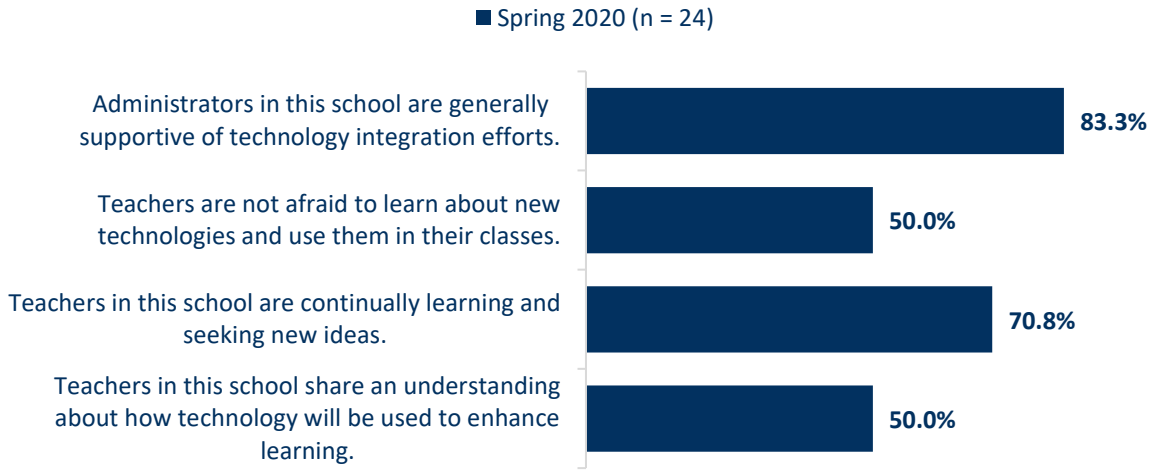
Another group of survey questions focused on teachers' perceptions of student access to technology resources and the overall culture of support from teachers and administrators in the district. Figure 7 displays teachers' responses about the degree to which they believe students have adequate access to technology. As shown, nearly two-thirds of teachers felt their students had adequate access to technology resources at baseline.

Figure 7. Reynolds Grant 2 Students' Access to Technology Resources
(% True of me/Very True of me)



As shown in Figure 8, half of Grant 2 teachers felt teachers in their school share understanding about how technology is used to enhance learning and are not afraid to learn about and use new technologies. Over two-thirds of Grant 2 teachers felt teachers in their school continually learn and seek new ideas. As shown in Figure 9, over 83% of teachers felt administrators in their school are supportive of technology integration efforts.

Figure 8. Reynolds Grant 2 Teachers' Perceptions of a Culture of Support for Technology (% A Moderate Amount/A Great Deal)



Gresham-Barlow School District

SY 19-20 TechSmart Evaluation Report

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Prepared by:
Pacific Research and Evaluation, LLC

November 2020

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PROJECT SUMMARY

Gresham-Barlow School District's (GBSD) MHCRC TechSmart grant focused on kindergarten through third grade classrooms at North Gresham Elementary School and Kelly Creek Elementary, and aimed to reduce the gaps in literacy achievement for students of color, English Language Development (ELD) students, students with disabilities, and students living in poverty. In the four school years of implementation, which began in 2016-2017 (SY 16-17), GBSD offered onsite coaching from an instructional technology coach (ITC) at both schools, as well as other professional development opportunities and classroom technology supports.

More specifically, during the 2019-2020 school year (SY 19-20), which was the final year of the grant, GBSD engaged in the following activities: Technology Walks in which teachers were provided a substitute teacher so they may observe instructional technology in use in various GBSD classrooms; ITCs helping teachers to determine what type of technology tools and strategies can be used to support struggling readers; and the introduction of a mobile innovation lab, called Tomorrow Bus, that was able to visit half the district's elementary schools prior to school closures due to COVID-19 and allowed those students to explore various hands-on, real world activities.

The entire district moved to distance learning in spring 2020 as a result of school closures from the COVID-19 pandemic. The instructional team collaborated to provide the foundational skills teachers would need to support students and families during this time of transition. The district identified Google Classroom and Seesaw as the primary platforms for providing instruction, which were familiar tools to several team members due to work with the applications through the grant.

METHODS

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Data collection efforts for the SY 19-20 evaluation at GBSD are summarized below. Survey and interview quotes have been edited for grammar and brevity.

Teacher Survey: The teacher survey was administered online to teachers in April 2020 and was completed by 19 teachers. In previous years, cohorts also completed the survey in the fall but that was not the case in SY 19-20. Baseline data in this report is from the true baseline of the grant, fall 2016.

Teacher Interviews: PRE conducted phone interviews with five teachers involved in the TechSmart grant at GBSD. Teachers taught kindergarten (n = 1), 1st grade (n = 3), and 2nd grade (n = 1). Three teachers had been involved with the grant since it started.

District Leader Interviews: PRE conducted four interviews with leaders from GBSD including two ITCs, an elementary school principal, and the district's elementary level director of teaching and learning.

Student Achievement: A quasi-experimental Comparison Group design was used to assess impact. The treatment groups included students from the pilot schools who were in kindergarten SY 16-17 (Cohort 1) or SY 17-18 (Cohort 2). The Comparison Group includes students in the same grades at Highland and Powell Valley.

Gresham-Barlow also faced transitions in staffing for their ITC personnel during SY 19-20; one ITC was reassigned to a district position in January 2020 with the role remaining unfilled, while the other went on leave in April. Despite this, both staff were able to provide ongoing support.

The district plans to use results from the two pilot schools to support efforts to scale literacy instructional strategies and practices across the entire district.

FINDINGS

The evaluation findings from the SY 19-20 evaluation at Gresham-Barlow are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

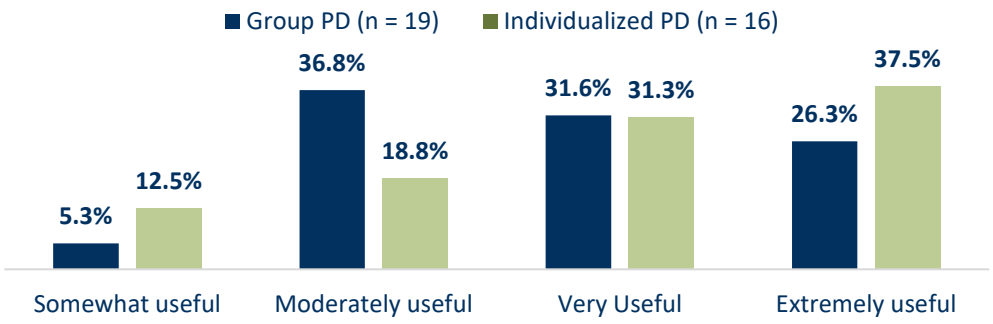
Gresham-Barlow leaders and teachers described the professional development (PD) offered during SY 19-20, which included trainings focused on specific applications, such as Nearpod and iReady, and specific technology tools, such as Clevertouch and interactive whiteboards. Teachers commented that these trainings introduced them to the new technology and the different ways to integrate it into their instruction. Professional development was delivered in group settings as well as from the ITCs. Teachers explained that professional development from coaches consisted of answering questions for teachers and live demonstrations, such as instructing with technology in classrooms while teachers observed. The Technology Walks also served as a means to train teachers through the opportunity to observe other educators utilizing technology in the classroom. One teacher noted they were able to access online resources to reference as part of the professional development efforts.

As shown in Table 1, three-quarters of **TechSmart teachers reported receiving between 1-8 hours of group PD and nearly half received 1-8 hours of individual PD** during the 19-20 school year. Individual PD was rated as more useful than group PD (Figure 1).

Table 1. Gresham-Barlow School District Hours of Group PD (n = 19)

Hours of Group PD	Group PD	Individual PD
0 hours	-	15.8%
1-8 hours	73.7%	47.4%
9-16 hours	15.8%	21.1%
17-32 hours	-	10.5%
33+ hours	10.5%	5.3%

Figure 1. Gresham-Barlow End of Year Teacher Ratings of PD Usefulness



The teacher survey asked how effective the PD model has been in impacting teacher instruction. Two of the teachers highlighted the benefits of a technology coach who provided tailored instruction. Teacher and leadership interviewees also spoke positively about the coaching element. One teacher interviewee described the benefits of working one-on-one with the ITC:

> *The coach taught a class I took, but I always reach out to the coach just because I think that's the best use of how to grab at those opportunities. She's super helpful and she can always schedule a time to pop in and teach the lesson for me, if it's a new thing. Sometimes I have her come in and teach it and then I can watch her do it so I can also help the kids as well.*

Other teachers who responded on the survey provided mostly positive feedback regarding the effectiveness of the PD model. Teachers mentioned that they appreciated the video components that allow them to revisit topics and the opportunity to see technology modeled in the classroom. As one teacher stated, "It has been very helpful. Having the chance to learn a new technology, see it modeled in someone's classroom or by a tech coach, and then have time to put it into practices is a good model." Teachers also noted that the PD enabled them to offer "students a wider range of learning opportunities" through technology, model lessons around technology, and integrate more technology. One teacher also indicated that technology results in "a higher level of engagement for students," and another teacher mentioned that the PD allowed them to feel prepared when shifting to distance learning during spring 2020. One suggestion for improving the model included the request for more opportunities to learn from people trained in specific technologies. Another teacher explained that they faced lag time in having an idea for technology use and getting it set up quickly due.

Finally, one leadership interviewee credited the grant for providing more engaging professional development opportunities for teachers:

> *I would say one of the biggest things is greater and more engaging professional development for our teachers. That has been one really positive thing that has come out of the grant. It has been really valuable for our teachers, because previous to the grant there were no tech coaches.*

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

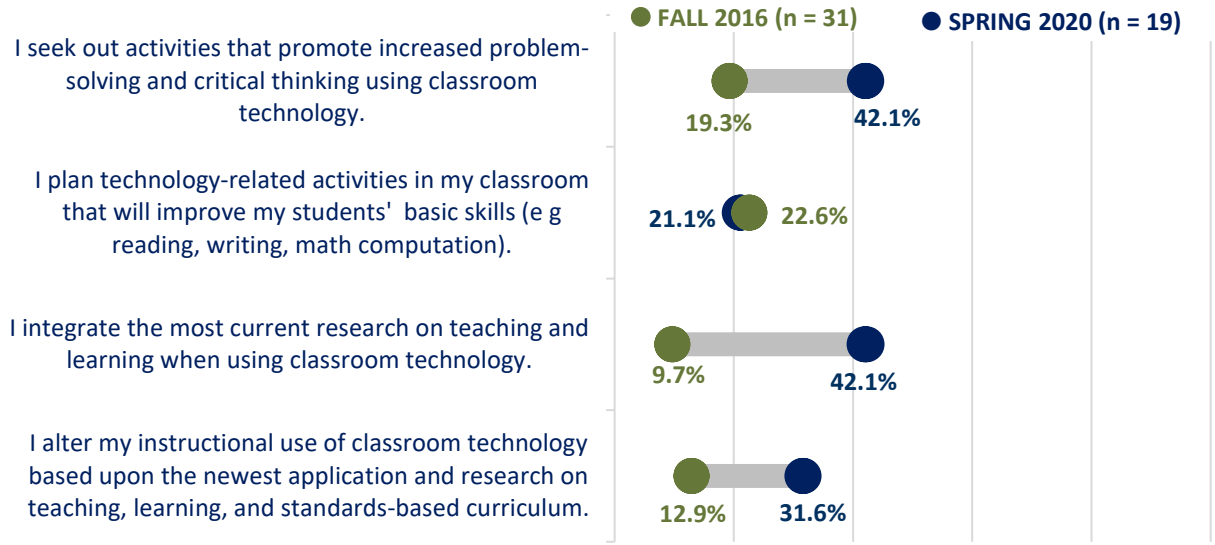
How is professional development impacting teacher instruction?

Key Findings:

- There is some room for improvement around the extent to which teachers are integrating technology into various instructional practices.
- Teacher self-reported technology skill level increased from baseline to spring 2020. At baseline, 19.3% of survey participants rated their skill level at a four or five compared to 79.0% in the spring 2020.
- Teachers are comfortable integrating technology into their instruction.

Teachers reported the extent to which they are integrating technology into various instructional practices at baseline and in the spring of 2020. Although the use of technology specific instructional strategies has increased for three items over the course of the grant, only 31.6% to 42.1% of teachers indicated these three statements were "true" or "very true" of their teaching practice (Figure 2). Additionally, in SY 19-20, only 21.1% reported it was "true" or "very true" that they plan technology-related activities in their classroom that will improve students' basic skills, which was a slight decrease from baseline.

Figure 2. Gresham-Barlow Instructional Strategies
(% True of Me/Very True of Me)



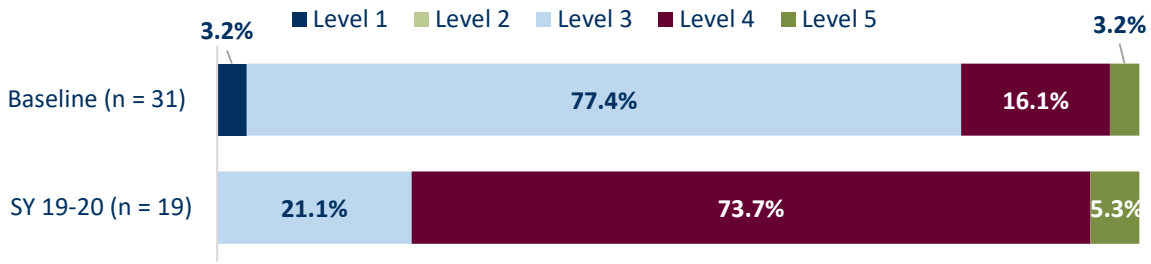
Teachers reported their technology skill level at baseline and end-of-year survey by rating themselves at one of the following five levels:

TECHNOLOGY SKILL LEVEL

1. I get someone else to do technology-based tasks for me.
2. I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.
3. I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.
4. I use a variety of technology tools and I use them efficiently for all aspects of my job.
5. I use technology efficiently, effectively, and in creative ways to accomplish my job.

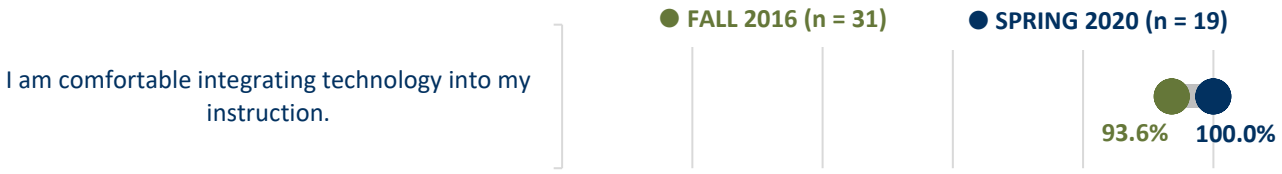
There was an increase in teachers' self-reported technology skill level from baseline to spring 2020. At baseline, 19.3% of survey participants rated their skill level at a four or five compared to 79.0% in the spring 2020 (Figure 3).

Figure 3. Gresham-Barlow Teachers' Technology Skill Level



All teachers surveyed in spring 2020 were also comfortable integrating technology in their instruction. These reactions were slightly more positive than at baseline when comfort levels were also high (Figure 4).

Figure 4. Gresham-Barlow Teachers' Comfort Integrating Technology



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

What new instructional strategies are teachers reporting?

Key Findings:

- Seventy-nine percent of teachers had identified effective instructional practices that use technology.
- Teachers highlighted differentiation and the ability to have students demonstrate their learning as effective instructional strategies that utilize technology.

Seventy-nine percent of teachers "agreed" or "strongly agreed" on the spring 2020 survey that they have identified effective instructional practices that use technology. Teachers provided examples of new technology related instructional strategies that have been effective in their classroom instruction and rated the strategies on a scale of one to five, with five being the most effective. Table 3 shows the ways in which teachers described using technology, along with average effectiveness ratings. Teachers most commonly reported **using technology to differentiate instruction and in small group instruction** (Table 2).

Table 2. How New Technology is Being Used for Instruction at Gresham-Barlow

Instructional Supports	Effectiveness Rating
Differentiating	4.18 (n = 11)
Small Group Instruction	3.67 (n = 6)
Demonstrating learning (including through Screencastify)	3.67 (n = 3)
Assessments	3.67 (n = 3)
Hands-on Activities	3.33 (n = 3)
Google Classroom	4.5 (n = 2)
Nearpod	4.5 (n = 2)
Seesaw	4.0 (n = 2)
Secondary Experiences/Virtual Fieldtrips	4.5 (n = 2)
Sharing Work with Families	4.5 (n = 2)
Students Record Reading	4.0 (n = 2)
Using Technology for Research	4.5 (n =2)
Whole Group Instruction	3.0 (n = 2)
Active Learning	4.0 (n = 1)
Feedback	4.0 (n = 1)
Google Docs	4.0 (n = 1)
Individualized Reading Instruction	4.0 (n = 1)
Live Cam	5.0 (n =1)
RAZ Kids	4.0 (n = 1)
Using Technology to Support Writing	4.0 (n = 1)
Using data from tech apps to inform instruction (iReady)	3.0 (n = 1)
Writing Process	3.0 (n = 1)

Teachers were asked to self-assess their use of technology to support instruction using a rubric on the year-end survey. Teachers reported most frequently using technology to support instruction **for engaging students in learning** (Table 3).

Table 3. Technology Used for Supporting Instructional Practices at Gresham-Barlow
(1 = Not at All, 2 = Very Little, 3 = Somewhat, 4 = To a Great Extent)

Planning and Preparation	3.47 (n = 19)
Managing Classroom Procedures	3.26 (n = 19)
Organizing Physical Space	2.79 (n = 19)
Communicating with Students	3.22 (n = 18)
Using Questioning and Discussion Techniques	3.16 (n = 19)
Engaging Students in Learning	3.79 (n = 19)
Using Assessment in Instruction	3.47 (n = 19)
Demonstrating Flexibility and Responsiveness	3.26 (n = 19)

Educators went into further detail on the survey and in interviews regarding instructional practices utilized in the classroom. One teacher echoed feedback presented earlier by highlighting differentiation:

> *I'm easily able to differentiate in the two core components of math and reading, which has been the biggest game-changer for me. In the morning, I read something called a daily five where I can meet with small reading groups. To have the kids that I'm not meeting with at their desk, working or listening to something that is at their level, allows me to really dig in with those kids that I'm actually working in a small group with and with less interruptions.*

A few educators also explained that they have been able to use technology to allow students to demonstrate their learning, particularly through applications such as Seesaw, Nearpod, Screencastify, and Google Slideshows. As one of these teachers noted, when students share their learning through technology, it enables the teacher to assess student understanding (Table 4).

Table 4. Examples of Students Using Technology to Show their Learning at Gresham-Barlow

We use Seesaw, which allows students to show their learning. I've used it more for individual instruction, because you can't be one-on-one with kids all the time, but through things like Nearpod and Seesaw, you can assess and teach kids with that one-on-one mindset even if you're not right in front of the kid.
I utilize Seesaw to help students practice sight words, demonstrate conceptual understanding of math and science, document accomplishments, and share thoughts and ideas on a topic.
Using technology gives access to all learners and allows them to share their learning and understanding during our science explorations.

A couple other teachers added that they have used technology to allow students to make choices in their daily learning, which leads to self-directed learning (Table 5).

Table 5. Examples of Self-Directed Learning at Gresham-Barlow

The way our teachers teach, it used to be a lot more teachers standing and delivering instruction to students. The 1:1 of technology allows teachers to set up classrooms, so students have voice and choice in their learning. Students are told the learning opportunities for the day, and students can use self-directed their learning by doing tasks in order that they want.
We use digital citizenship as part of our practice in life choices and management. We use min-lessons prior to lessons on technology. Students are allowed choice in their activities throughout the day.

Teachers also use technology to enhance learning through games and videos, the practice of vocabulary and sight words, and collaborate with peers.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

How are the new instructional strategies impacting student engagement?

Key Findings:

- Nearly 90% of teachers were confident in their ability to engage students through the use of technology, which was an improvement since baseline.
- Teachers described interactive applications, differentiation, and the opportunity to learn new skills as catalysts for engaging students.

Teacher confidence in their ability to engage students through technology increased by 28.2 percentage points since baseline, with confidence in spring 2020 approaching 90% (Figure 5).

Figure 5. Gresham-Barlow Teachers' Confidence in Engaging Students with Technology

This finding was supported by information provided in the year-end status report and by teacher and leader interviews. Specifically, the year-end status report explained that the Tomorrow Bus, implemented in SY 19-20, "was a very exciting and highly engaging" activity in which students were provided opportunities to work with coding robots. This feedback fits with other input teachers shared in that students have been "highly engaged" with interactive activities, such as those available through Nearpod, Kahoot!, and Clevertouch:

Using Clevertouch to present information to them has been a lot easier, and it's a lot more visual and engaging for the students. They're super engaged whenever we use Clevertouch and when they're able to interact with it instead of just me speaking to them. Students can use Clevertouch to share their strategies for math, and then we can all compare them.

A couple of teachers also mentioned differentiation as a catalyst for engaging students. Specifically, one teacher noted that providing students with activities at the appropriate level is engaging. This teacher added that this has been beneficial for gifted students as well.

One teacher also added that technology has engaged students by providing them with opportunities to learn new skills, which in turn empowers students to continue being engaged:

I see my students are much more engaged. They love to be on their computers and learn new skills; they are naturally inquisitive, so they're good problem-solvers and like to support one another. When they master a skill or feel masterful in a skill, they go and teach others. They feel empowered and so that increases engagement.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Are the new instructional strategies showing promise for improving academic outcomes?

Key Findings:

- The rate of students at benchmark on the DIBELS assessment was highest in the final year of the grant for Cohort 2.
- Cohort 1 and 2 DIBELS outcomes were more promising than those of the Comparison Group.
- Some teachers expected student achievement to improve with technology, because students can work at their own speed and their own level, re-watch learning material, receive different reading programs that meet different needs, and direct their own learning to become active learners.

Student Achievement Data

The impact of the TechSmart grant continued to be assessed using a quasi-experimental comparison group design. The Treatment Group contained two cohorts: students who were kindergartners in SY 16-17 at Kelly Creek and North Gresham (Cohort 1) and students who were kindergarteners in SY 17-18 at Kelly Creek and North Gresham (Cohort 2). The Comparison Group is made up of students who were kindergartners in SY 16-17 at Highland and Powell Valley. All Treatment Group cohorts are compared to the same Comparison Group. The two comparison schools were chosen to be the most well-matched to

Kelly Creek and North Gresham in terms of student composition and achievement. Outcomes included ELPA and DIBELS scores.

DIBELS assessment data are collected to inform teachers about their students' odds of achieving particular literacy outcomes. According to researchers from the University of Oregon, reviewing these outcomes is an important step in the Outcomes Driven Model of early literacy problem solving.[1] This model uses assessments like DIBELS as part of a feedback loop that operates within each classroom each year, serving as a tool for teachers to reevaluate their lesson plans and strategies. For this reason, the assessment is not intended to compare students from year to year. While examining students' DIBELS scores next to those of the Comparison Cohort gives a general picture of where students stand in their early literacy skills, these outcomes cannot establish a causal relationship between technology integration and literacy outcomes. Further, the district does not use the DIBELS assessment as a universal screener in 3rd grade, so data were limited for the Cohort 1 and the Comparison Group.

A goal of the TechSmart Initiative is to reduce the achievement gap by improving outcomes for three "student subgroups": LEP learners, Special Education students, and students of color. The TechSmart Initiative Logic Model uses "Common Criteria" to identify promising and effective instructional strategies and practices. The criteria include, among others:

- Promote progress for all student subgroups in achieving outcomes. (Promising)
- Indicate promise as a means of closing the achievement gap. (Promising)
- Correlate with measurable improvement for a student cohort in an AHR academic outcome area. (Effective)
- Be validated in multiple settings and with additional student cohorts. (Effective)
- Indicate evidence of reducing the achievement gap among student subgroups. (Effective)

To assess achievement gap reduction, student outcomes for each subgroup are examined over time for Treatment Group cohorts and the Comparison Group. Table 6 details the numbers of students in the Treatment Group cohorts and the Comparison Group by year. Sample sizes in Table 6 are based on availability of DIBELS data.

Table 6. Gresham-Barlow Treatment Group Cohorts and Comparison Group Sample Sizes

Cohort 1		Cohort 2		Comparison Group	
Year	N	Year	N	Year	N
2016-17 (K)	158	2017-18 (K)	149	2016-17 (K)	155
2017-18 (1st)	136	2018-19 (1st)	114	2017-18 (1st)	127
2018-19 (2nd)	115	2019-20 (2nd)	52	2018-19 (2nd)	110
2019-20 (3rd)	58			2019-20 (3rd)	49

Figure 6 presents each cohort by subgroup, with students categorized based on subgroup affiliation in kindergarten. The Comparison Group and Cohort 2 of the Treatment Group showed somewhat higher

[1]Good, R. H., Kaminski, R. A., Smith, S., Simmons, D., Kame'enui, E., & Wallin, J. (In press). Reviewing outcomes: Using DIBELS to evaluate a school's core curriculum and system of additional intervention in kindergarten. In S. R. Vaughn & K. L. Briggs (Eds.), Reading in the classroom: Systems for observing teaching and learning. Baltimore: Paul H. Brookes.

rates of limited English proficiency students than Cohort 1 of the Treatment Group. The Comparison Group and Cohort 1 of the Treatment Group showed somewhat higher rates of students in special education and students of color than Cohort 2 of the Treatment Group.

Figure 6. Gresham-Barlow At-Risk Subgroups

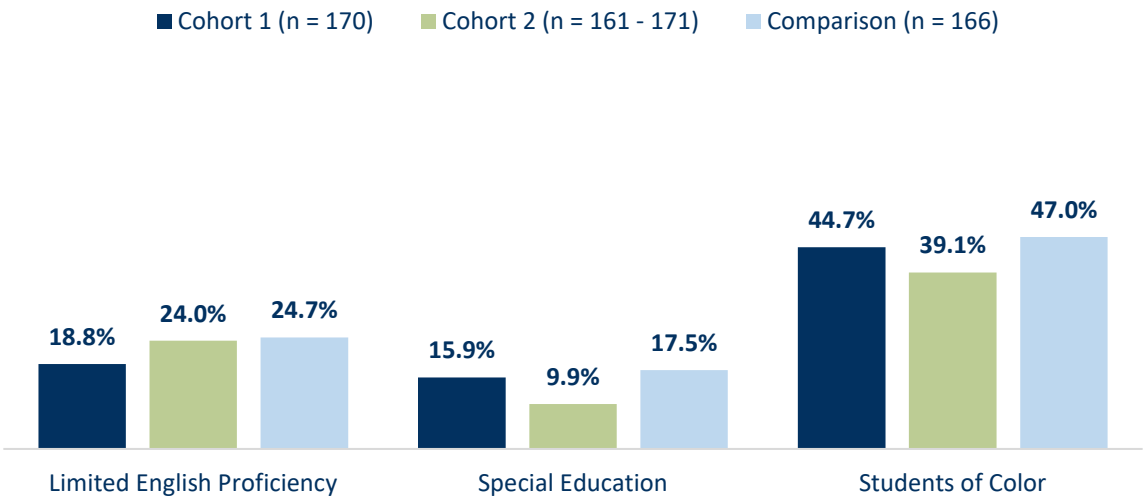
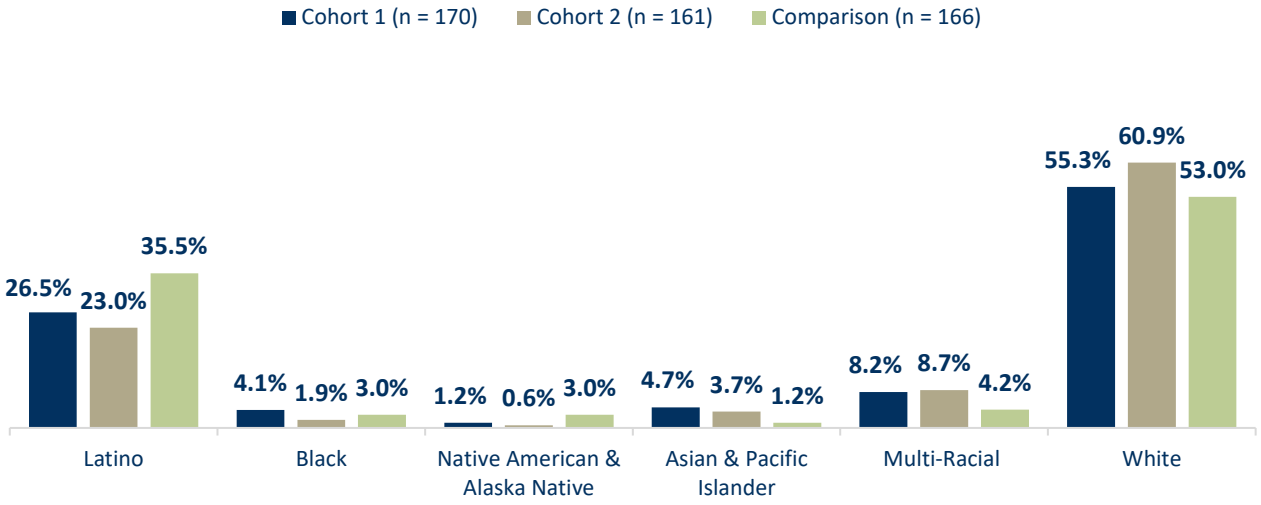


Figure 7 presents each group by race/ethnicity. When compared to the Comparison Group, Cohort 1 and Cohort 2 of the Treatment Group show relatively similar proportions of each race/ethnicity. The largest differences are in the Latino subgroup, which has the highest proportion in the Comparison Group, and the White subgroup, which has the higher proportion in Cohort 2 of the Treatment Group.

Figure 7. Gresham-Barlow Race/Ethnicity



Following SY 19-20, student achievement data were available for two Treatment Group cohorts, as well as the Comparison Group. Table 7 presents the student achievement data available for this report. In addition to the DIBELS assessment, Gresham-Barlow used the English Language Proficiency Assessment

(ELPA) as well. Due to the sudden shift to distance learning, Gresham-Barlow was not able to assess 3rd grade students in reading through the Smarter Balanced Assessment Consortium (SBAC) as planned.

Table 7. Gresham-Barlow Student Achievement Data

	Kindergarten	1st Grade	2nd Grade	3rd Grade
Treatment Group Cohort 1 (Kindergarten in SY 16-17)	DIBELS ELPA	DIBELS ELPA	DIBELS	DIBELS* ELPA
Treatment Group Cohort 2 (Kindergarten in SY 17-18)	DIBELS ELPA	DIBELS ELPA	DIBELS ELPA	-
Comparison Group (Kindergarten in SY 16-17)	DIBELS ELPA	DIBELS ELPA	DIBELS	DIBELS* ELPA

**The district does not use the DIBELS assessment as a universal screener in 3rd grade but rather for progress monitoring. Thus, data is limited for 3rd grade students.*

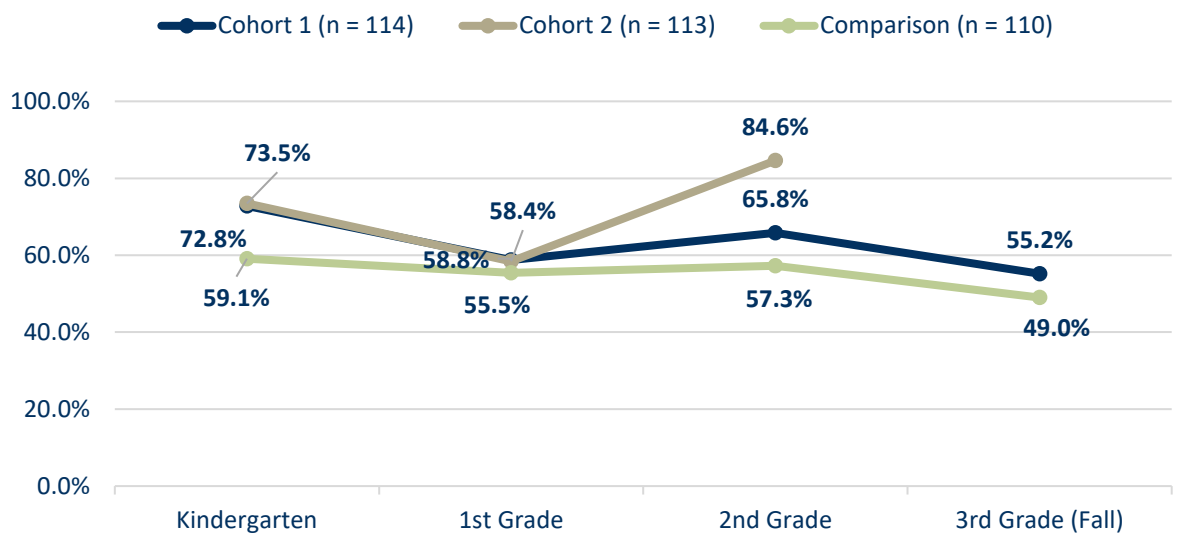
DIBELS Data

DIBELS are a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. DIBELS data were available from the district through SY 19-20, and these results are presented in Figure 8 for Treatment Group cohorts and the Comparison Group. The DIBELS scores for the first three time-points are from spring. For SY 19-20, students did not take the DIBELS assessment in spring, so the winter timepoint was used for Cohort 2. The district does not use the DIBELS assessment as a universal screener in 3rd grade, so data were limited for the Cohort 1 and the Comparison Group. Cohort 1 and the Comparison Group had the highest sample sizes in the Fall which is the timepoint presented in the graphs below, but results should be interpreted with caution.

For Cohort 1 students, DIBELS results showed that the percentage of students meeting the benchmark decreased from 72.8% in spring of kindergarten to 58.8% in the spring of 1st grade, then increased substantially in spring of 2nd grade to 65.8%. Cohort 2 results for kindergarten and first grade were similar to Cohort 1 results with a decrease from 73.5% in kindergarten to 58.4% in 1st grade. In SY 19-20, Cohort 2's DIBELS winter benchmark score increased to its highest level at 84.6%.

Both TechSmart Cohorts showed a higher percentage of students at benchmark than the Comparison Group over the life of the grant providing evidence of the impact of the grant on student achievement. Although 3rd grade DIBELS scores are limited, Cohort 1 is still outperforming the Comparison Group for those students assessed for progress monitoring.

Figure 8. Percentage of GBSD Students at Benchmark on DIBELS



Teachers and leaders were asked in interviews whether they thought activities showed promise for improving student academic outcomes. One leader indicated that they were concerned that with the shift to distance learning due to COVID-19, they would see a drop in test scores and engagement. Although this appeared to be the case for Cohort 1 and Comparison Group students who demonstrated a slight decrease in the rate in which students reached benchmark status on the DIBELS assessment, these scores were from an earlier timepoint than in previous years, which should be taken into consideration. Conversely, some teachers shared ways in which they expected instructional strategies to improve academic outcomes. Educators described the activities that they believed would support students academically. Namely, students can work at their own speed and their own level, re-watch learning material, receive different reading programs that meet different needs, and direct their own learning to become active learners. The Cohort 2 data demonstrated these promising expectations in that the rate of students at benchmark on the DIBELS assessment was highest for this group in the final year of the grant.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Do instructional practices show promise for improving student academic outcomes with at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

- Cohort 2 students in at-risk subgroups (LEP, SPED, students of color) outperformed Comparison Group students in these same subgroups on the DIBELS assessment in 2nd grade.
- In alignment with feedback presented earlier, teachers praised the use of differentiation as a tool for supporting at-risk students.
- Other promising methods for supporting at-risk students through technology included the opportunity to listen to instructions and assignments read aloud, share their voice, and learn valuable skills related to navigating technology.

To examine whether instructional practices show promise for improving academic outcomes with at-risk subgroups of students, DIBELS scores were examined for Treatment Group Cohort 1 and Treatment Group Cohort 2, as well as the Comparison Group. As noted previously, DIBELS data from SY 19-20 was from the fall timepoint for Cohort 1 and the Comparison Group, and the winter timepoint for Cohort 2. Figure 9 shows the percentage of LEP students who performed at or above benchmark on the DIBELS assessment at each time point. Results largely mirror those of the full group, presented above (Figure 6) in that Cohort 2 demonstrated the highest achievement in the final year of the grant, and the Treatment Groups overall performing more positively than the Comparison Group by the final two years of the grant.

Figure 9. Percentage of Treatment and Comparison GBSD LEP Students at Benchmark on DIBELS

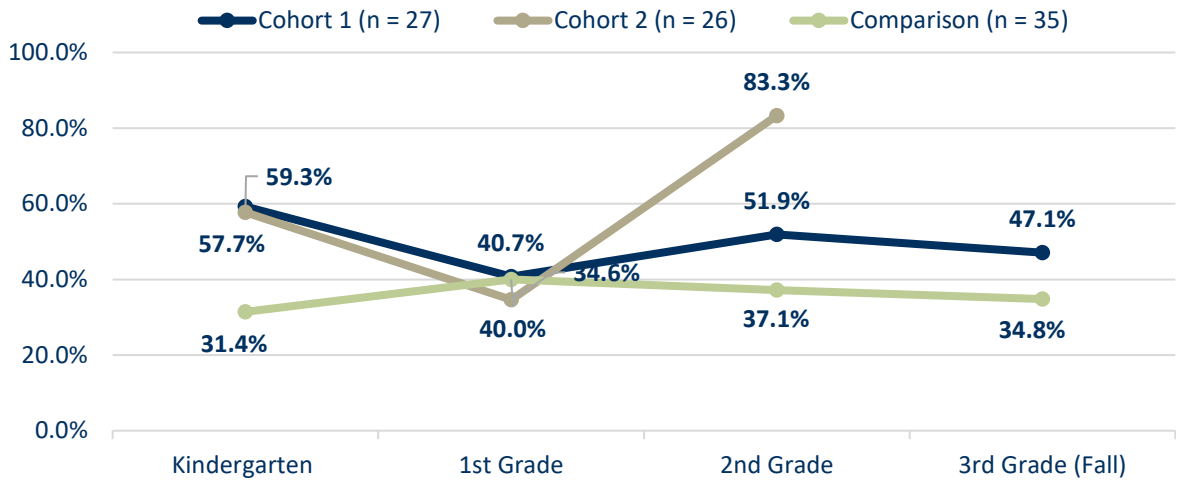


Figure 8 shows the percentage of SPED students who performed at or above benchmark on the DIBELS assessment at each time point, which was in the fall for Cohort 1 and the Comparison Group and in the winter for Cohort 2. Treatment Group Cohort 1 and Comparison Group students had the highest percentage of SPED students at benchmark in 2nd grade with scores dipping in 3rd grade. Conversely, all Cohort 2 SPED students were at benchmark in the final year of the grant, which was a large increase from 1st grade and aligns with the other DIBELS findings in which Cohort 2 performed well in SY 19-20 (Figure 10).

Figure 10. Percentage of Treatment and Comparison GBSD SPED Students at Benchmark on DIBELS

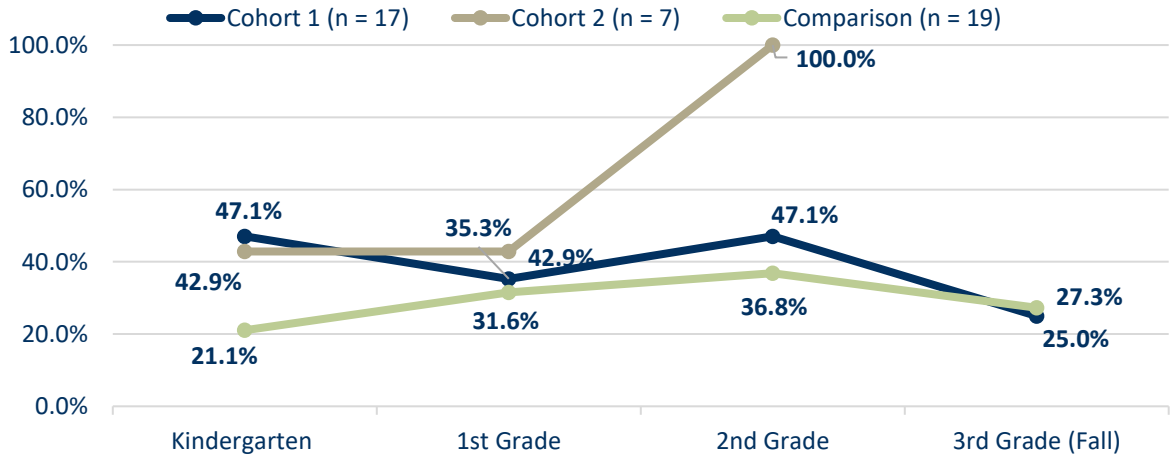


Figure 11 illustrates the percentage of students of color who performed at or above benchmark on the DIBELS assessment at each time point. Treatment Group Cohort 2 had substantially higher rates of students performing at or above benchmark in 2nd grade than Cohort 1 and the Comparison Group. Cohort 1 students of color performed slightly better than Comparison Group students of color in 2nd grade and 3rd grade.

Figure 11. Percentage of Treatment and Comparison GBSD SPED Students at Benchmark on DIBELS

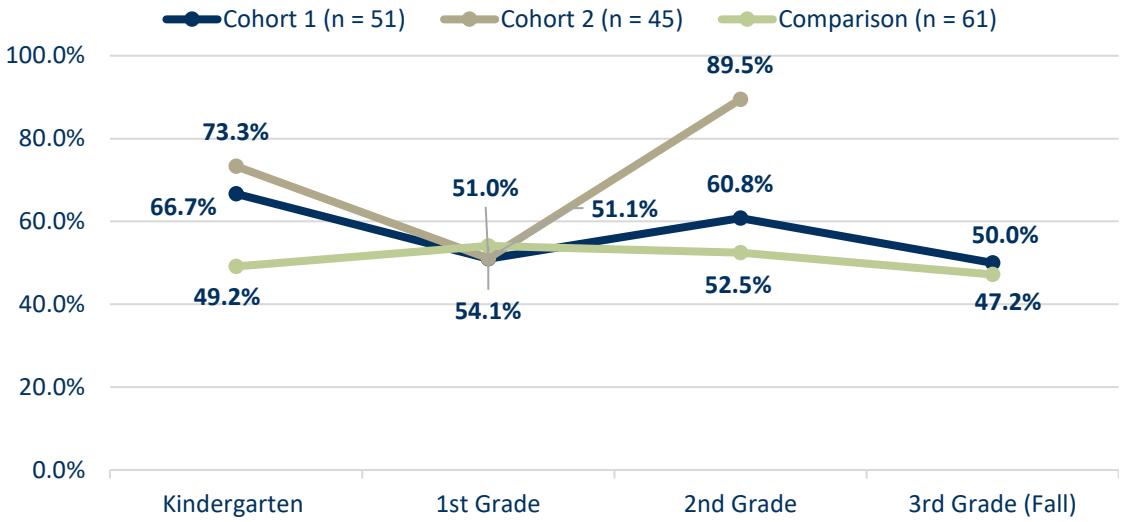


Table 8 below presents the ELPA21 results for Treatment Group Cohort 1 and the Comparison Group students in kindergarten, 1st grade, and 2nd grade, as well as results for Treatment Group Cohort 2 in kindergarten and 1st grade. The scores presented in Table 7 show that by the 3rd year of the grant, 17.9% of Treatment Group Cohort 1 students who completed the ELPA21 assessment in 2nd grade scored at the "Proficient" proficiency status, compared to 7.7% of Comparison Group students. It is important to note that ELPA data for SY 19-20 was not yet available at the time of this evaluation report.

Table 8. Gresham-Barlow ELPA21 Results for SY 16-17 and SY 17-18

	Proficiency Determination	Cohort 1 (n = 28-32)	Cohort 2 (n = 37-39)	Comparison Group (n = 38-40)
Kindergarten	Emerging	15.6% (5)	33.3% (13)	32.5% (13)
	Progressing	81.3% (26)	66.7% (26)	67.5% (27)
	Proficient	3.1% (1)	0.0% (0)	0.0% (0)
1st Grade	Emerging	0.0% (0)	18.9% (7)	10.5% (4)
	Progressing	93.1% (27)	78.4% (29)	86.8% (33)
	Proficient	6.9% (2)	2.7% (1)	2.6% (1)
2nd Grade	Emerging	0.0% (2)	-	7.7% (3)
	Progressing	82.1% (23)	-	84.6% (33)
	Proficient	17.9%	-	7.7% (3)

On the year-end survey and in interviews, educators commented on how they have used technology to support at-risk subgroups. Differentiation was one of the main practices highlighted, which aligns with feedback shared previously in the report. For example, one teacher explained that they are "able to differentiate assignments and tasks based on needed skills for my SPED students."

Teachers also reported that technology allows at-risk students to listen to assignment instructions and stories read aloud and to re-watch lessons. The technology that allows students to listen also includes captions, text to speech, and images, which all support at-risk students as well.

> *First grade uses Seesaw and what is great about Seesaw is that we are able to record the directions and upload templates. Having visuals is great for these subgroups and having the instructions read-aloud is also great.*
>
> **-Teacher Survey Respondent**

More specifically, teachers described ways in which technology supports ELL students. In addition to allowing students to listen to instructions and stories read aloud, ELL students can also use technology to record themselves speaking and then evaluate themselves. Teachers added that technology engages ELL students by providing them new avenues to learn through pictures and access to books with hyperlinks to definitions and pictures. As one teacher explained, digital supports such as these help ELL students and have allowed them to "see really quick growth in some of our ELL classes."

Another teacher noted that digital supports help students with an IEP as well with an example provided about a special education instructor who recorded math strategies that could be re-watched multiple times by students.

Further, technology supports students of color by "amplifying their voice" through video features that allow them to express how they feel and "give a glimpse into their world." This avenue of personal expression benefits other types of students as well, such as those who are shy and those with an IEP. One teacher provided an example of this activity in action:

> *In one classroom, there was a student who was autistic, and he used a blogging platform. He really took to it; it could have been in a kid's magazine. It was absolutely amazing that he could write what he wanted and put it on the class blog, and his peers could read and comment.*

Access to technology in general also "evened the playing field" for at-risk students who received more opportunities to learn how to navigate technology. As one teacher explained,

> *I have always seen tech as a part of equity because, in our society you need to know how to use a computer and you need to know how to access your email. I'm so grateful that my students starting at the age of five are starting to build upon those skills, especially those who might not have a computer at home or who don't have parents who are able to teach them those skills at home. I think that it's a big equity barrier that having one-to-one devices at all schools is working to break down so that all kids can have access to the toolbox.*

Further, teachers mentioned they use technology with at-risk students to support language acquisition, engage students, provide opportunities to practice what a student has learned, and offer reading interventions.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Is the rate of student growth in one or more AHR outcomes greatest for at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

- In the final year of the grant, at-risk subgroups achieved benchmark status on the DIBELS assessment at similar rates—and sometimes higher rates—as students not in these subgroups.
- Cohort 2 SPED students performed particularly well on the DIBELS assessment with 100.0% of those students achieving benchmark status.

Analysis of DIBELS data provided information about how student progress may differ for at-risk subgroups as compared to non-at-risk subgroups within each Treatment Group cohort. As noted previously, DIBELS is not a universal screener in 3rd grade, but instead used for progress monitoring. Figure 12 presents the percentage of Cohort 1 LEP and non-LEP students performing at benchmark on the DIBELS assessments in kindergarten, 1st grade, 2nd grade, and 3rd grade. Within Cohort 1, non-LEP students outperformed LEP students at the first three time points, but LEP students outperformed non-LEP students in 3rd grade. Figure 13 presents the percentage of Cohort 2 LEP and non-LEP students performing at benchmark on the DIBELS assessments with LEP students performing similarly to non-LEP students in 2nd grade.

Figure 12. GBSD Cohort 1 LEP vs. GBSD Non-LEP DIBELS Benchmark

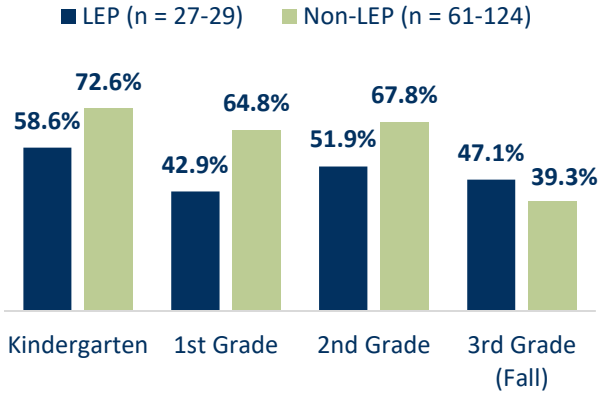
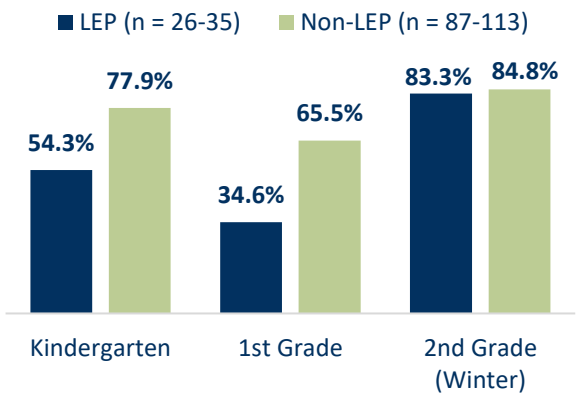


Figure 13. GBSD Cohort 2 LEP vs. GBSD Non-LEP DIBELS Benchmark



For Cohort 1, there were a higher percentage of non-SPED students at benchmark for each grade, but SPED students closed this gap in 3rd grade when scores were overall lowest and used for progress monitoring. SPED students in Cohort 2 outperformed non-SPED students in the final year of the grant for the first time in three years (Figures 14 & 15).

Figure 14. GBSD Cohort 1 SPED vs. GBSD Non-SPED DIBELS Benchmark

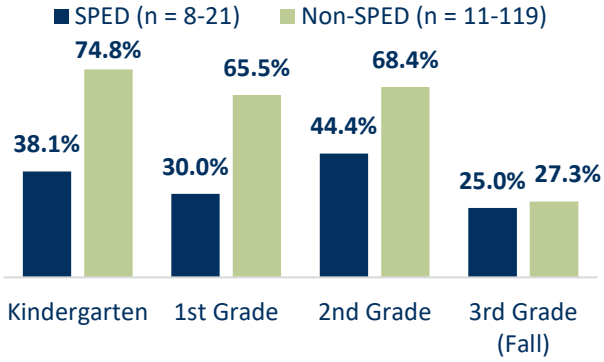
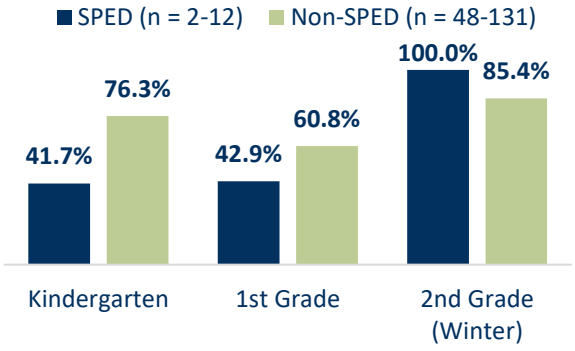


Figure 15. GBSD Cohort 2 SPED vs. GBSD Non-SPED DIBELS Benchmark



Figures 16 and 17 Cohort 1 demonstrate that minority students in both Cohort 1 and 2 outperformed non-minority students in SY 19-20.

Figure 16. GBSD Cohort 1 Minority vs. Non-Minority DIBELS Benchmark

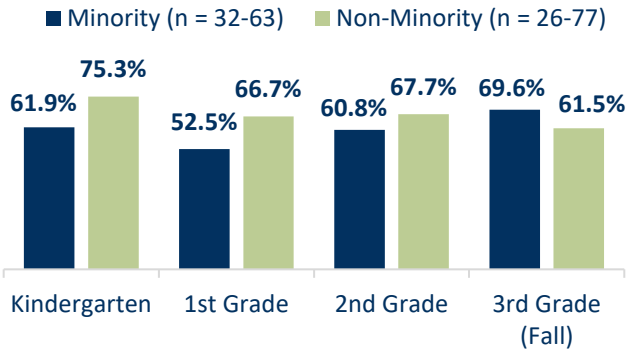
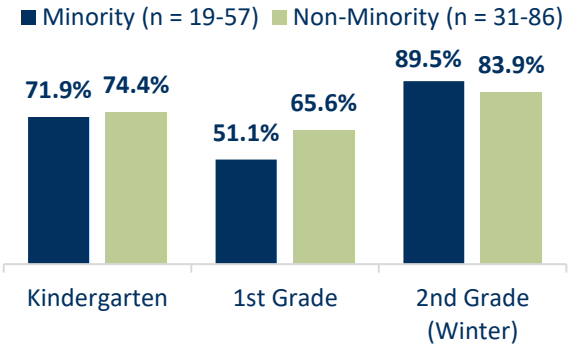


Figure 17. GBSD Cohort 2 Minority vs. Non-Minority DIBELS Benchmark



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

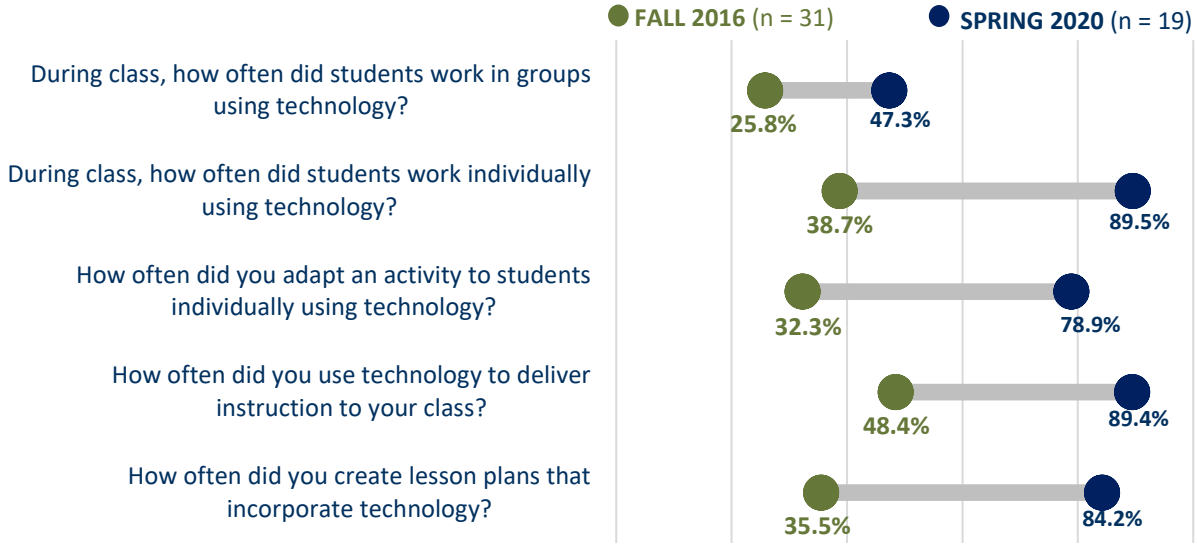
Has the use of technology to support instructional practices increased?

Key Findings:

- Teachers indicated they most commonly used technology for the purposes of having students work individually and also to deliver instruction.
- Teachers reported they were least likely to use technology in groups.

In terms of frequency of technology use, the area with the greatest increase from teachers was **the use of technology for students to work individually** (Figure 18). This was also the most common method for integrating technology, along with **using technology to deliver instruction to students**. In all cases, technology integration had increased since baseline. Teachers were less likely to report that students work in groups using technology.

Figure 18. Gresham-Barlow Frequency of Technology Integration (% A Moderate Amount/A Great Deal)



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Do teachers have increased access to and use of digital content and resources?

Key Findings:

- By spring 2020 all teachers reported that they use digital content and resources in their instruction.
- Students have adequate access to technology resources, according to teacher survey respondents.
- Teachers also indicated that students are more able to work independently compared to students they taught in previous years.

Gresham-Barlow teachers provided reports of how often they use digital content and resources during instruction. Data were provided at baseline and in spring 2020 and results are shown in Figure 19. By spring of 2020, 100.0% of teachers who completed the survey reported that they use digital content and resources a great deal or a moderate amount, which is an increase of 48.3% from baseline.

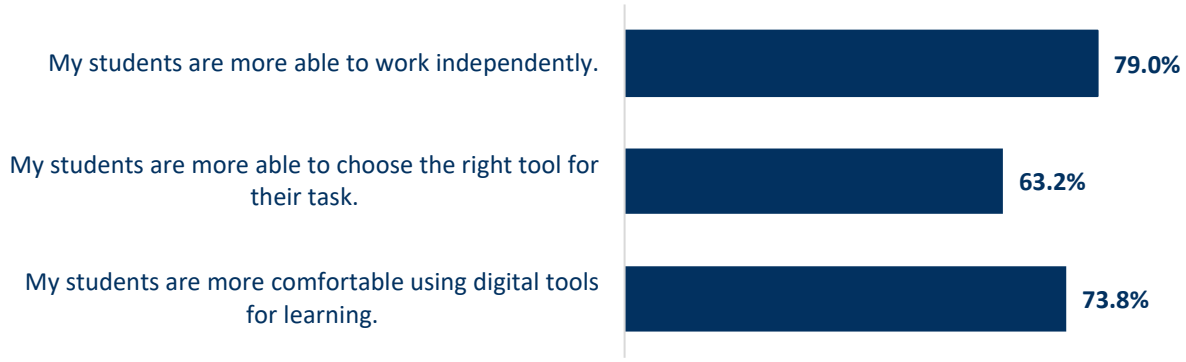
Figure 19. Gresham-Barlow Students' Access to Technology Resources
(% A Moderate Amount/A Great Deal)

Teachers rated their perceptions of the adequacy of students' access to technology resources within their classrooms. The responses are shown in Figure 20, which indicates that nearly all teachers felt students had adequate access to technology in their classroom by the spring 2020. This does not necessarily mean that all students had adequate access to technology for distance learning.

Figure 20. Gresham-Barlow Students' Access to Technology Resources
(% True of me/Very True of Me)

Finally, teachers were asked to rate a series of statements comparing their current students to students from their previous year of teaching. As shown in Figure 21 below, 79.0% of teachers "agreed" or "strongly agreed" that their **students were more able to work independently** compared to their students from SY 18-19. Additionally, two-thirds of students were more able to choose the right tool for their task and nearly three-quarters were more comfortable using digital tools for learning.

Figure 21. Gresham-Barlow Year-End Student Technology
(% Agree/Strongly Agree) (n = 19)



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

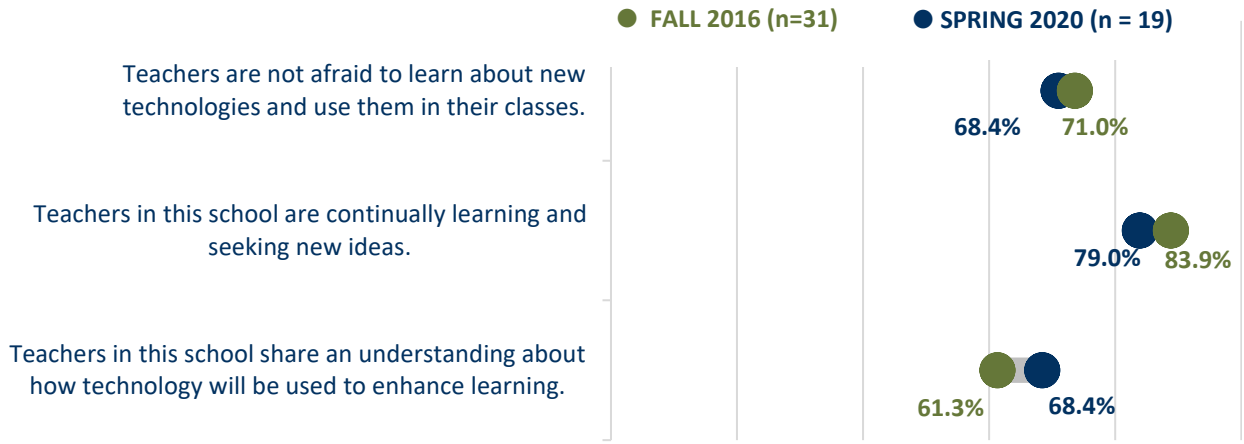
Is there evidence of district wide support for technology integration?

Key Findings:

- Teachers provided generally positive feedback regarding school culture of support for technology integration; however, perceptions of school culture decreased since baseline in a couple of cases.
- Teachers are supporting each other with technology integration through collaboration and communication.

During the teacher survey, teachers were asked to rate their agreement with several statements regarding school culture of support for technology integration. While responses related to school culture were generally positive, there was a slight decrease of fewer than five percentage points from baseline in teacher survey respondents who agreed that teachers are continually learning and seeking new ideas and teachers are not afraid to learn about new technologies and use them in their classroom (Figure 22).

Figure 22. Gresham-Barlow Teacher Perceptions of a Culture of Support for Technology Integration (% Agree/Strongly Agree)



Teachers elaborating on whether there has been a culture of support around technology since the grant started were positive in their feedback. Teachers explained that the support was not only available at the district-level but from colleagues as well. These educators described their experience related to culture as "supportive" and "collaborative" by noting that colleagues help each other learn new strategies. One teacher added that there is "excitement" around technology at their district.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Do parents have an increased understanding and utilization of districts' technology assets?

Educators explained that they have been engaging parents through technology. One example of this is the ability for parents to access student's work; this allows parents to be aware of their student's progress and see pictures of moments in the classroom. Teachers also use technology to communicate with parents with updates on student progress. As one teacher explained:

> *Technology has really improved my communication with parents, because I'm able to give them regular updates as far as their child's progress. Before it would've taken me a lot more hours just to keep track of it without the tech that I have. I'm also really quick to print out reports or to email reports to parents. It has allowed me to engage parents as partners in their kid's education by inviting them to join me in looking at data.*

Teachers added that the district hosted Tech Nights for families to attend and "they loved that," but no further details were provided about those events.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Are an increased number of students utilizing and engaging with new technology?

Key Findings:

- Students impacted by the grant have access to Chromebooks or iPads at a 1:1 ratio and have engaged with several applications.
- Students were introduced to new technology in SY 19-20 through the Tomorrow Bus and a district-wide Nearpod subscription.

Overall, feedback from interviews, the teacher survey, and the year-end status report suggest that an increased number of students were utilizing and engaging with new technology (even prior to the shift to distance learning). Pilot schools are at a 1:1 ratio of technology, in which students have access to Chromebooks or iPads, and educators noted several applications students were engaging with such as Google Classroom, Kahoot!, Nearpod, iReady, Clevertouch, Screencastify, and Seesaw. Even in the final year of the grant, Gresham-Barlow introduced new technologies for students to engage with through hands-on robotics available in the Tomorrow Bus, as well as a district-wide subscription to Nearpod.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

How has TechSmart impacted the shift to distance learning?

Key Findings:

- The district selected Google Classroom and Seesaw as the primary platforms for distance learning instruction, which was beneficial since some educators had experience with these tools through the TechSmart grant.
- Teachers agreed that they felt prepared for distance learning due to their experience with the grant. They also indicated that students were prepared for distance learning since they had experience utilizing technology.
- One limitation with distance learning is decreased collaboration among teachers.
- Despite teachers indicating they had a smooth transition to distance learning; they still described this time period as stressful and the district was aware that students were facing obstacles at this time as well.

The year-end status report provided information regarding Gresham-Barlow's shift to distance learning in spring 2020 due to the COVID-19 pandemic. Specifically, the instructional team identified Google Classroom and Seesaw as the primary platforms for providing instruction; since these tools were utilized as part of the grant, they were familiar to various team members and also provided a foundation to build from for the professional learning implemented to get all teachers trained in using the tools. Teachers and leadership also reflected on the transition to distance learning, and their feedback aligns with the year-end status report in that they indicated their experience with technology through the grant prepared them for distance learning. Teachers explained that they were able to engage students through Google Classroom, Google Slideshows, and with embedded videos. A leadership team member highlighted these efforts to engage students, and in doing so, indicated teachers demonstrated creativity:

> *I saw teachers getting really creative with setting up little mini digital classrooms or using their own homes, or parts of their actual classroom to engage students online. Also, things that we try to do face to face obviously had to be shifted; I saw a lot of teachers being really creative with community circles and giving students a voice in new ways online. I think some of those new strategies we saw before the shift and then continued with distance learning. They were still using those engaging tools online but in a greater way.*

One teacher noted that it was a "somewhat easy transition technical-wise" and added that they ensured that they were using tools the students already knew how to use, which enabled them to avoid providing tutorials. In addition to teachers feeling prepared to shift to distance learning, these educators also indicated their students were prepared to use the applications and Chromebooks with parents sharing with the teachers that they were surprised with how much their children were able to do using the

technology. Thus, the shift to distance learning also provided parents with more insight into how the technology is used in instruction. Despite these positive experiences, one of these teachers pointed out that this period of time was "stressful."

According to one teacher, a barrier to distance learning is the ability to collaborate with colleagues. This educator explained that if they had been on campus, the teachers would be building lessons together, obtaining feedback, and going more in-depth than they were while working virtually. Another obstacle the district faced with distance learning was that it was a time of turmoil for many students and families who struggled with the impacts of COVID-19 such as job loss, food insecurity, trauma, and other responsibilities. These obstacles likely impacted underserved communities at higher rates, according to the year-end status report.

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Are districts identifying effective instructional practices and disseminating information and results to other districts?

Gresham-Barlow formed the East County Tech Consortium with the other East County school districts. The group consists of coaches who meet regularly as a PLC and share promising practices. Team members also presented at a conference on the district's experience with Tech Walks.

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Do teachers feel increased support from district leaders regarding technology integration?

Key Findings:

- All teachers reported on the survey that administrators are supportive of technology integration efforts.
- Qualitative feedback further demonstrated that technology is a priority for district leadership.

Support of technology integration efforts by administrators remained high from baseline to the end of the grant. Results are displayed in Figure 23.

Figure 23. Gresham-Barlow Teachers' Perception of Administrators' Support of Technology Integration (% Agree/Strongly Agree)

Feedback from leadership echoed these findings in that they explained that it "has been a huge priority for district leadership to support technology initiatives." The technology director started collaborating with the instructional leadership team to help integrate efforts, which has been "positive." A coach also noted that when they share ideas at the district-level "they are always really well received." Interviewees further elaborated that the superintendent "has been very tech-forward and really wanting to support programs" and "meet technology requests." The biggest way the superintendent was supporting this prior to distance learning was to get the district to a 1:1 technology ratio, which was rolled out.

DATA-DRIVEN IMPROVEMENT

Current, relevant, and high-quality data from multiple sources are used to improve schools, instruction, professional development, and other systems.

How are schools using data to improve instruction, professional development, and student performance?

Key Findings:

- All survey respondents were confident in their ability to assess student progress and provide feedback, and 94.8% reported that they use technology to analyze data about student learning.
- There rate at which teachers reported using formative assessments decreased from baseline.

The survey asked teachers to describe how frequently they use technology for evidence-based instruction, differentiating instruction, and analyzing and using data about student learning. For all items, teachers reported an increase from baseline. In particular, 94.8% of teachers reported in spring 2020 that they use technology to analyze data about student learning (Figure 24).

Figure 24. Gresham-Barlow Instructional Technology Use
(% A Moderate Amount/A Great Deal)

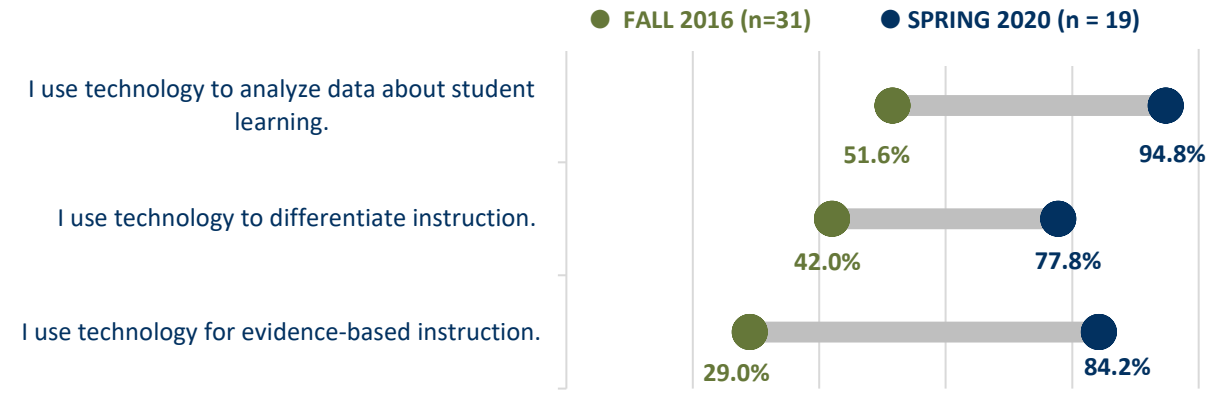


Figure 25 displays teachers' ratings of agreement with several statements about data-driven improvement. All 100.0% TechSmart teachers were confident in their ability to assess students' progress and provide feedback.

Figure 25. Gresham-Barlow Data-Driven Improvement
(% Agree/Strongly Agree)

An additional survey question asked teachers to report the extent to which they are using formative assessments. Results showed that two-thirds (66.7%) of teachers in spring 2020 indicated they use formative assessments a moderate amount or a great deal to identify effective instructional practices; however, this was a decrease from baseline when 74.2% of teachers reported using formative assessments in this way.

FUNDING & BUDGET

District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.

Have districts identified at least one opportunity for repurposing resources to support technology integration?

Leaders were asked during interviews whether districts identified at least one opportunity for repurposing resources to support technology integration. They reported that the district leveraged funds from the Gresham Education Foundation to obtain funding for Nearpod.

STRATEGIC PLANNING

District strategic plan reflects shared commitment to improving outcomes for students.

Does the district's strategic plan reflect shared commitment to improving outcomes for students?

Key Findings:

- Technology helps to develop self-directed learners, which is a focus of the strategic plan.
- Teachers and leaders want to see the coaching role continue following the conclusion of the grant.

Leadership were asked to reflect on how the districts' strategic plan incorporates technology in a way that reflects a shared commitment to improving outcomes for students. Leaders reported that the district strategic plan focuses on developing self-directed learners, and technology aligns well with that. Further, the district developed a steering committee a few years ago that created a district-wide technology plan that was taken to the superintendent and adopted by the district.

One leader expressed interest in having the coaching roles continue following the conclusion of the grant, which is something the instructional leadership team is interested in doing. Educators have seen the benefit of technology coaches and were also interested in seeing this role continue. Educators were optimistic that the capacity they built during the grant would allow them to sustain the skills they learned through the grant and further scale them across the district by sharing those skills with other teachers. Interviewees expressed concern around how equipment would be replaced as it got older.

EVALUATION INSIGHTS

The SY 19-20 evaluation at Gresham-Barlow produced the following insights:

- Teachers at Gresham-Barlow expressed overall satisfaction with the PD model—particularly the individual support provided by coaches. The coaches have been one of the most valuable resources of GBSD's TechSmart grant over the last four years with teachers highlighting that they are able to ask coaches questions and have coaches demonstrate technology use. Coaches have supported the districts' progress toward becoming technologically proficient, and educators expressed an interest in keeping these roles when the grant concludes.
- DIBELS benchmark data were examined for two cohorts of Treatment Group students and a Comparison Group. Treatment Group Cohort 2 students noticeably outperformed the Comparison Group on this assessment. Student achievement data further demonstrated that the TechSmart grant supported at-risk subgroups with these groups achieving DIBELS benchmark status at rates similar to—and sometimes higher than students who were not in these at-risk subgroups.
- Despite survey responses that suggested room for improvement around technology integration, teachers provided several examples of promising instructional practices that utilized technology. A common theme throughout the report was that teachers utilized differentiation and reported it was an effective strategy. Further, educators noted that differentiation supported student engagement and met the needs of at-risk students.
- In addition to differentiation, teachers also highlighted the ability to use technology to allow students to listen to instructions and lessons read aloud, demonstrate their learning, and self-direct their learning. This latter strategy was further emphasized by survey feedback that suggested students were more capable of working independently than students in teachers' previous classrooms. Additionally, a leader indicated that self-directed learning is a big part of the district's strategic plan, and technology is helping to facilitate this goal.
- The school and district culture supported the integration of technology; however, support for technology seemed higher from district leadership as compared to teachers. Despite this latter finding, educators reported that they have collaborated and communicated with colleagues as it pertains to technology integration.
- Feedback on the year-end status report and from teachers and leaders suggests that the grant prepared the district to shift to distance learning when campus closed due to the COVID-19 pandemic. The district selected Google Classroom and Seesaw as instructional platforms, which some teachers and students were already prepared to use based on prior experience. Despite this, teachers described the pivot to distance learning as "stressful" and the district noted that some students and families were facing other obstacles in their lives as well.

Portland Public School District

SY 19-20 TechSmart Evaluation Report

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Prepared by:
Pacific Research and Evaluation, LLC

November 2020

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PROJECT SUMMARY

Portland Public School District (PPS) is highly devoted to improving literacy outcomes for its students and closing the achievement gap for those students from underserved populations. The **PPS Equity-Based Balanced Literacy (EBBL) framework** was first launched in school year 2016-17 (SY 16-17) for K-5 students and represents an approach to teaching reading and writing. The EBBL framework emphasizes teachers as decision makers, the utilization of students' cultural and linguistic assets, word work and meaning-based instruction, and materials as instructional resources to create caring classrooms where students develop literate identities as readers and writers.

The TechSmart grant project has provided PPS with resources to support the adoption of the EBBL framework, with goals that include: (1) 3rd grade students in PPS pilot classrooms will demonstrate grade-level proficiency in reading, and the achievement gap between typical and underserved students will be eliminated; (2) PPS will understand and implement instructional strategies and practices that leverage technology to provide culturally and linguistically relevant personalized learning; and (3) PPS will validate and disseminate effective instructional strategies and practices that use technology.

Implementation with TechSmart support began in SY 16-17 for **Kindergarten through 3rd grade** in five schools: Bridger, Grout, Lewis, Sitton, and Vernon (Cohort 1). During SY 17-18, PPS expanded the list of TechSmart schools to include: Atkinson, Bridlemile, Peninsula, Rigler, and Stevenson (Cohort 2). In SY 18-19, PPS included a further five schools: Astor, Cesar Chavez, Forest Park, Glencoe, and Woodstock (Cohort 3). Lastly, during SY 19 – 20, PPS added a final five schools: Beach, Dr. Martin Luther King

METHODS

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Survey and interview quotes have been edited for grammar and brevity. Data collection efforts for the SY 19-20 evaluation in PPS are summarized below.

Teacher Survey: The teacher survey was administered online to educators. Eighty-five Cohort 4 educators completed the survey at baseline in September 2019 and 222 educators from cohorts 1-4 completed the May 2020 follow-up survey. The majority (78.8%) of May 2020 survey respondents were homeroom/ elementary school teachers and other respondent roles included TechSmart coaches, media specialists, ESL and SPED instructors, and administrators. Responses were fairly evenly distributed across cohorts (between 50 to 56 responses per cohort).

Teacher Interviews: PRE conducted phone interviews with 14 teachers involved in the TechSmart grant in PPS and all cohorts were represented.

District Leader Interviews: PRE conducted 14 interviews with leaders from PPS, including principals, administrators, and TechSmart coaches.

Student Achievement: DIBELS and ELPA data were examined for Cohort 1, 2 and 3 students and a concurrent comparison group and analyzed by at-risk subgroups.

Jr., Scott, Lent, and Whitman (Cohort 4). **A total of 20 schools across the district have received professional development (PD) and have piloted the technology infrastructure provided by the funding**.

FINDINGS

The evaluation findings from the SY 19-20 PPS evaluation are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

During the fourth year of TechSmart implementation, PPS offered a variety of professional development (PD) opportunities for teachers, coaches, and administrators within TechSmart schools. According to the year-end status report for SY 19-20, TechSmart PD activities focused on the following:

1. How best to use devices to support a variety of learning modes.
2. How to set up classrooms to foster cooperative, digital environments.
3. How to use Lexia, MyOn, Seesaw, Book Creator and Vision for individualized and group instruction.
4. Device management in a workshop model, including classroom routines, procedures, and systems.
5. How digital tools and programs support EBBL.
6. How to engage students using multiple types of digital media including video and websites.
7. How to use existing Google Suite tools to support literacy learning (i.e. Google Slides, Sites).

PD Activities for Teachers

The following PD opportunities were offered for teachers in SY 19-20:

- PPS reported that **92% of teachers received initial onboarding training** via the Institute, TOSA-led session or building coach. Teachers who were unable to attend the TechSmart Summer Institute or make up trainings in Fall of 2019 participated in a separate onboarding process later in the school year.
- **Teachers from all four cohorts received embedded PD** from building coaches and vendors to learn more about implementing technology in workshops, to familiarize with the technology tools available, as well as to learn how to better use data generated by apps to inform instruction. Examples include (a) PLCs for teacher driven collaboration around problems of practice, (b) staff development via principal/school leadership led activities, (c) one-on-one conferencing with coaches, (d) coaches working individually with teachers to model best practices and pushing into classrooms to support blended learning, and (e) co-planning among teachers, literacy and TechSmart coaches, and administrators.
- **Four pilot schools (Lewis, Woodstock, Glencoe, and Rigler) hosted a TechSmart Labs day.** K-3 teachers observed and participated in demonstration lessons delivered to their own students by

several TechSmart staff. Schools that participated in the Labs day also received a pre- and post-visit to provide PD around the instructional strategies that were demonstrated.

- When PPS implemented the distance learning program in response to the COVID-19 pandemic, TechSmart TOSA and coaches continued to provide many hours of coaching for teachers across the district. **Teachers at TechSmart schools received intensive coaching from their school-based coaches for several hours on a daily basis.**

PD Activities for Coaches

PD opportunities were also designed for coaches in SY 19-20, including:

- **Collaboration between coaches and central support staff via Google chat** to resolve day-to-day issues and promote shared learning. The year-end status report indicated that Google Chat has been highly effective as a replacement for the weekly video conferences that were routine in the first implementation year.
- **Coaches participated in monthly half-day coach PLCs** and completed a book study and author-led webinar for Liz Kolb's book *Learning First, Technology Second.*
- Coaches attended **check-ins with the program implementation manager regarding Lexia** adaptive reading foundations and **collaborated with teachers and admin staff to co-plan**. The TechSmart TOSA worked with coaches to model professional development activities for teachers.
- Lastly, coaches had the opportunity to receive **advanced training around programs like Seesaw Ambassador and Book Creator Ambassador**. PPS reported that **100% of new coaches received initial onboarding training** from the Institute, TOSA led session or building coach.

PD Activities for Administrators

Administrator PD activities for SY 19-20 included:

- The Director of Learning Technologies facilitated a **"Leaders Talk Tech" administrator PLC focused on technology integration.** This PLC improved the efficacy of administrators' communication and development of PD activities for the classroom teacher.
- **An Administrator PLC, titled the "E3Admin Cadre", provided professional learning for 20 building administrators** regarding the effective implementation of technology-enhanced classroom instruction.

As shown in Table 1, TechSmart educators across all four cohorts were most likely to report **receiving between 1-8 hours of group and individualized PD** during the 2019-20 school year.

Table 1. PPS SY 19-20 Hours of Group and Individualized PD (n = 222)

Hours of Group PD	Group PD	Individual PD
0 hours	2.8%	14.2%
1-8 hours	55.2%	65.9%
9-16 hours	25.9%	13.3%
17-32 hours	12.3%	6.2%
33+ hours	3.8%	0.5%

In SY 19-20, individualized PD was overall rated as more useful than group PD (Figure 1). Only Cohort 3 educators rated group and individualized PD as equally useful.

Figure 1. PPS Teacher Ratings of Group and Individualized PD Usefulness in SY 19-20 (% Very useful or Extremely useful)

PD Strengths and Areas for Growth

Teachers commented extensively on the helpful and customized support offered by TechSmart coaches in group (e.g. PLC) and one-on-one settings,

> *[Our coach] was really cool about setting up PD that we wanted. Rather than saying, "Hey, this is what I'm going to do", she would share a menu of options in an email and say, "Here's some thoughts that I have about this, this, this," and then she would ask, "What would people be interested in?." We would give feedback and then she would gather us together in clusters based on that feedback.*

Educators also valued the summer group PD training and indicated coaches were able to build on the summer training they received. Teachers valued having a "go-to" person in their coach who could answer their follow-up questions. Similar to reports in SY 18-19, teachers continued to especially appreciate one-on-one sessions with coaches when they needed additional demonstration and clarification using a specific tool, as one teacher stated:

> *Our TechSmart coach would periodically check in about Seesaw and whether we had questions about how to use it in our classrooms. It was helpful, because one of my professional goals for this year was to use the Seesaw more in the classroom. She's been especially helpful with distance learning by showing us platforms like FlipGrid…The most I got out of it was the little one-on-ones [when I could ask]: "How do I do this? How do I do that?", and she would send an email right away with a little tutorial. She is a wealth of knowledge.*

Teachers indicated that coaches were most effective when they took the initiative to reach out and to prompt teachers to further their learning and ask questions. Teachers who were less satisfied with their coaching indicated that this initiative on the part of the coach was missing, as one teacher stated: "My coach was supportive if I asked for help, but when you're a busy teacher, and you've got a lot on your plate, sometimes you need a little push to use the new tools and get coaching on it. I didn't feel like I progressed much this year in my knowledge and usage of technology, but I've maintained from what I

learned the previous year." Likewise, another teacher noted: "I don't recall having any professional development where the coaches were being pro-active and saying we have sessions planned and we're going to have these opportunities for you…I honestly don't feel like the professional development has been very robust in terms of developing good teacher skills and my confidence with technology." In addition, educators reported PD obstacles including turnover in TechSmart coordinator positions and coaches only being able to offer sessions during after school hours (instead of during staff meetings).

Several educators commented that their coach was often not available due to only working .5 in their TechSmart position and having other responsibilities. Some educators also indicated they felt their coach was not adequately trained at the start of the year on how to coach and support them with the various platforms, as one educator commented: "For the last two years, the [coaches] were either below the ability of teachers or on par. They did not know how to coach… if we have a coaching position, there has to be training on and demonstration that a person actually knows how to coach." Feedback from TechSmart coaches themselves was mixed. Several coaches stated they did not have the support and training needed, as one coach stated: "I went into this completely untrained and didn't know what I was supposed to do. Midway through last year I finally got a list of my responsibilities. The response was…when you have time, teach yourself the program." Other coaches expressed that they were satisfied with their training: "They also provided a training for digital learning and it was a great opportunity to connect and bond with the TechSmart coaches. It was really nice to connect with the community of TechSmart and to get really excited about digital learning."

In addition to highlighting the coaching sessions, **teachers who participated in the TechSmart Lab days commented repeatedly on the positive impact of modeling how to use a particular platform with students**, as one survey respondent stated:

> *We were able to rotate and go through different classrooms using different TechSmart programs and applications. That was super helpful. It was really cool to have an opportunity for us to step outside our classroom and see something new and firsthand with our community and our students. Then [our coach] also did co-teaching with Seesaw with my class. She is phenomenal.*

Moving forward, **teachers recommended creating more space for shared learning opportunities between teachers and across districts**. Some teachers also indicated it would be helpful to be able to select PD workshops that were at their level (i.e. basic or intermediate). Several teachers who were enthusiastic about the coaching expressed concern about what would happen when the coaches were no longer an available resource in their building. Teachers expressed a desire for continuing to set goals for how to integrate the technology in their classrooms and for more follow-up PD and refreshers.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

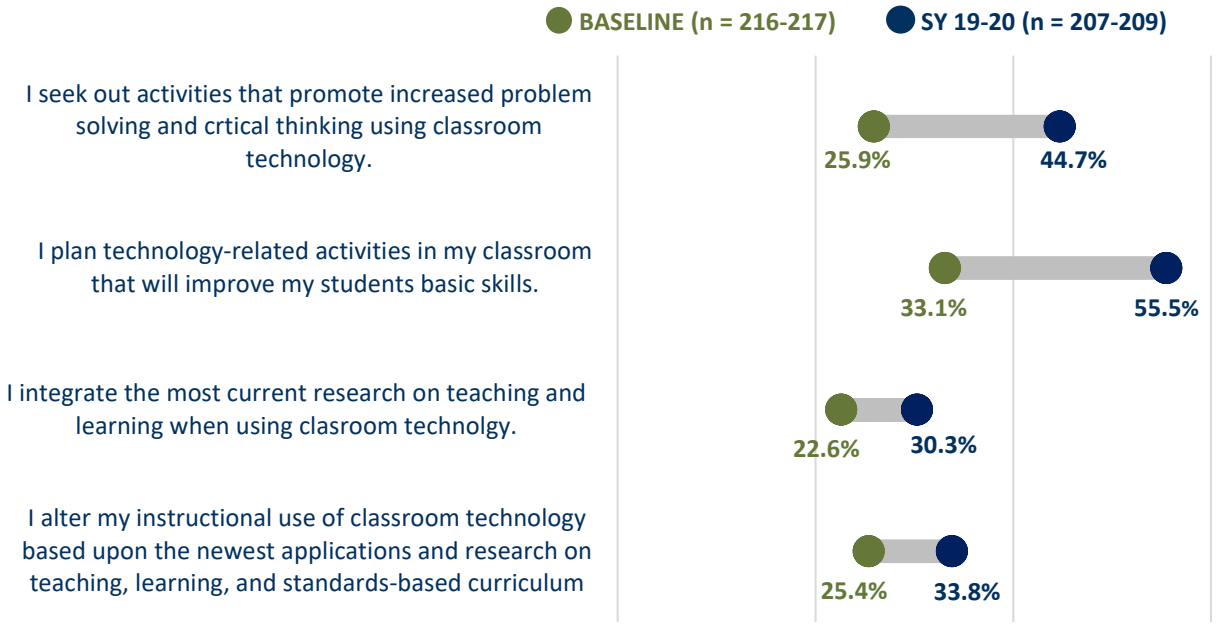
How is professional development impacting teacher instruction?

Key Findings:

- Teachers reported a notable increase in planning technology-related activities in the classroom to improve students' basic skills.
- In SY 19-20, most educators (85.9%) agreed or strongly agreed that they are integrating more technology into their instruction since receiving technology specific PD.
- There is notable evidence of growth in teachers' technology skill level from baseline to SY 19-20 for all cohorts. At baseline, 48.5% of educators rated their skill level at the highest skill levels meaning they efficiently and effectively use a variety of technology tools to accomplish their job. In Spring 2020, teacher ratings at the highest skill levels increased to 63.2%.

Educators reported the extent to which they are integrating technology into instructional practices at baseline and in Spring 2020. The baseline percentages below were calculated by combining baseline survey data for all cohorts. Overall, the use of all technology specific instructional strategies has increased over time for all cohorts (see Figure 2). Cohort 1 and 2 showed greater improvement from baseline to SY 19-20 than Cohort 3 and 4. The technology-specific strategy with the greatest improvement over time was **planning technology-related activities in the classroom that will improve students' basic skills.**

Figure 2. PPS Technology Specific Instructional Strategies
(% True of Me or Very True of Me)



Further, in SY 19-20, **the majority of educators (85.9%) agreed or strongly agreed that they are integrating more technology into their instruction since receiving technology specific professional development.**

Educators reported their technology skill level on the baseline and follow-up surveys by rating themselves at one of the following five levels:

TECHNOLOGY SKILL LEVEL

1. I get someone else to do technology-based tasks for me.
2. I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.
3. I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.
4. I use a variety of technology tools and I use them efficiently for all aspects of my job.
5. I use technology efficiently, effectively, and in creative ways to accomplish my job.

There is notable evidence of growth in teachers' technology skill level from baseline to Spring of 2020; at baseline, 48.5% of all educators rated their skill level at a four or five compared to 63.2% in Spring 2020[1].

Cohort 1 experienced the most notable improvement, doubling the percentage of teachers who rated their skill level at the highest levels over four years; at baseline 32.0% of teachers rated their skill level at a four or five compared to 66.1% in Spring of 2020 (see Figures 3 and 4). Cohort 4 experienced the least improvement, having had the least time of the four cohorts between baseline and Spring 2020.

[1]For Cohort 3, the baseline survey was administered by PPS twice in error, with some questions appearing on one version and not on the other. For reporting purposes, when baseline survey data from all cohorts are combined, the true baseline (Fall SY 18-19) data are used. When baseline data are listed by cohort, as they are in the figure above, available data are used from either the Spring SY 17-18 (n = 71) or Fall SY 18-19 (n = 32) time points.

*Figure 3. PPS Teachers' Technology Skill Level at **Baseline** by Cohort*

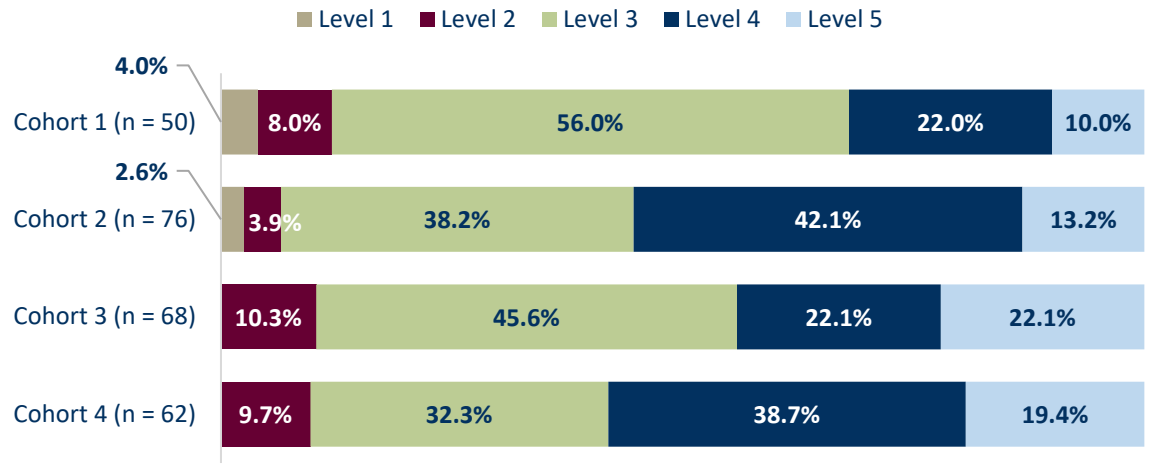
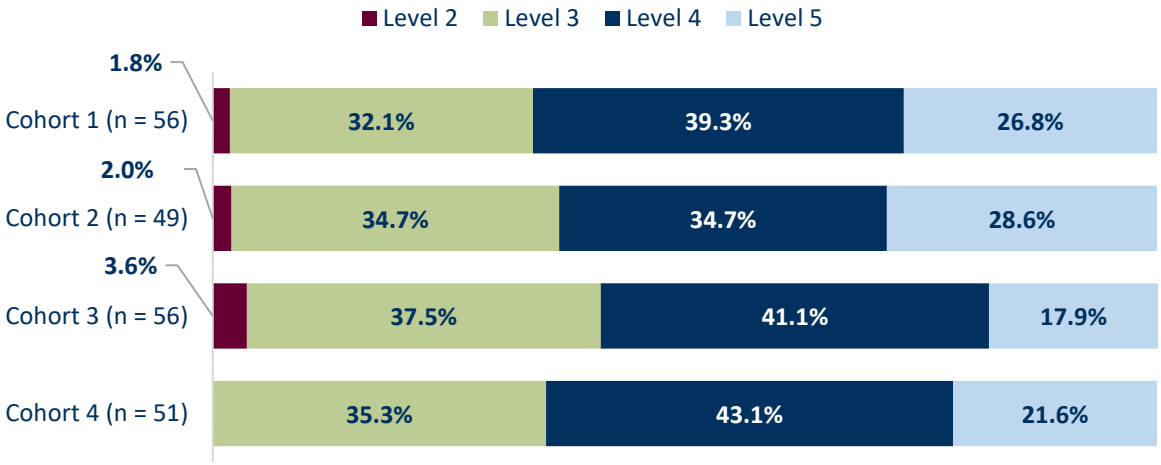


*Figure 4. PPS Teachers' Technology Skill Level in **SY 19-20** by Cohort*



In interviews, educators commented on the positive impact of the modeling and push in support on their instruction, as one teacher noted: "When we went to the training it was mainly technical, but when [coaches] come into our class to show how we can teach or how we can use the platforms in classroom with the students, I feel that really impacts my instruction." Teachers also reported that the TechSmart support for dual language programs was valuable, as one teacher stated:

> *We had a two-day training before the school year started last summer and they had different sessions you could choose from. There were people who talked about how to use specific platforms, like Seesaw, or Book Creator. I think it went really well as it was a good introduction; it helped us get started. I teach a Mandarin immersion class and they provided a specific group who worked through how to level Chinese online. I feel that was very helpful for me and I use a lot of it in my class for literacy.*

In sum, the data suggest the TechSmart PD has contributed to growth in teachers' use of technology specific instructional strategies, improved teachers' technology skill levels, and provided valuable classroom support for integrating technology.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

What new instructional strategies are teachers reporting?

Key Findings:

- In SY 19-20, seventy-eight percent (78.7%) of educators somewhat or strongly agreed that they have identified effective instructional practices that use technology.
- Teachers were most likely to report utilizing SeeSaw and Lexia, and both tools were rated as very effective. Survey data suggest these tools enhanced literacy instruction and allowed teachers to differentiate instruction.
- Educators reported most frequently using technology to support instruction for engaging students in learning, planning and preparation, communication with students, and for using assessment in instruction.

In SY 19-20, **seventy-eight percent (78.7%) of educators somewhat or strongly agreed that they have identified effective instructional practices that use technology** since receiving technology specific PD.

Further, in the year-end status report, PPS reported they have focused PD activities to support the following key instructional strategies:

- Personalizing learning, facilitated by technology.
- Developing what technology integration looks like within the workshop model of instruction in conjunction with the PPS Language Arts material adoption and TechSmart Labs.
- Using the PPS digital library (MyON) and adaptive reading foundation program (Lexia) to support the workshop model within Equity-Based Balanced Literacy.
- Using the data from these programs to inform instruction.
- Encouraging and celebrating the use of multimodal communication, by using creative apps such as Seesaw and Book Creator.
- Promoting student agency and development of fundamental digital literacy skills through independent use of technology. Enabling students to teach each other students (and the adults), to become experts.
- Providing real-time, efficient feedback and communication with students through monitoring Chromebooks with student management system (Vision).
- Encouraging use of digital portfolios to celebrate student work and share it with authentic audiences.
- Differentiated ongoing PD as a model for best practices within the classroom.

- Using high-leverage instructional strategies, such as prediction, to create and deliver Seesaw activities.
- Developing, curating, and using digital text sets to support lessons.

Survey data confirm that teachers are using a wide variety of instructional tools and strategies in their classrooms. On the survey, educators provided up to three examples of technology tools that they believe have been effective in their classroom instruction and rated the tools on a scale of one to five, with five being the most effective (see Table 2). The tools that teachers reported most often were **SeeSaw and Lexia, which they overall rated as very effective**. In addition to the tools listed in Table 2, teachers also mentioned Clever (4), Dreambox (6), Epic (4), FlipGrid (2), Flocabulary (2), Freckle (5), IXL (4), Kahoot (2), MAPS (3), Screen Castify (3), and Zearn (5).

*Table 2. Top Reported Tools that Have Been Effective in PPS Classroom Instruction in SY 19-20 (n = 374)**
(1 = Not at all effective, 2 = Slightly Effective, 3 = Moderately Effective, 4 = Very Effective, 5 = Extremely Effective)

Instructional Supports	n	Average Effectiveness Rating End of Year
SeeSaw for fluency practice, independent work, recording platform, writing, activities in response to learning, differentiation, student voice and choice, reading practice, formative assessment.	50	3.98
Lexia for small group work, differentiation, one-on-one lessons and word study.	46	4.00
BookCreator for sharing and publishing students' stories.	22	3.84
Google Suite (Google Slides, Google Classroom, Google Meets) for instruction and to receive student responses and share materials.	16	4.25
MyOn for book lists, reading groups, small group work.	16	3.63
RazKids for assessment and records, dual language immersion.	10	3.80

**Educators could each write in up to three responses.*

As shown in Table 3, teachers most commonly reported utilizing the tools listed above to **enhance their literacy instruction and to differentiate instruction**.

*Table 3. How PPS Teachers are Utilizing Technology Tools in their Instruction (n = 374)**
(1 = Not at all effective, 2 = Slightly Effective, 3 = Moderately Effective, 4 = Very Effective, 5 = Extremely Effective)

Instructional Strategies	n	Average Effectiveness Rating End of Year
Literacy instruction, such as reading in pairs, listening to recorded books, and phonics and grammar instruction.	28	4.00
Differentiate instruction.	22	4.27
Formative assessment.	10	3.90
Online libraries and research.	10	4.10

**Educators could each write in up to three responses.*

Educators self-assessed their use of technology to support instruction, reporting they most frequently use technology for **engaging students, planning and preparation, communication with students, and for assessment in instruction.** They reported least frequently using technology to organize physical space.

Table 4. Technology Used for Supporting Instructional Practices in PPS in SY 19-20 (n = 201-203)
(1 = Not at All, 2 = Very Little, 3 = Somewhat, 4 = To a Great Extent)

	Average Technology Use
Planning and Preparation	3.20
Managing Classroom Procedures	2.89
Organizing Physical Space	2.54
Communicating with Students	3.10
Using Questioning and Discussion Techniques	2.72
Engaging Students in Learning	3.25
Using Assessment in Instruction	3.06
Demonstrating Flexibility and Responsiveness	2.94

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

How are the new instructional strategies impacting student engagement?

Key Findings:

- Teachers reported that the new instructional strategies utilizing technology tools have increased student engagement by providing a more interactive, independent learning experience.
- The year-end status report indicates the technology tools provide more engagement opportunities for dual language students.

Overall, **teachers reported that the new instructional strategies utilizing technology have increased student engagement**. They described how technology provides a more fun, interactive learning experience by supporting teachers with more dynamic instruction and by providing students the chance to share their work with the class,

> *I started teaching back when we were using the old-fashioned light projectors with the rolling screens. Now, I am able to use PowerPoint. Oftentimes, I present on the screen and I move around the classroom…One of the beautiful things that I've been doing is when the students have finished their work, let's say they're doing something on Lexia, then I share what they've been working on. I will connect it to the projector and they're showing their product or their book that they created. It gives the students more of a chance to get involved with the instruction.*

Another teacher commented that the technology allows for more independence for students,

I know they really liked [utilizing the technology], it was something fun for them or something different. They felt really responsible because each kid was assigned a number and they knew their number. They became independent with going and getting their Chromebook. Then sometimes it was a nice incentive too because we'd have a little flex time and I'd be like, "Okay, here's your options, you can read independently, listen to a book on MyON, or look on the Chromebook or do Lexia." They really liked having those choices.

The year-end status report indicates that the new instructional strategies have enhanced Chinese and Spanish dual language student engagement and the ability for these students to demonstrate their language learning. In SY 19-20, PPS expanded their Spanish and Chinese libraries in MyON, increased the use of WaWaYaYa Joy Reader in Chinese immersion schools to provide level Chinese reading, and utilized BookSmart to support literacy across multiple languages.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Are the new instructional strategies showing promise for improving academic outcomes?

Key Findings:

- For Cohort 1 and 2, there is a positive upward trend for the percentage of students at benchmark on the DIBELS assessment, with both cohorts outperforming their comparison group. For Cohort 3, the percentage of students at benchmark remained constant over time.

Student achievement data

In order to examine the impact of the TechSmart grant investment in Portland Public School District, comparative analyses were conducted using three treatment group cohorts and accompanying, concurrent comparison groups. During each of the first three years of the EBBL adoption, ten schools adopted the new literacy curriculum. Five of these schools were TechSmart schools who had access to the new technology or professional development (PD), and five of the schools adopted the new curriculum without technology. Two schools had to be removed from each comparison group because these schools were assigned by the district to later treatment groups. The five schools assigned to TechSmart represent the Treatment Group Cohorts (e.g. Cohort 1), while the three non-TechSmart schools represent the Comparison Groups (e.g. Comparison Group 1). Students who were in kindergarten during the first year of the EBBL adoption (SY 16-17) make up Cohort 1 and Comparison Group 1, students who were in Kindergarten during the second year of EBBL adoption (SY 17-18) make up Cohort 2 and Comparison Group 2, and students who were in Kindergarten during the third year of EBBL adoption (SY 19-20) make up Cohort 3 and Comparison Group 3. Cohort 4 will be included in next year's reporting upon two years of TechSmart implementation. Student outcomes include ELPA and DIBELS scores for all treatment cohorts and comparison groups.

DIBELS assessment data are collected for the purpose of informing teachers where their students stand with their odds of achieving certain literacy outcomes. According to researchers from the University of Oregon, reviewing these outcomes is an important step in the Outcomes Driven Model of early literacy problem solving[2]. This model uses assessments like DIBELS as part of a feedback loop that operates within each classroom each year, serving as a tool for teachers to reevaluate their lesson plans and strategies. For this reason, the assessment is not designed to compare student achievement across grade levels and should be used as a descriptive tool rather than an evaluative tool. Because DIBELS is the only assessment given to students prior to 3rd grade, we include DIBELS results in this report for descriptive purposes, but we caution against assigning too much weight to these findings across grade levels.

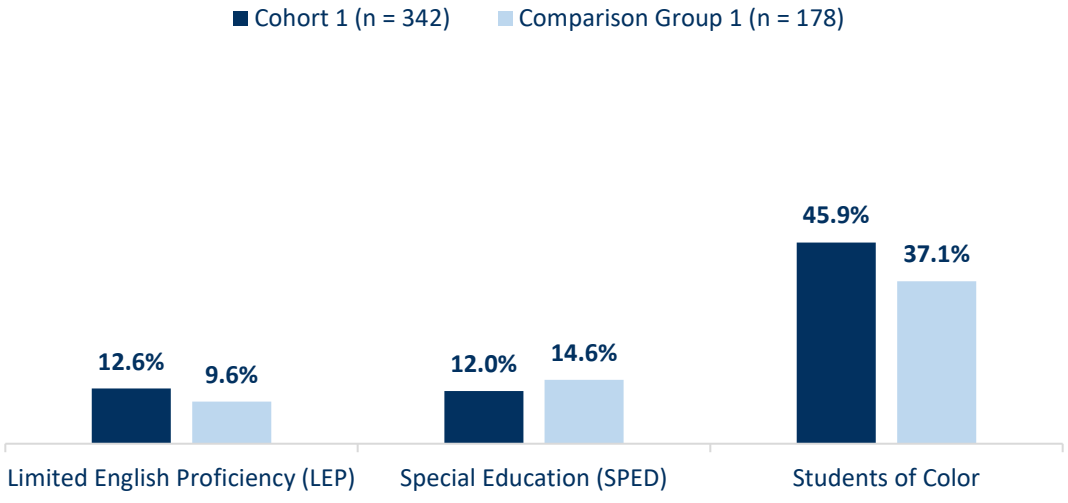
Table 5 presents the number of students in each treatment group and concurrent comparison group for SY 16-17, SY 17-18, SY 18-19, and SY 19-20 with all sample sizes based on those students with non-missing DIBELS data at each time point.

Table 5. PPS Cohort and Comparison Group Sample Sizes

	Cohort 1 n	Comparison Group 1 n	Cohort 2 n	Comparison Group 2 n	Cohort 3 n	Comparison Group 3 n
2016-17	237	144	-	-	-	-
2017-18	159	96	37	62	-	-
2018-19	109	83	165	67	450	555
2019-20	28	56	168	148	229	186

Figures 5, 6, and 7 present the at-risk indicators for each cohort and their comparison group. Notably. Cohorts 2 and 3 had less students with at-risk indicators represented than their comparison groups.

Figure 5. PPS Cohort 1 and Comparison Group 1 At-Risk Indicators



[2]Good, R. H., Kaminski, R. A., Smith, S., Simmons, D., Kame'enui, E., & Wallin, J. (In press). Reviewing outcomes: Using DIBELS to evaluate a school's core curriculum and system of additional intervention in kindergarten. In S. R. Vaughn & K. L. Briggs (Eds.), Reading in the classroom: Systems for observing teaching and learning. Baltimore: Paul H. Brookes.

Figure 6. PPS Cohort 2 and Comparison Group 2 At-Risk Indicators

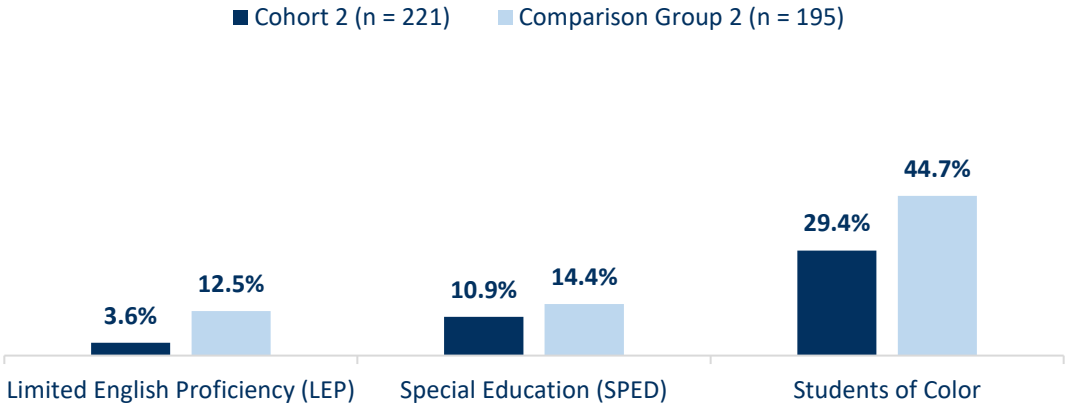
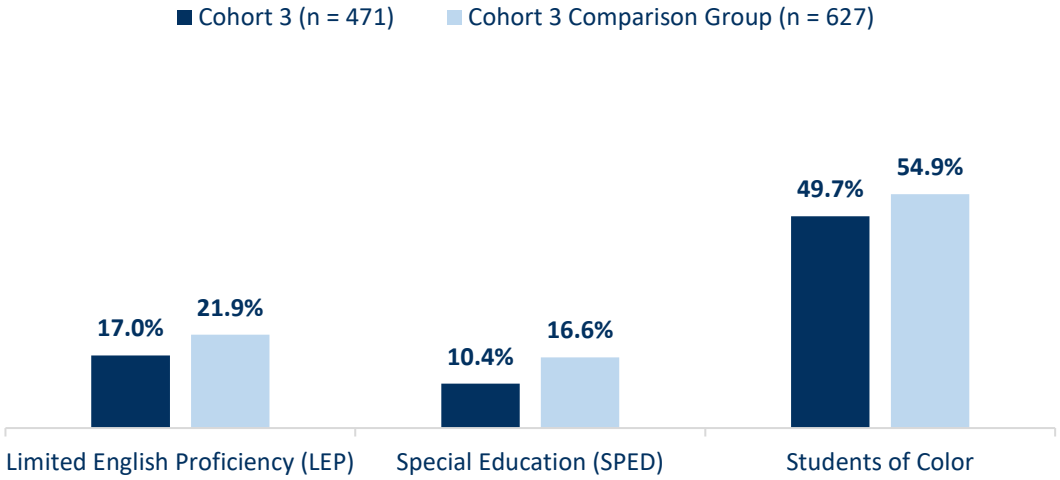


Figure 7. PPS Cohort 3 and Comparison Group 3 At-Risk Indicators



Figures 8, 9 and 10 display a breakdown of student race/ethnicity for each cohort and their respective comparison group. Cohort 1 had notably more Latinx students than Comparison Group 1 and Cohort 3 had notably more Asian and Pacific Islander students than Comparison Group 3.

Figure 8. PPS Cohort 1 and Comparison Group 1 by Race/Ethnicity

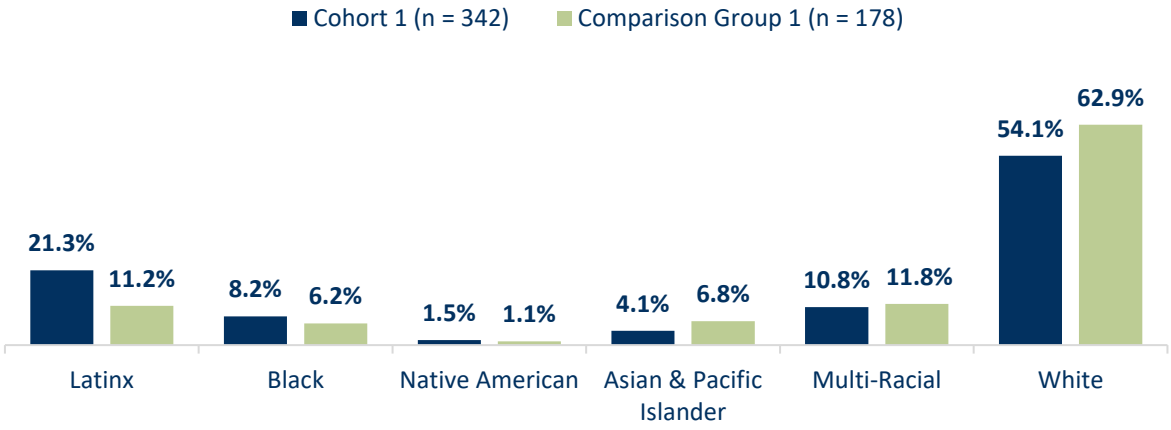


Figure 9. PPS Cohort 2 and Comparison Group 2 by Race/Ethnicity

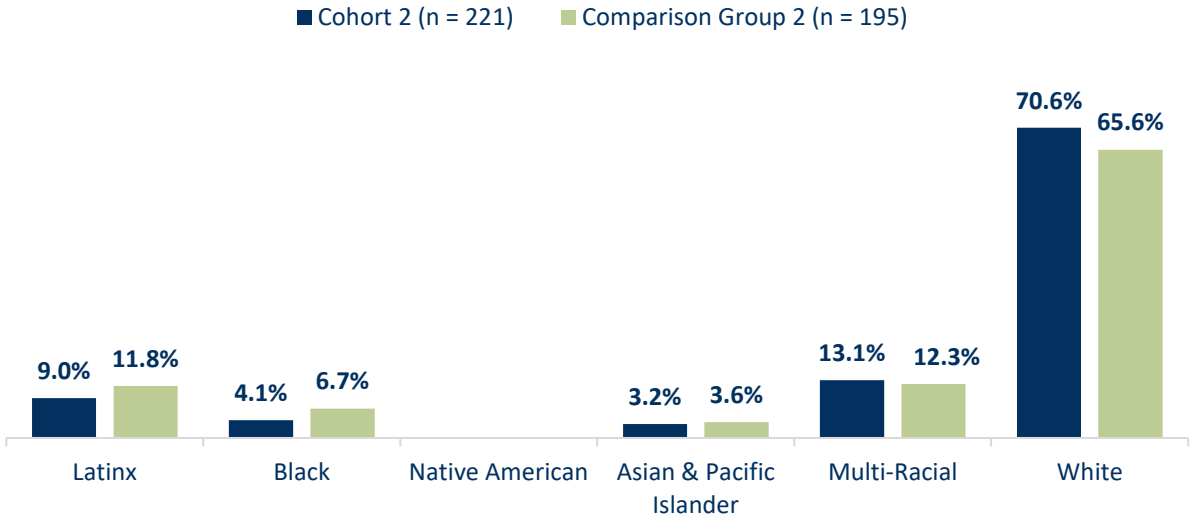
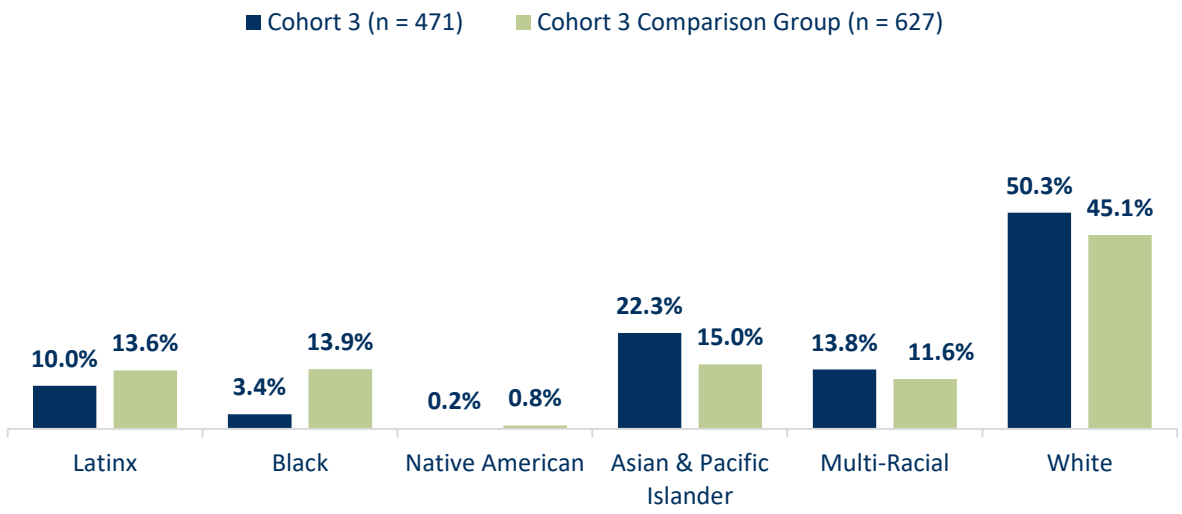


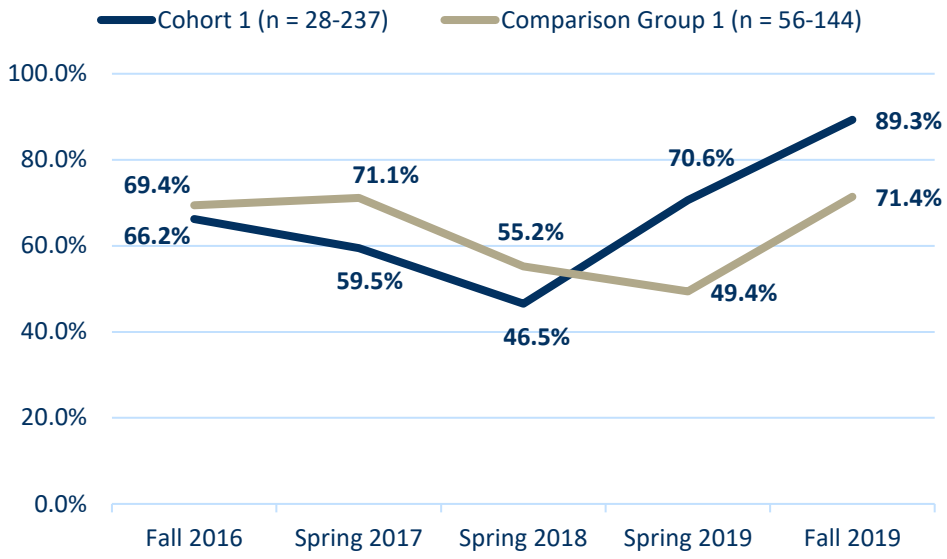
Figure 10. PPS Cohort 3 and Comparison Group 3 by Race/Ethnicity



DIBELS

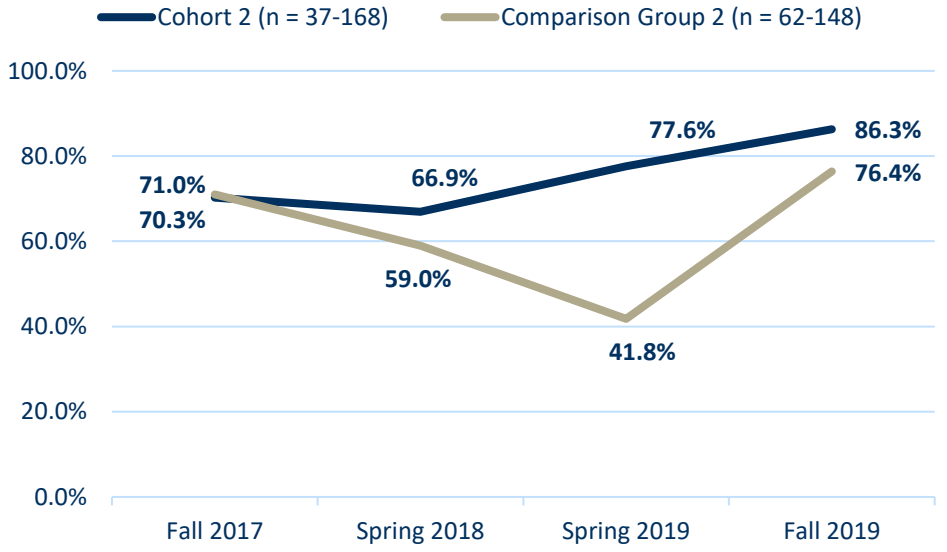
PPS uses the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment for K-3 students. DIBELS are a set of procedures and measures for assessing the acquisition of early literacy skills from Kindergarten through sixth grade. Figures 11, 12, and 13, present the percentage of students who were at benchmark (Core) on the DIBELS assessments for each cohort and its comparison group at multiple time points. Due to COVID-19, the DIBELS assessment was not administered in Spring 2020, and Fall 2019 or Winter 2020 data are included instead (Fall 2019 or Winter 2020 was determined based on which time point had more students tested). In Figure 11, caution should be exercised when interpreting Fall 2019 data due to the small sample size. The data for both Spring and Fall 2019 time points suggest an upward trend for Cohort 1 students, who are outperforming Comparison Group 1.

*Figure 11. Percentage of Students at Benchmark on the DIBELS Assessment – PPS **Cohort 1***



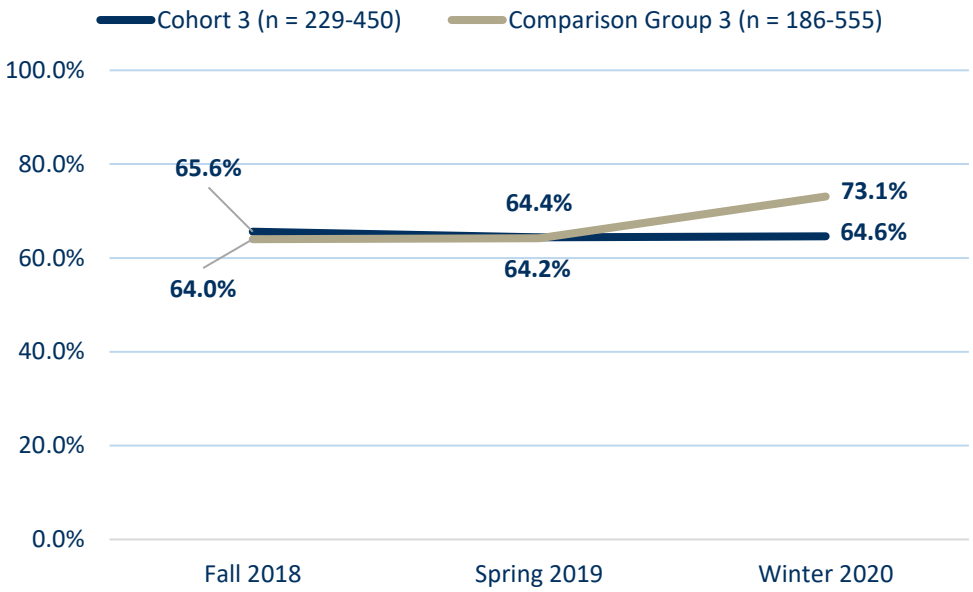
Similarly, Figure 12 presents a similar positive trend over time for Cohort 2, with Cohort 2 outperforming Comparison Group 2 across time points.

*Figure 12. Percentage of Students at Benchmark on the DIBELS Assessment – PPS **Cohort 2***



As seen in Figure 13, the percentage of students at benchmark remained constant for Cohort 3 over time, with an upward trend for Comparison Group 3 in Winter 2020.

*Figure 13. Percentage of Students at Benchmark on the DIBELS Assessment – PPS **Cohort 3***



In interviews, educators revealed that they have anecdotally noted improvement in student outcomes, such as an increase in literacy scores and academic growth for Kindergartners using Lexia. Teachers also remarked that building skills and familiarity with technology in lower graders benefits students immensely in upper grades and contributes to their long-term academic success. Teachers reported at-risk students are struggling less and are more able to complete projects by utilizing technology.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Do instructional practices show promise for improving student academic outcomes with at-risk student subgroups (i.e., students of color, low SES, LEP, SPED (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

- When asked whether the use of technology shows promise for improving outcomes for at-risk students, educators repeatedly indicated that technology enables them to differentiate their instruction and to be more inclusive by providing students with learning opportunities at their level.
- In 2019, a notably higher percentage of Cohort 2 TechSmart SPED students met benchmark on the DIBELS assessment than Comparison Group 2 SPED students.
- Educators provided multiple examples of how new instructional strategies better support LEP students and SPED students (or those with an IEP).

In the teacher interviews, **educators repeatedly indicated that utilizing the new instructional technology tools allowed them to differentiate instruction to improve learning for at-risk student subgroups**. The survey data echo this feedback; of the 136 write-in responses regarding technology and at-risk subgroups, more than forty percent of educators indicated they use instructional technology tools to differentiate instruction, provide leveled reading, and customize support to students' individual needs. Teachers reported using MyOn and Lexia data to facilitate small group instruction and indicated students were reading at their own level using tools such as RazKids, as one teacher commented:

> *I used MyOn for differentiation for my SPED and ESL non-readers so they could access content (for example, Mystery books or Nonfiction books). I used Lexia as an intervention and the data to inform my small group instruction with those same students. I used Zearn as a differentiation tool, so after the core lesson, some SPED and ESL students worked on 1st or 2nd grade material.*

Limited English Proficiency (LEP) Students

In order to examine whether instructional practices show promise for improving student academic outcomes with at-risk subgroups, DIBELS scores were examined for at-risk subgroups within each cohort. No DIBELS data were reported for TechSmart Cohort 1 LEP students for Fall 2019 or Winter 2020. Similarly, no Spring 2019 data were available for Cohort 2 LEP students and small sample sizes inhibit analysis for this subgroup across time points. Composite growth for Cohort 3 LEP students is presented in Figure 14 and appears to show that Cohort 3 LEP students are outperforming Comparison Group 3 as of Spring 2019. Caution should be exercised when interpreting this data, however, due to small sample sizes for the comparison group.

*Figure 14. DIBELS Composite Growth for TechSmart vs. Non-TechSmart LEP Students – PPS **Cohort 3***

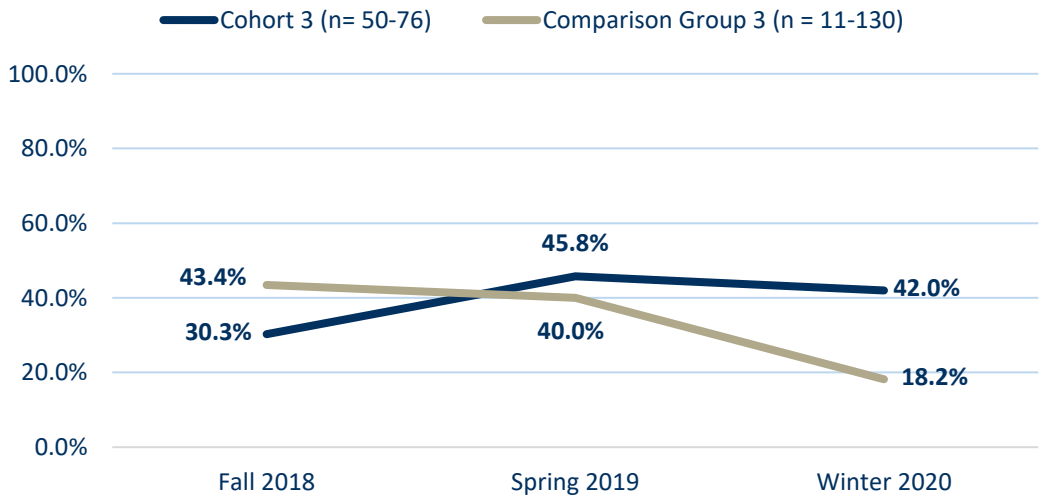


Table 6 below presents the ELPA21 results for each cohort and its comparison group. In SY 18-19, a higher percentage of students scored at the "Progressing" or "Proficient" level for Cohort 1 than Comparison Group 1. For Cohort 2, more students scored at the "Progressing" or "Proficient" level in SY 18-19 than the year prior, and a similar trend occurred for Comparison Group 2.

Table 6. PPS ELPA 21 Results by Cohort and Comparison Group

	Cohort 1 (n = 36-40)	Comparison Group 1 (n = 13-17)	Cohort 2 (n = 6-8)	Comparison Group 2 (n =14-22)	Cohort 3 (n =81)	Comparison Group 3 (n = 142)
2016-17						
Emerging	26.3%	41.2%	-	-	-	-
Progressing	73.7%	58.8%	-	-	-	-
Proficient	0.0%	0.0%	-	-	-	-
2017-18						
Emerging	17.5%	5.9%	12.5%	31.8%	-	-
Progressing	80.0%	88.2%	75.0%	68.2%	-	-
Proficient	2.5%	5.9%	12.5%	0.0%	-	-
2018-19						
Emerging	16.7%	0.0%	0.0%	0.0%	9.9%	9.1%
Progressing	77.8%	61.5%	83.3%	85.7%	70.4%	84.1%
Proficient	5.6%	38.5%	16.7%	14.3%	19.8%	6.8%

Note: SY 19-20 ELPA data not yet available from ODE

In the interview and survey data, teachers remarked on the positive impact of the technology tools on LEP students by, for example, providing e-books in Spanish and English phonics practice using Lexia. Teachers indicated that they saw improvement in literacy skills for LEP students because of the technology, as one teacher stated:

> *I had one student who in class was pretty quiet, but when he got on the computer, on Lexia for example, he flew through levels. His literacy skills saw unbelievable growth. Both myself and the ESL teacher were like, "Wow, he has developed really good skills", but we weren't always seeing that in the classroom. It's like he felt really comfortable [on the computer], that was a safe space, he didn't have to speak up, but we were able to see he has these foundational skills, which is amazing.*

Likewise, another survey respondent commented: "Technology is enormously helpful for differentiating for students with unique needs. One student I had was a recent immigrant with very little previous schooling, and I was able to use computer programs to provide her with instruction at her level that was accessible to her."

Special Education Students (or Students with IEPs)

Figures 15 and 16 present the percentage of SPED students who tested at benchmark on the DIBELS assessment across time points for Cohort 1 and 2 and their respective comparison groups. Cohort 1 TechSmart SPED students were performing lower than non-TechSmart SPED students over time, but in SY19-20 there was only a slight difference between the treatment and comparison SPED students. **For Cohort 2, a notably higher percentage of TechSmart SPED students met benchmark than non-TechSmart SPED students.**

*Figure 15. DIBELS Composite Growth for TechSmart vs. Non-TechSmart SPED Students – PPS **Cohort 1***

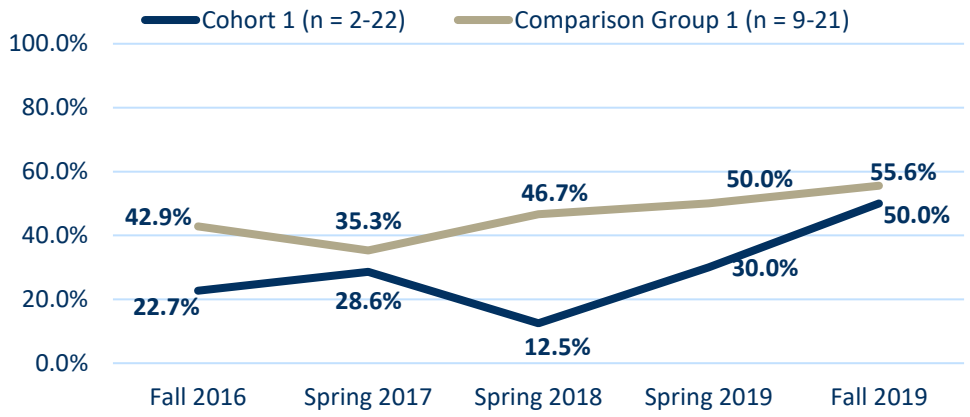
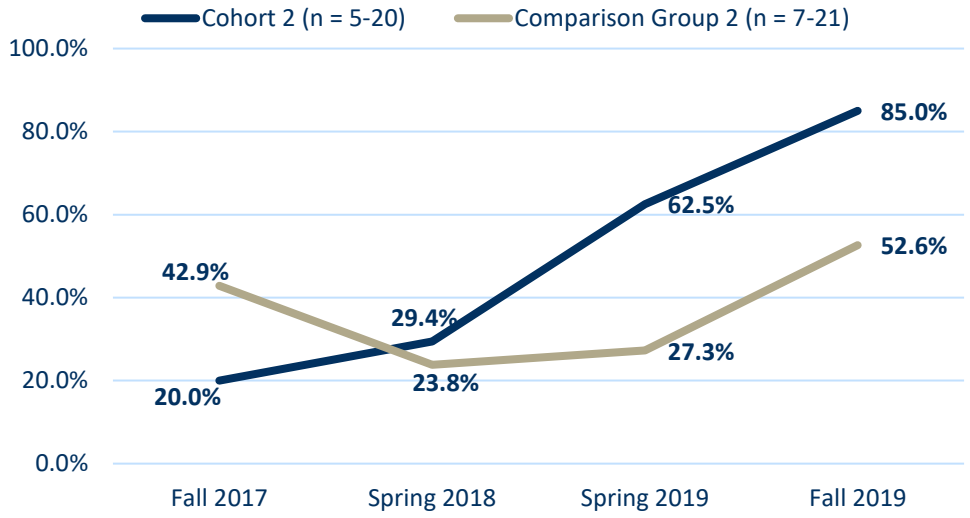
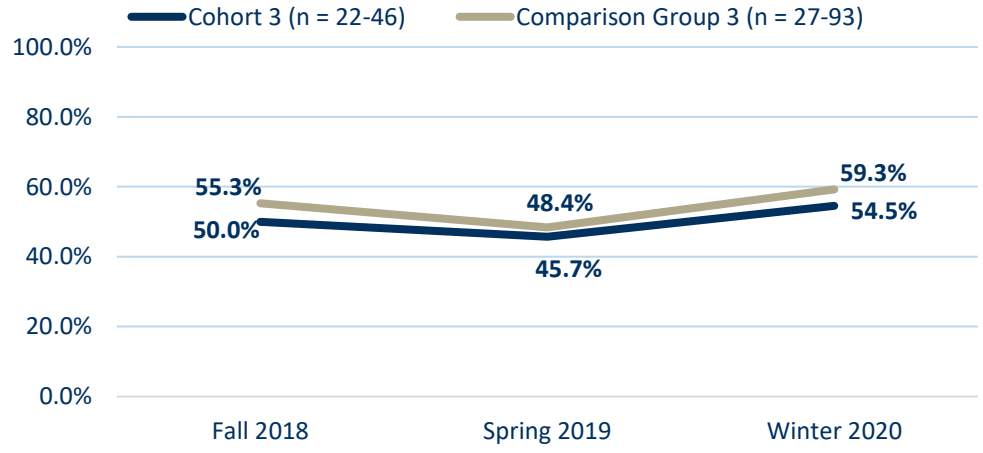


*Figure 16. DIBELS Composite Growth for TechSmart vs. Non-TechSmart SPED Students – PPS **Cohort 2***



As seen in Figure 17, similar to Cohort 1, Cohort 3 students performed below their comparison group, but there was only a small difference between the two groups over time.

*Figure 17. DIBELS Composite Growth for TechSmart vs. Non-TechSmart SPED Students – PPS **Cohort 3***



In interviews, teachers emphasized that the technology tools are particularly effective for students with IEPs with features like speech-to-text, MyOn books being read aloud, and the option to type for students with fine motor skill issues. One teacher commented: "My kiddos that had IEPs or had learning differences also tend to be the ones that can't focus, but they willingly focused on the computer. That was really engaging." Similarly, a SPED teacher remarked: "I use technology for progress monitoring, I use google voice to text as a tool that allows my students to access the general education curriculum and add it as an accommodation. I use Co-writer universal and the app depending on the student and the level of support they need. I use book creators to support students as writers whether they have a disability or not." A couple of teachers mentioned they received specific professional development about how to use Co-writer to make lessons more accessible.

Students of Color

For Cohorts 1 and 2, SY 19-20 represents the first year in which TechSmart students of color performed at a higher level on the DIBELS assessment than students of color in their respective comparison groups.

*Figure 18. DIBELS Composite Growth for TechSmart vs. Non-TechSmart Students of Color – PPS **Cohort 1***

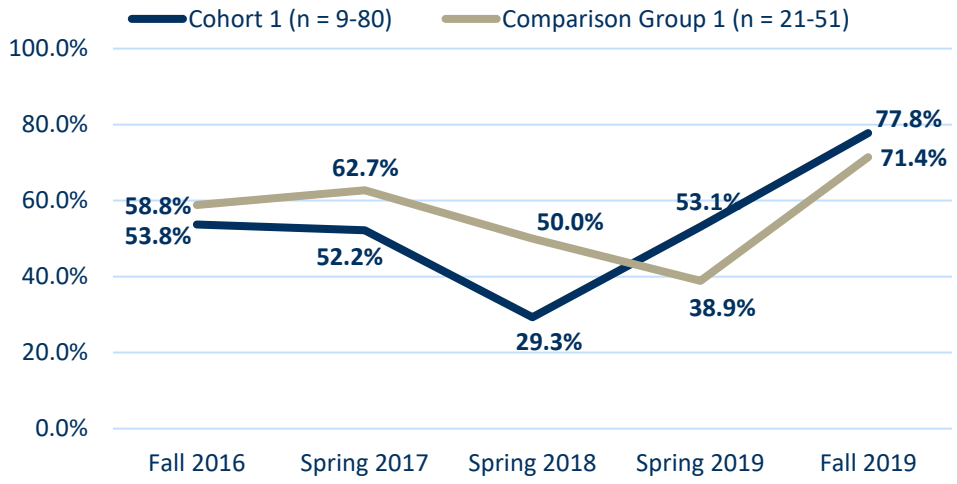
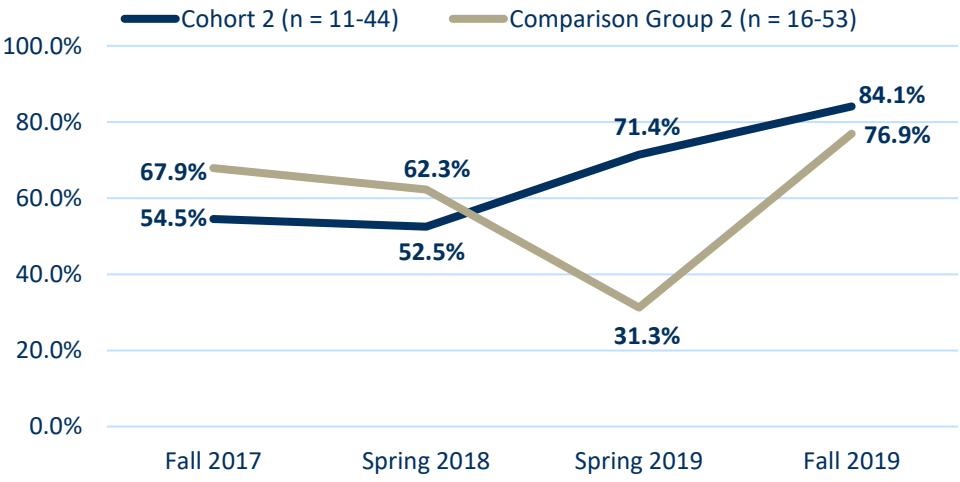
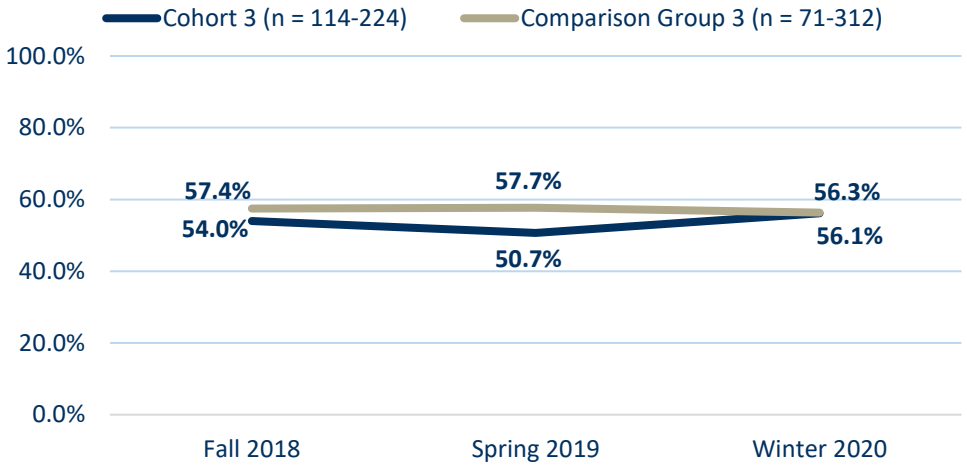


*Figure 19. DIBELS Composite Growth for TechSmart vs. Non-TechSmart Students of Color – PPS **Cohort 2***



As shown in Figure 20, Cohort 3 TechSmart students performed slightly below their comparison group in previous years but closed the gap in Winter 2020.

Figure 20. DIBELS Composite Growth for TechSmart vs. Non-TechSmart Students of Color – PPS ***Cohort 3***



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Is the rate of student growth in one or more AHR outcomes greatest for at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

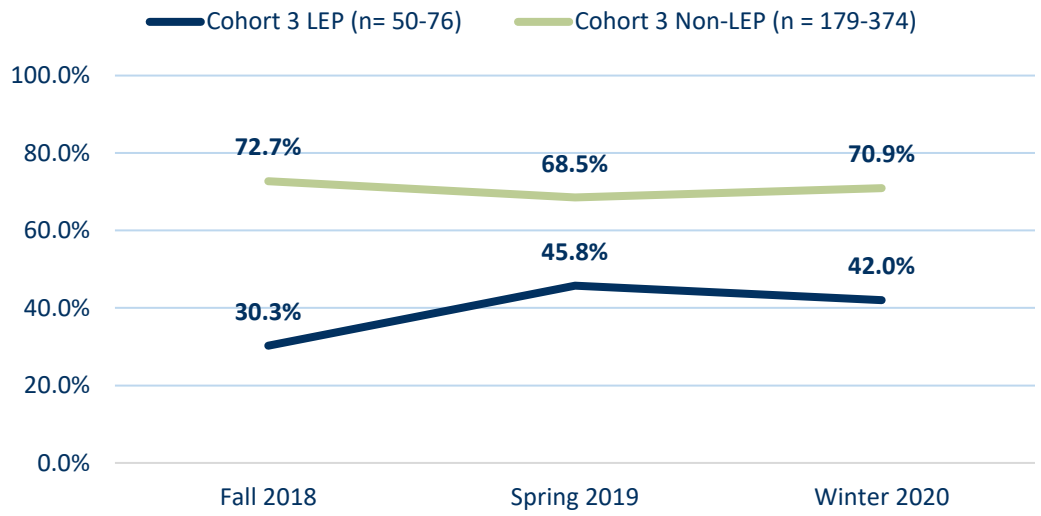
- Fall 2019 data indicate the achievement gap was closed between Cohort 2 SPED students and non-SPED TechSmart students with around 85% of both student groups performing at benchmark.
- In SY 19-20, the achievement gap on the DIBELS assessment narrowed to only a 3% difference between Cohort 2 students of color and white students.
- Teachers reported that the new technology tools provide students of color with access to books that reflect their cultural background and lived experience and indicated they use technology to teach students about diversity, equity and inclusion topics like race and heritage.

Limited English Proficiency (LEP) Students

The following tables display a comparison of at-risk TechSmart students versus non-at-risk TechSmart students within each cohort. No DIBELS data were reported for TechSmart Cohort 1 LEP students for Fall 2019 or Winter 2020. Similarly, no Spring 2019 data were available for Cohort 2 LEP students and small sample sizes inhibit analysis for this subgroup across time points.

Figure 21 shows that, though there has been some improvement in the percentage of LEP students at benchmark for DIBELS over time, an achievement gap appears to persist between Cohort 3 LEP and non-LEP TechSmart students. Future evaluation will provide more meaningful insight for Cohort 3, however, with more data available across multiple time points.

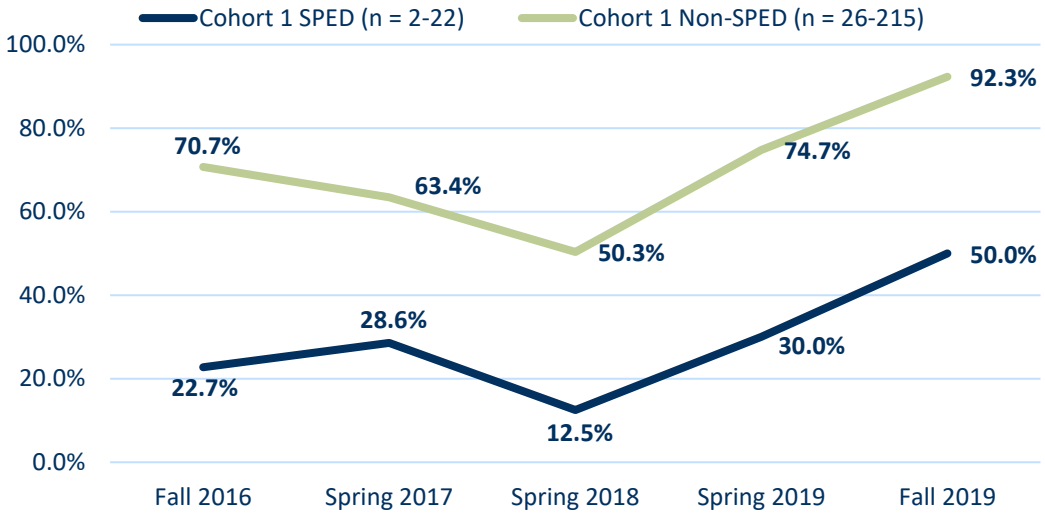
*Figure 21. DIBELS Composite Growth for LEP vs. non-LEP TechSmart Students – PPS **Cohort 3***



Special Education Students (or Students with IEPs)

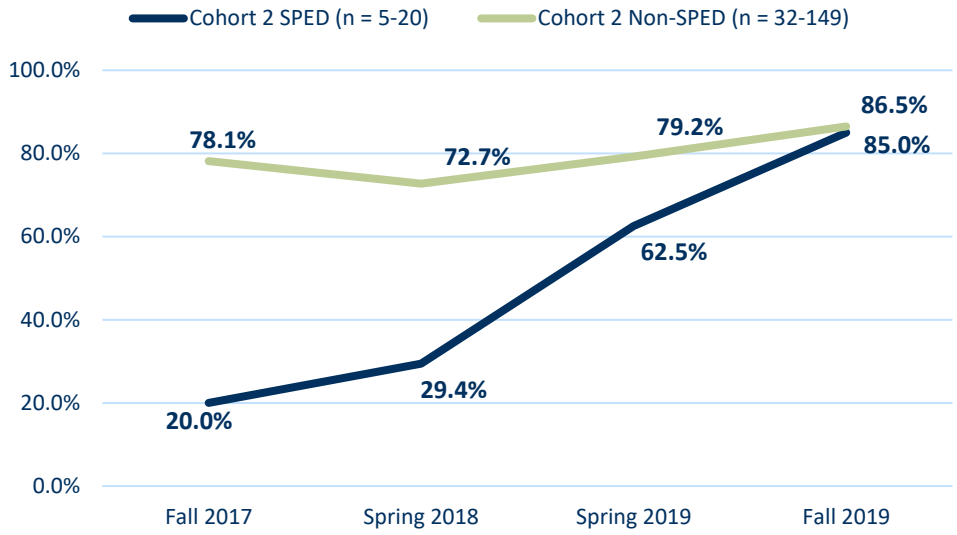
Figure 22 and 23 provide a comparison of SPED and non-SPED TechSmart students within Cohorts 1 and 2. For Cohort 1, though notably more non-SPED students are performing at benchmark, there is a positive upward trend for both SPED and non-SPED TechSmart students from Spring 2018 to Fall 2019.

*Figure 22. DIBELS Composite Score for SPED vs. non-SPED TechSmart Students – PPS **Cohort 1***



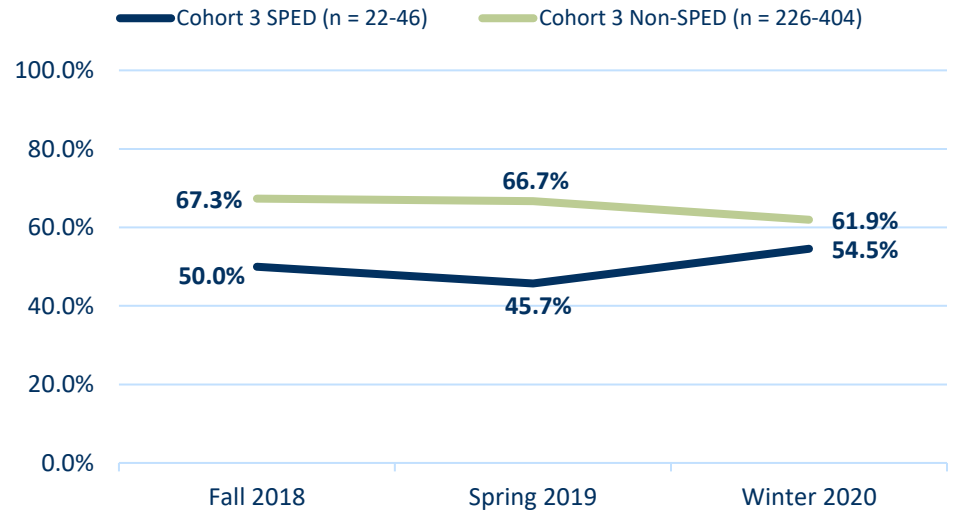
For Cohort 2, the data show a lot of promise for the TechSmart intervention, as Fall 2019 data indicate the achievement gap was closed between SPED students and non-SPED TechSmart students with 85% or more of all students performing at benchmark on the DIBELS assessment.

*Figure 23. DIBELS Composite Score for SPED vs. non-SPED TechSmart Students – PPS **Cohort 2***



Similar to Cohort 2, the achievement gap appears to be shrinking between SPED and non-SPED TechSmart students in Cohort 3 as of Winter 2020 (see Figure 24).

*Figure 24. DIBELS Composite Score for SPED vs. non-SPED TechSmart Students – PPS **Cohort 3***



Students of Color

More Cohort 1 students overall reached benchmark on the DIBELS assessment in SY 19-20 compared to previous years (see Figure 25). Students of color in Cohort 1, however, continued to perform below white students across time points. As seen in Figure 27, Cohort 3 followed the same trend, but the achievement gap did somewhat narrow in SY 19-20. **For Cohort 2, on the other hand, the achievement gap closed in SY 19-20 to only a 3% percent difference between white students and students of color reaching benchmark on the DIBELS assessment** (see Figure 26).

*Figure 25. DIBELS Composite Growth for Students of Color vs. White TechSmart Students – PPS **Cohort 1***

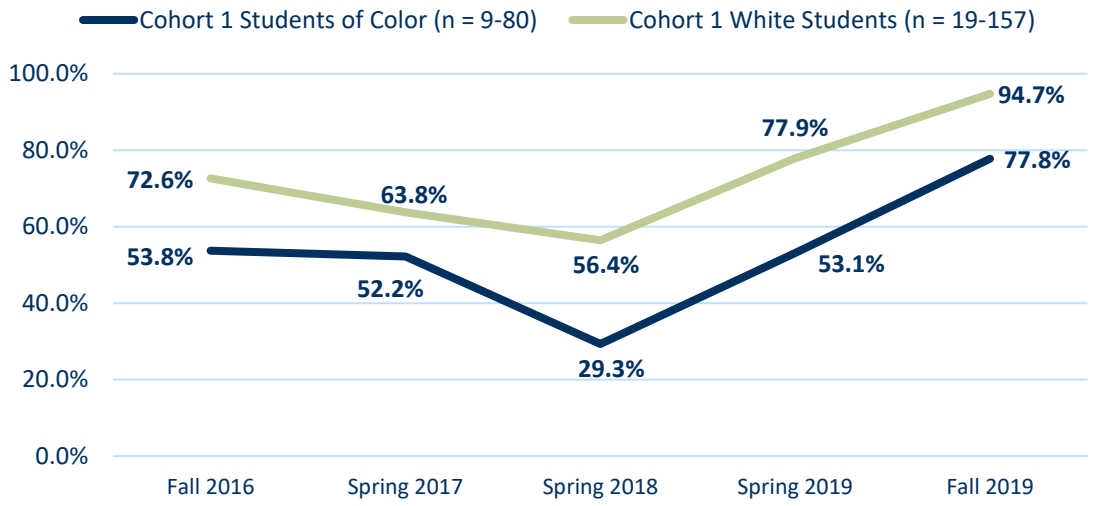


*Figure 26. DIBELS Composite Growth for Students of Color vs. White TechSmart Students – PPS **Cohort 2***

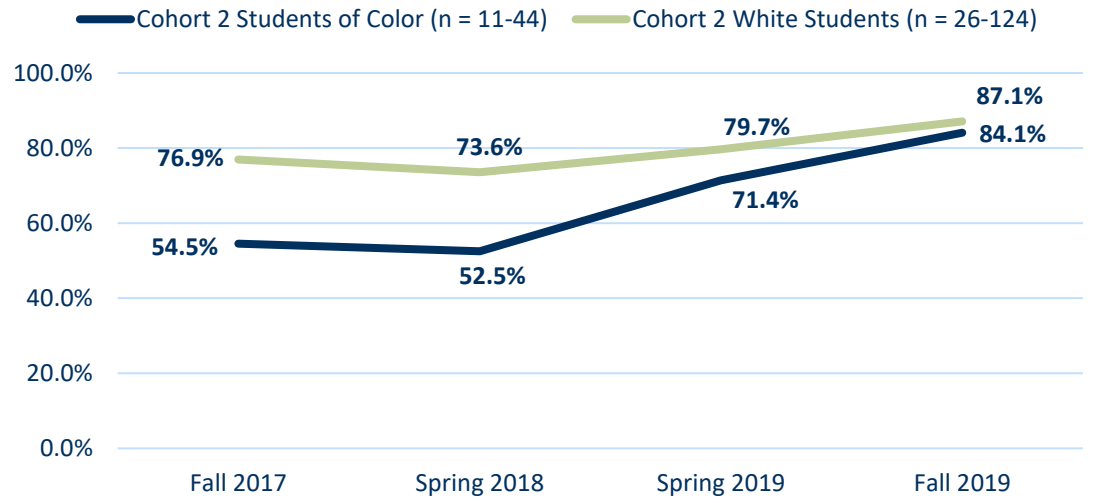
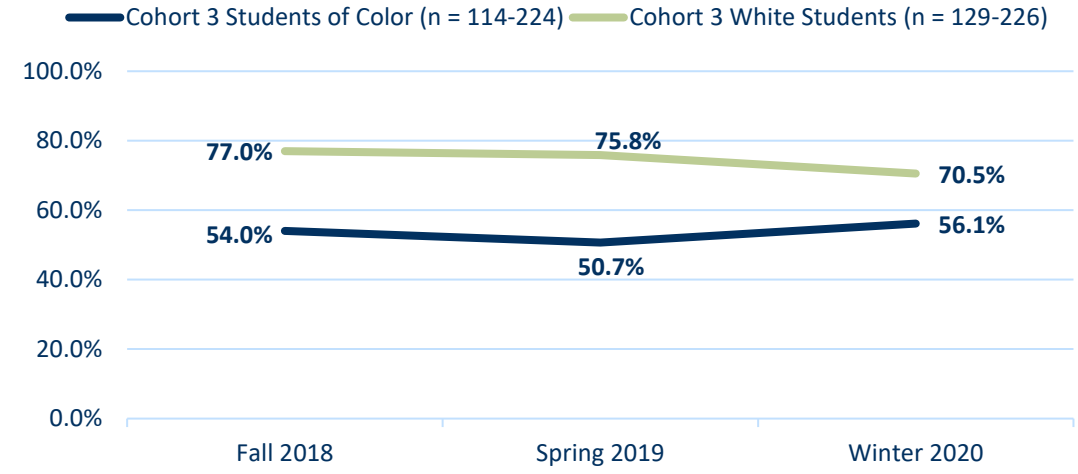


*Figure 27. DIBELS Composite Growth for Students of Color vs. White TechSmart Students – PPS **Cohort 3***



In interview and survey feedback, **teachers reported that technology is important for closing the achievement gap because it provides students of color with books that reflect their cultural background and lived experience, and it increases access to technology for low SES students with little to no access at home**. One teacher noted: "Some students have computers at home or they have access to iPads so they are familiar with how to use the device. But students who have less access because of finances at least get the chance to learn when they are at school." Similarly, another teacher remarked: "A couple of my students of color have not had a very literature-rich background their whole life. They would want to go on to MyON and listen to books all day long, if they could. That's what they really enjoyed. Their experience was enhanced by having that additional platform to engage with literacy."

Further, a couple instructors indicated they utilize technology to engage students about diversity, equity, and inclusion topics, as one teacher stated: "We use technology to make identity projects every year. We learn and research family heritage. Students with barriers to writing utilize dictation to practice writing." Another teacher provided a detailed example of their use of technology to teach students about race:

> *I would say the to my students - "Let's go look at all these stories and tell me which ones portray people of color?". Then we would read the stories, and I would ask them, "How are these people represented?" They all agreed that they were presented as poor, as agrarian as oppressed, etc.* ***With technology, I can break that barrier.*** *I am not limited by the bias of who's producing the curriculum or choosing it. For Black History Month, we talk about how do we see racism? What is race? Some kids say, "It's when you compete with somebody." Then after we have a month-long conversation every morning about race issues (What it's like to be of a certain race? What it is like to be of a minority? What it's like not to be of a minority, etc.), I tell them, I want you to choose one sentence that resonated with you during this time, and I want you to go and Google that sentence and see what images come up and choose the image that is closest to the one that you have in your head, and then make a poster and write the sentence underneath it. They place the posters on their lockers in the hallway. If I didn't have access to technology that could not be done.*

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

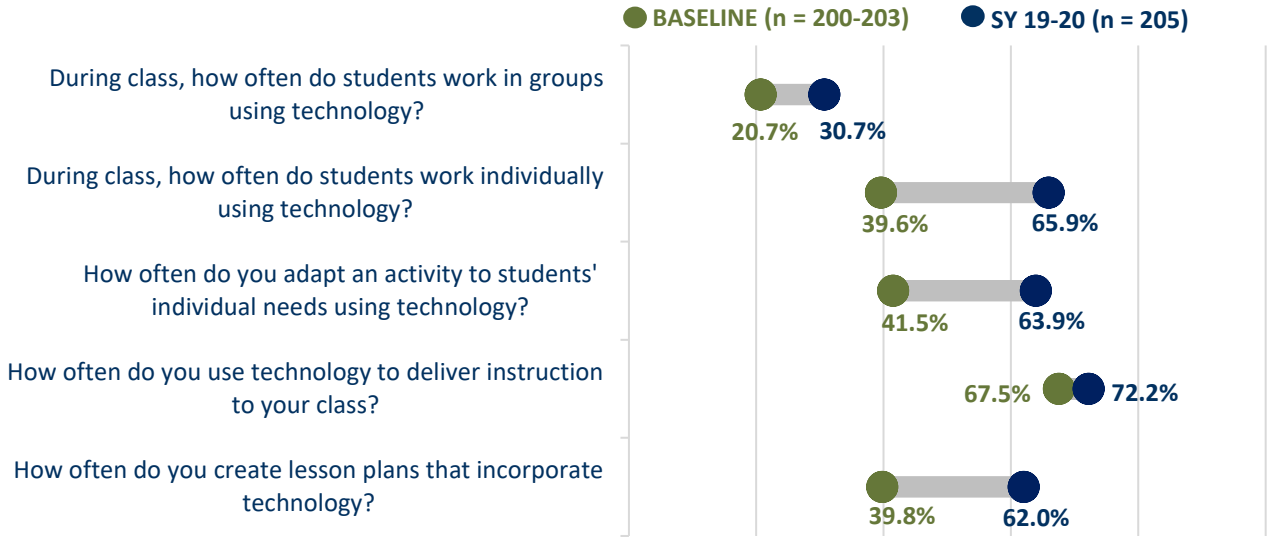
Has the use of technology to support instructional practices increased?

Key Findings:

- Teachers reported they most frequently use technology to deliver instruction to their class and least frequently to have students work in groups.
- Top reported barriers to integrating technology into instruction include the 2:1 student to technology ratio, some students lacking basic technology skills like typing, Grade 4 and 5 not being targeted grades by TechSmart, and developmentally appropriate tools for Kindergartners.

Figure 28 illustrates the frequency with which teachers integrated technology in five different ways, comparing baseline to SY 19-20. **Teachers reported they most frequently use technology to deliver instruction to their class and least frequently to have students work in groups using technology**. In SY 19-20, Cohort 4 consistently rated their frequency of technology integration the highest and Cohort 2 rated their technology integration the lowest. Teachers reported that the frequency with which students use technology individually increased the most over time.

Figure 28. PPS Frequency of Technology Integration
(% A Moderate Amount/A Great Deal)



Interview feedback aligned with the survey data, with teachers describing how they use tools on a daily basis in their classroom, as one teacher stated: "We used to Lexia daily in our reading program, because we did walk-to-read where kids switch rooms according to ability level. And then we used MyOn

occasionally to supplement books. Kids really enjoy going on MyOn and reading books because books can be read to them. And so, we use MyOn frequently but not every day, we use Lexia every day." Further, teachers remarked they are overall more comfortable with integrating technology into their routine than before TechSmart, as one educator described: "I feel like personally I am more comfortable with technology, so I feel like I integrate it better and it's not like, 'Today we're doing technology.' It's just something that we do now, when I got more comfortable with it, we got into a rhythm that was just part of our week."

Barriers to Integrating Technology into Classroom Instruction

Teachers reported several barriers to integrating technology, including the 2:1 student to technology ratio. Multiple teachers wished students had 1:1 access to Chromebooks as having only half or less of students have access to their own device made full-class exercises challenging, as one teacher stated: "There's activities that really every child needs her own device to work effectively, just to give them that experience of when you're first using a platform." Teachers noted that it was difficult to coordinate borrowing devices from other teachers. Further, some teachers reported they were disappointed in the reduction of Lexia licenses as they found it a very useful tool for their students. Some teachers reported not having enough time to help students learn to type and other basic computer skills. Several teachers and administrators expressed that they wished TechSmart would include fourth and fifth grade to provide continuity for students as they move up. Administrators reported some resistance to incorporating technology from Kindergarten teachers who did not feel the tools provided were developmentally or age appropriate. Some Kindergarten teachers reiterated this trend, noting that parents were uncomfortable with the screen time for their children. Other Kindergarten teachers, however, indicated the technology was overall a positive addition to their instruction.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Do teachers have increased access to and use of digital content and resources?

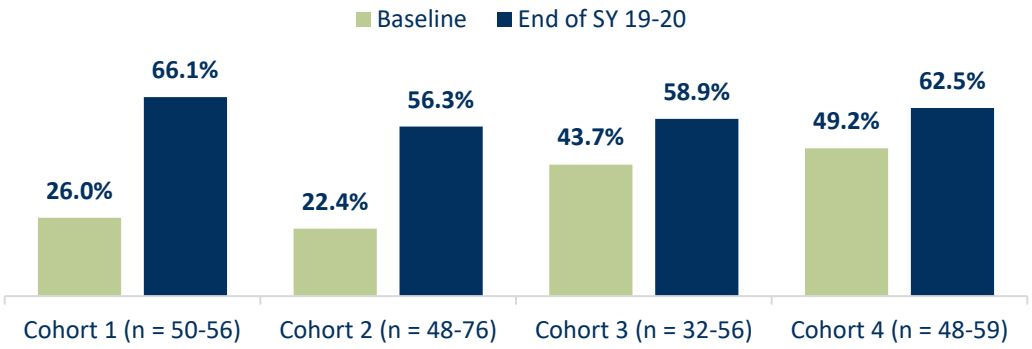
Key Findings:

- Seventy-nine percent (79.1%) of educators somewhat or strongly agreed that they have increased their use of digital content/resources in their instruction since receiving technology specific PD.
- In SY 19-20, around 60% of teachers across all four cohorts reported that students have adequate access to technology *in their classroom* (not necessarily in distance learning circumstances).
- In SY 19-20, more than 85% of teachers in each cohort agreed or strongly agreed that students were comfortable using digital tools.

In SY 19-20, **seventy-nine (79.1%) of educators somewhat or strongly agreed that they have increased their use of digital content and resources in their instruction** since receiving technology specific professional development. Teachers also rated whether students have adequate access to technology

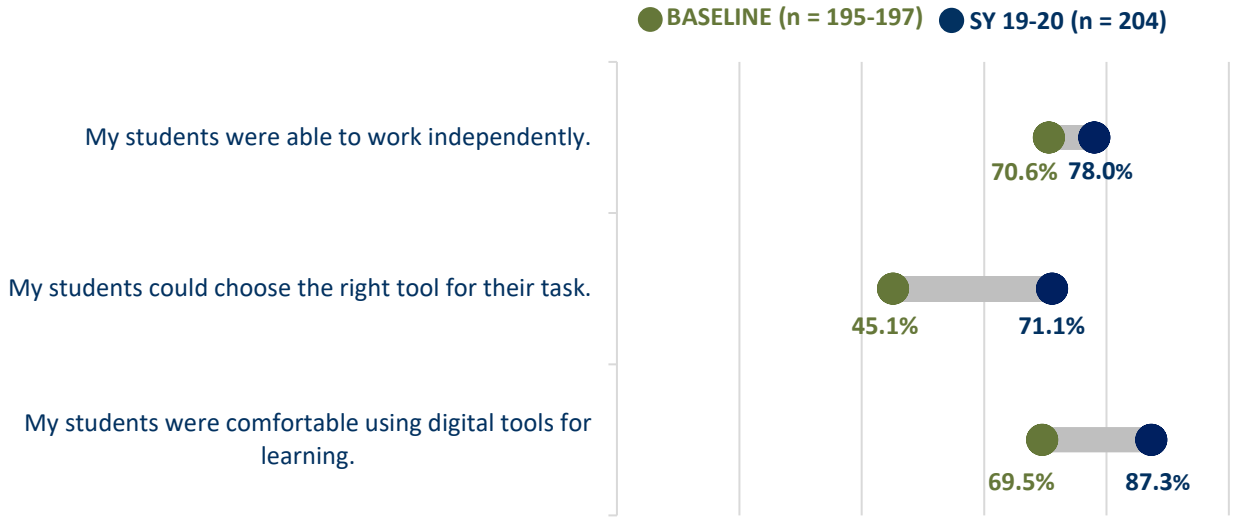
resources in their classroom (e.g. iPads, Chromebooks). The responses are displayed in Figure 29. In comparison to other cohorts, student technology access remained the lowest for Cohort 2 at both time points. Student access appears to have improved the most for Cohort 1, from 26.0% at baseline to 66.1% in SY 19-20. **Overall, in SY 19-20, around 60% of teachers across all four cohorts indicated students had adequate access to technology in their classroom. It is important to note that this response specifies technology access "in my classroom" and likely does not reflect access since the distance learning transition.**

Figure 29. PPS Students Have Adequate Access to Technology Resources in my Classroom (% True of me or Very True of me)



Educators rated student abilities and comfort levels with technology at both time points (see Figure 30). There was notable growth in all three areas over time, with the greatest improvement in students' ability to choose the right tool for the task. Despite this growth, students' ability to choose the right tool remained the lowest rated item at both baseline and in SY 19-20 (a subset of around to 10% to 20% of educators consistently selected "neither agree nor disagree" for this question across all cohorts). Students' ability to work independently improved notably over time for Cohorts 1 and 2 but declined slightly for Cohorts 3 and 4 (the later cohorts rated this item higher to begin with at baseline).

Figure 30. PPS Educator Ratings of Student Technology Abilities at Baseline and in SY 19-20 (% Agree/Strongly Agree)



Moreover, in SY 19-20, more than 85% of teachers in each cohort agreed or strongly agreed that students were comfortable using digital tools.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

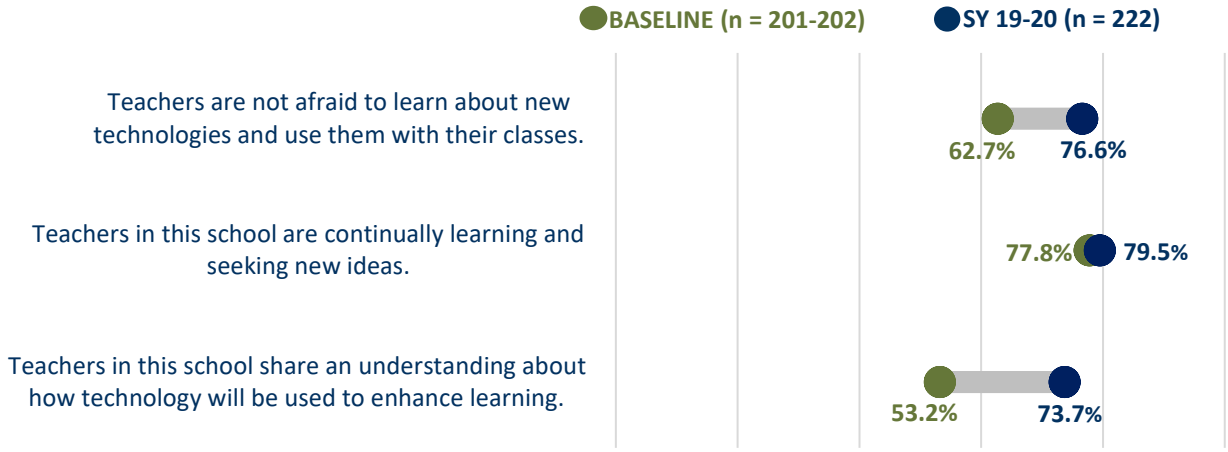
Is there evidence of district wide support for technology integration?

Key Findings:

- Teachers reported notable growth in their shared understanding about how technology will be used to enhance learning from baseline to SY 19-20.
- Most interviewees reported a culture of support for technology integration at their school.

The survey data suggest that teacher's perception of a culture of support for technology integration improved over time, with **the most growth in teachers' shared understanding about how technology will be used to enhance learning** (see Figure 31). Cohorts 2 and 3 overall rated the culture of support in their schools higher in SY 19-20 than Cohorts 1 and 4.

Figure 31. PPS Teacher Perceptions of a Culture of Support for Technology Integration (% Agree or Strongly Agree)



In line with the survey results, **most interviewees indicated that there is a culture of support for technology integration in their school**, as one teacher stated:

> *Before the TechSmart grant, I would have said no, but since the TechSmart grant, I would say yes; I really feel there's a comfort with technology now. I know teachers I could ask questions to that use it all the time and they would be more than happy to help me. When I first started, it was really hit or miss. You had to be an out of the box thinker to use technology - you had to figure out how to make it work.*

Teachers remarked that cross-cohort collaboration has been particularly helpful for newer cohorts to learn from the initial cohorts, as one educator commented: "I think adding another cohort was great. Especially the first- and second-year cohorts really had a lot of experience and were able to lead and provide support for the oncoming cohort." A few teachers indicated they felt the culture of support was limited in their school, but they described this as ultimately a lack of administrator or district support.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Do parents have an increased understanding and utilization of districts' technology assets?

Key Findings:

- Though educator feedback about using technology to communicate with families was mixed, the data overall indicate that Seesaw has been a useful platform for engaging families.
- PPS organized several family engagement events and bilingual communications were sent home regarding TechSmart resources.

Educators shared mixed feedback about using technology to communicate and share with parents. Some teachers described setting up writing celebrations, for example, to allow parents to read and hear their students' writing. Other teachers reported using Remind and Seesaw to connect with families with a weekly blog or regular newsletter to keep parents updated on student work. The year-end status report notes that more 1,500 families have connected to their children's classrooms in Seesaw and that parents have viewed student work and announcements/photos shared by teachers more than 41,000 times. Administrators remarked that Seesaw has been very successful for some teachers, but that others have been reluctant to use it with families. In the context of the pandemic, several teachers reported it has been difficult to engage parents using technology because families may have limited technology skills and feel overwhelmed. Other teachers who were already using technology regularly to communicate with families prior to COVID reported a smooth transition to distance learning.

The year-end status report indicates that family engagement events included informational booths run by TechSmart Coaches set up during the September back-to-school nights. In addition, instructional videos were updated to guide families on how to access the TechSmart funded elibrary (MyON) at home using the Clever system. Further, a personalized letter with MyON login credentials was sent to every family in English and Spanish.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

How has TechSmart impacted the shift to distance learning?

Key Findings:

- Educators emphasized how TechSmart prepared them for a relatively smooth transition to distance learning as teachers and students were already familiar with the technology tools.
- Administrators indicated that TechSmart teachers needed notably less distance learning support than non-TechSmart teachers during the pivot to distance learning.
- Teachers continued to receive valuable coaching support in the transition to online instruction.

Educators repeatedly emphasized how **TechSmart prepared them for a relatively smooth transition to distance learning.** The tools and familiarity with the technology helped teachers, students, and families adjust, as one administrator stated: "The biggest impact has been that TechSmart teachers have been a lot more ready to pivot to online learning because of their experience with tools, having used them with students before they were going home, so students already knew how to use a lot of the things. They had already established reading support and communication with families, and families had already been on SeeSaw." Parents were appreciative of how quickly TechSmart schools were able to transition and teachers had multiple tools at their disposal to instruct and engage students, as one teacher stated:

> *After we transitioned to distance learning, several parents brought up how amazed they were that the minute that the district said, "Okay, we're going to start again but it's going to be on online" we had 23 out of my 25 kids signed up that morning…Within a week I had already set up basically two 45-minute periods, a meeting on Google Meet, where I instructed, and the kids had the possibility to have a group discussion. I also created a classroom in Google Classroom where I would post notes of the discussion.*

Another teacher similarly emphasized how important TechSmart has been for monitoring students' progress:

> *I think that TechSmart was really, really essential. The kids already knew and managed the platforms well enough so we could continue to do what we were doing seamlessly. Without TechSmart, for me to be able to see their work would have been very difficult. I can assign a book for reading and then we can read together. We can have a discussion and then students can practice. The practice is an assessment, and it comes back with data. That cycle would not have been possible without TechSmart.*

Some educators highlighted how TechSmart provided a more equitable transition, indicating "how much farther behind our communities of color and [families living in] poverty would be" and how TechSmart

ensured that "some of these students weren't left as far behind as they might have been". Other educators, however, indicated that students of color and ELL students are the groups that are most likely to not be engaged with distance learning and expressed concern about the widening achievement gap. Other barriers related to distance learning included families not having access to wi-fi, and parents not having the technology skills to support their children's learning.

Administrators indicated that TechSmart teachers needed notably less distance learning support than non-TechSmart teachers, as one interviewee described:

> *From the distance learning (DL) standpoint, I saw a huge impact when we moved from the traditional classroom to DL. We had a really tight timeline to get teachers up and going with different applications we had decided on. The district looked to our team to make recommendation around DL for K-2 and 3-5 classrooms. We noticed through our IT ticket desk system and live support system that* ***very few teachers from TechSmart needed our support****. They still have the coach from their building available to help and assist. Even talking to the coaches about TechSmart vs. non TechSmart, it was clear how the program had prepared the teachers for DL.*

Teachers valued having access to their coach to help transition to instruction online. As per the year-end status report, between Spring break and the end of the year, TechSmart coaches provided "over 900 one-on-one sessions with teachers". Multiple teachers also remarked on how useful it was to have students set up with their Clever badges. As noted in the year-end status report, the "implementation of Clever Badges significantly bolstered opportunities to take advantage of blended and personalized learning". Once teachers switched to distance learning, Clever badges allowed students to easily log-in and access tools.

Teachers indicated that SeeSaw and Google applications have been particularly useful tools for distance learning. The year-end status report notes that regular parent engagement with SeeSaw, as measured by visits in a 28-day period, "increased by 800% from January to June 2020 to more than 14,000 visits". Some educators also noted unexpected benefits of transitioning to online instruction; one teacher commented that they found their Kindergarten students were more engaged on their computers at home without all the distractions in the classroom. They indicated that they were seeing "huge growth" for their struggling students and that they were confident students would be ready for first grade.

Lastly, teachers commented that switching to distance learning provided them with the necessary "push" to integrate technology into their instruction and that it "has really helped me become a lot more comfortable with the technology because I'm using way more of the programs now". Teachers commented that this increased confidence with technology will serve them in the future when they return to in-person or hybrid learning.

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Are districts identifying effective instructional practices and disseminating information and results to other districts?

Educators indicated that most cross-district collaboration and dissemination of information is happening through the TechSmart Coaches. Coaches across TechSmart schools frequently share resources and templates and exchange questions via a Google chat platform. One educator explained:

> *We have a TechSmart chat and there is a lot of sharing that goes on of the most useful tools that were created by coaches and the team. All the key people are on there because if you have a question on anything, someone in the group knows and can help. We have shared a lot across TechSmart schools. We don't have as much opportunity to share with other non-TechSmart schools, it would be great if other leadership would get on board too.*

Educators also mentioned coffee chats for principals as an opportunity to share resources. Some educators felt that district collaboration has decreased since they no longer have monthly TechSmart central meetings like they did in the past.

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Do teachers feel increased support from district leaders regarding technology integration?

Key Findings:

- Interview data reveal that most educators felt supported by the district regarding technology integration and survey data echo this finding.
- Educators mentioned leadership coffee breaks, TechSmart labs, and their coaches as valuable examples of district support and commented on improved, visible leadership under the new IT learning technology department.

In the interviews, most educators reported they felt supported by the district regarding technology integration, and some educators reported hopes for improvement. Educators highlighted that they appreciated the leadership coffee breaks and felt the district was "accessible" and "resourceful". When asked about district support, teachers also repeatedly talked about how they valued the TechSmart team

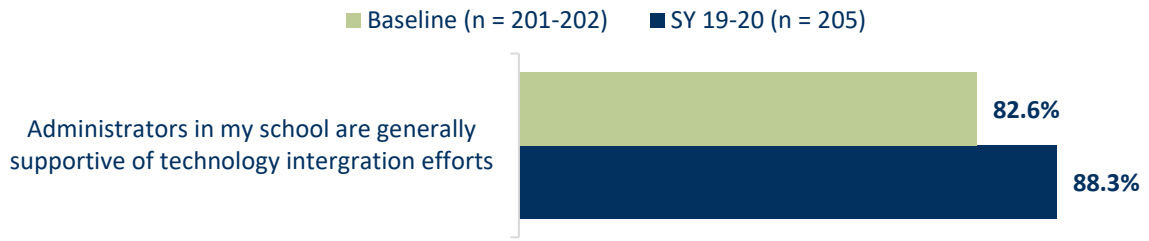
providing the TechSmart Labs to model how to utilize tools like Book Creator and Google Classroom. Teachers overall benefitted from having the funding to have a TechSmart coach as well. Educators commented that there were initially some obstacles with turnover in TechSmart leadership and it not being clear "where it lived" in the district. They indicated, however, that it has improved since the establishment of the IT learning technology department. Multiple teachers spoke highly of the new leadership and highlighted how much they appreciated that leaders have become more actively involved and visible in schools. As one teacher stated:

> *Anytime I email, they always get back to me. I really appreciate our district technology leadership this year. In the past, I would not have sung the praises of our IT department. This is the first time, and I've been working in PPS for a long time, that I can say that our IT department is really focused on doing the right thing for our buildings and for our students.*

Some educators reported that a better system is needed for training coaches on how to coach and provide the best support to K-3. Educators also spoke about the district's need to prioritize protecting the .5 time that coaches have allocated for TechSmart so they are more available to support teachers.

The survey data suggest there is a high level of administrator support in place across TechSmart schools with a slight increase in educators' ratings of support from baseline to follow-up. In SY 19-20, the majority of educators (more than 85%) in each cohort agreed or strongly agreed that administrators are supportive of technology integration efforts in their school. Cohort 3 rated administrator support the highest in SY 19-20 at 94.5%.

Figure 32. PPS Perception of Administrators' Support of Technology Integration (% Agree or Strongly Agree)



DATA-DRIVEN IMPROVEMENT

Current, relevant, and high-quality data from multiple sources are used to improve schools, instruction, professional development, and other systems.

How are schools using data to improve instruction, professional development, and student performance?

Key Findings:

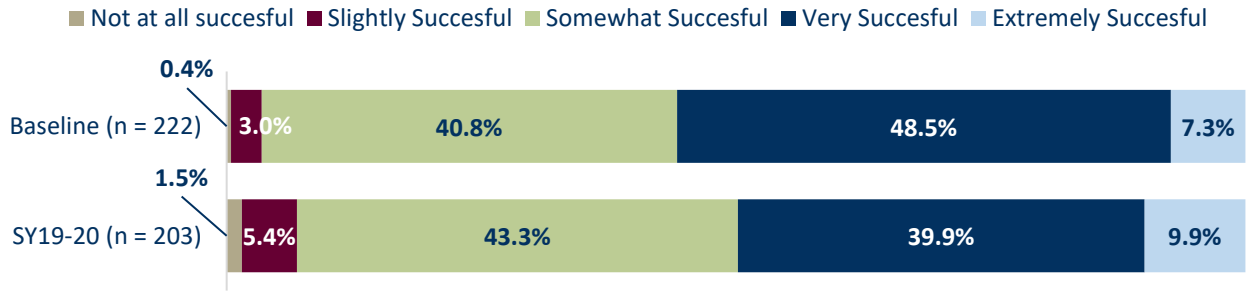
- The survey and interview data repeatedly highlight that teachers are effective in differentiating instruction utilizing student data.
- Despite teachers providing a lower rating for their use of formative assessment on the survey, interviewee feedback suggests a promising trend for teachers using student data to adjust their instruction.

On the SY 19-20 survey, educators were asked to rate their agreement regarding their use of instructional technology. Educators rated their use of technology to differentiate instruction the highest (see Figure 33).

Figure 33. PPS Educators' Use of Instructional Technology in SY 19-20 (% Somewhat Agree or Strongly Agree)

Teachers were also asked to rate their success with differentiating instruction. The percentage of teachers who rated themselves as very or extremely successful remained at about 50% at both baseline and in SY 19-20 (with a slight decrease likely attributable to more teachers answering this question at baseline than in the follow-up survey).

Figure 34. PPS Teachers' Average Rating of Success with Differentiating Instruction at Baseline and in SY19-20



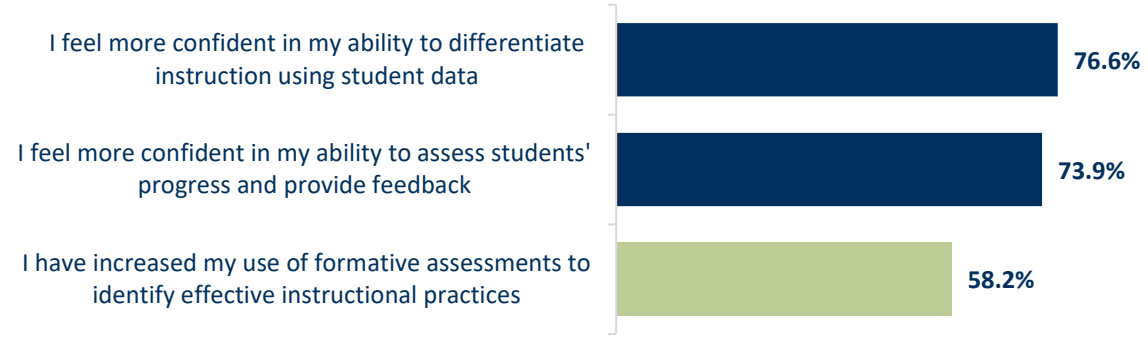
This one data point suggests teachers do not perceive their success with differentiation to have improved over time (the majority teachers were somewhat successful or very successful at both time points). **The survey and interview data as a whole repeatedly highlight, however, that teachers are effective in using student data to differentiate.** In interviews, educators frequently brought up how specific tools allow for more differentiation, as one teacher stated:

> *Lexia is a literacy program that the kids progress through with their level, so as they get things right, it progresses them. If they get things wrong, it sends me feedback as to where they may need some extra help or extra support. With that program, as a teacher, I can print out worksheets or activities that the kids can do to practice that skill. That is leveled, which is really nice. Then there's MyON, which is a digital library and that's really great because it will read the books to the kids. Kinder kids don't really read yet, especially at the beginning of the year, and so it's really nice to be like, "Oh, you want to hear a book about sharks? Okay, you can listen to one about sharks and you can listen to one about dinosaurs," it individualizes for the kids.*

Similarly, an administrator commented: "We are now in year four of the blended learning practices, so these practices are pretty integrated into what we do in terms of our literacy block, and then we are also extending that into math. It really enables our teachers to meaningfully differentiate. They respond to student needs and students use the devices while teachers are facilitating small groups".

Figure 35 displays teachers' ratings of agreement with several statements about data-driven improvement in SY 19-20. **Educators were least likely to agree they have increased their use of formative assessment to identify effective instructional practices.**

Figure 35. PPS Data-Driven Improvement in SY 19-20
(% Somewhat Agree or Strongly Agree)



Despite teachers providing a relatively lower rating for their use of formative assessment on the survey, interviewee feedback suggests a promising trend for teachers using student data to adjust their instruction. One interviewee stated:

"With Lexia Core5, I use the data to see where they are struggling. For example, if they can't hear the medial sounds, I need to focus on that in an intervention or a small group. I was able to use that data to inform my teaching." Likewise, another teacher commented: "DreamBox and Lexia provide me a lot clearer sense of which standards are proficient and which groups of students still need more support. That gives me a very clear visual guide to gauge which skills need to be reviewed or addressed". Teachers also described learning from other teachers who are successfully tracking students, as one educator noted:

> *I had the chance to see how other teachers do data tracking and that was really helpful. Making charts does not come super intuitively to me so it was really nice to see how other teachers did it. Then I started tracking my kids' progress that way. I track their test scores and their reading levels. That was something that I did a lot more this year with making my own little tracking sheets.*

FUNDING & BUDGET

District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.

Have districts identified at least one opportunity for repurposing resources to support technology integration?

Some administrators indicated they have repurposed resources in terms of hiring TechSmart coaches in positions like full-time English Coach or Instructional Specialist. Other educators indicated they have seen the district start to shift towards repurposing of school and district funds to allow non-TechSmart schools to mirror the same model as TechSmart schools.

Multiple educators talked about sustainability in terms of devices, indicating they were concerned about whether they would be able to retrieve devices that had been distributed to families for distance learning once schools opened, "I'm worried about next year because we don't have any of our devices. They have all been deployed. There is no communication about getting the devices back. I heard that families should not worry about returning devices." Likewise, another teacher stated:

> *We do have older devices from Cohort 1 and 2 schools and some Cohort 3 schools that are kind of at the end of life. Our district has done a good job of refreshing devices as much as we could before the COVID closure. We distributed 13,000 devices, many were TechSmart, but we will see how many actually come back. Before COVID I was feeling really good about where we were with devices in the buildings.*

District leaders also brought up the obstacle of software costs: "One hurdle is software expenses. Seesaw and Book Creator are reasonable. Lexia and Myon are cost prohibitive in the long term. We are trying to find alternatives or alternative funding sources."

Several educators indicated they were concerned with the transition to not having a dedicated coach at their schools, as one teacher remarked: "I am curious to see how that works and if it gets diluted in terms of support that is provided." Similarly, another administrator stated: "If I bring in new teachers who didn't get the training, it becomes watered down...Without a coach there to re-train and re-engage, that is my biggest worry." Some educators that were not satisfied with their TechSmart coach experience indicated the transition from a building to a district coach would be a welcome change as they were more confident in the district coach training process.

STRATEGIC PLANNING

District strategic plan reflects shared commitment to improving outcomes for students.

Does the district's strategic plan reflect shared commitment to improving outcomes for students?

In looking ahead, **many educators talked about lessons learned with distance learning that they will carry into the future**, as one administrator stated: "Our teachers are already talking about how when we get back to school, we can really get our families engaged in those [TechSmart] platforms in a way that they didn't fully understand before." A teacher echoed this input: "Now, I feel like I would be proactive. Next year, I definitely could make that part of our routines where I introduce something, and then part of a small group practice would be students utilizing TechSmart programs and doing the exercises that I created to reinforce my teaching."

Additionally, administrators stated that they have seen a positive change as a result of the leadership and transition within the new IT learning technologies department, and that distance learning has fostered even more prioritization of technology across the district, as one district leader commented:

> *We're already lining up bills. We are already combining things, but then when the COVID distance learning happened, I think that just propelled it even more. There was more of an investment in technology. They are not cutting positions, so I think there's a realization that yes, we're going in the right direction, but we have to accelerate it.*

Administrators overall reported they feel the district is moving in the right direction, as one educator noted:

> *Even on the way out - this is our last year theoretically of the grant - the district's talking about refreshing our technology so that we can continue to utilize it. That is a way different approach from my standpoint. In the past, it was always just like:" Oh, and you'll have to figure it out now". That was always a challenge, to get this cool stuff and then to not keep up with it.*

EVALUATION INSIGHTS

- PPS educators emphasized how TechSmart prepared them for a relatively smooth pivot to distance learning as teachers and students were already familiar with the technology tools. Administrators indicated that TechSmart teachers needed notably less distance learning support than non-TechSmart teachers during the transition. Teachers have continued to receive valuable coaching supports for online instruction.
- In SY 19-20, around 60% of teachers across all four cohorts reported that students have adequate access to technology in their classroom. While this represents an improvement since baseline, the data suggest there is room for growth. Some teachers reported that the 2:1 technology to student ratio was a barrier to instruction and recommended 1:1 access. Further, teachers' ratings of access specifically refer to technology access *in their classroom*, which does not necessarily reflect current distance learning circumstances.
- Teachers across cohorts were generally satisfied with the professional development model, highlighting the positive impact of TechSmart coach support and TechSmart Lab days on teachers' use of new instructional strategies utilizing technology. Survey data indicate notable evidence of growth in teachers' technology skill levels from baseline to Spring of 2020 for all four TechSmart cohorts. One area of improvement that emerged from the data is the need for more shared learning opportunities both between teachers and across districts. Currently, TechSmart coaches are the primary vehicle for cross-district collaboration through the Google Chat platform. While this is helpful in the short-term, evaluators recommend building lasting connections across districts through networks of administrators and teachers to sustain shared learning in the long-term.
- Interview and survey data reveal that Seesaw and Lexia are very effective tools for differentiating instruction and enhancing literacy instruction. Some teachers also expressed that Seesaw is a useful tool for communicating with families. Teachers' repeated emphasis on improving literacy instruction and differentiating to meet student needs align with PPS' overarching goals to improve K-3 literacy outcomes and to prioritize an equity lens as outlined by the EBBL framework.
- Student achievement data suggest that Cohorts 1 and 2 are outperforming their non-TechSmart comparison groups on the DIBELS assessment. Further, Cohort 2 trends are particularly promising as they suggest the achievement gap between SPED and non-SPED TechSmart students is closing. Fall 2019 DIBELS data indicate that around 85% of both SPED and non-SPED TechSmart students are performing at benchmark. There is a similarly positive trend for closing the achievement gap between students of color and white students in Cohort 2. In SY 19-20, the achievement gap on the DIBELS assessment narrowed the only a 3% difference between TechSmart Cohort 2 students of color and white students. While student achievement data do not reveal the same narrowing of the achievement gap for LEP and non-LEP TechSmart students, teachers emphasized the positive

impact of the new instructional strategies on LEP student outcomes. Cohort 3 student achievement data do not reveal a notable difference between treatment and comparison groups. Cohort 3, however, has had the least intervention time of the three cohorts between baseline and Spring 2020, and future analysis with additional years of data will provide a more meaningful picture of the impact of TechSmart on Cohort 3 student outcomes.

- Notably, interview data reveal that in SY 19-20, most PPS educators felt supported by district leadership regarding technology integration and survey data echo this finding. Educators emphasized the value of the improved, visible leadership under the new IT learning technology department.

Centennial School District
SY 19-20 TechSmart Evaluation Report
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Prepared by:
Pacific Research and Evaluation, LLC

November 2020

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PROJECT SUMMARY

Centennial School District's (CSD) MHCRC TechSmart grant focuses on improving student outcomes in math and science in grades 7 to 9 through an integrated, hands-on, student-centered approach referred to as Project-Based Learning (PBL). Over four school years of implementation, which began in school year 2018-2019 (SY 18-19), CSD aims to improve achievement across all students, but especially to close achievement gaps between groups of students, including historically underserved populations. Specifically, desired project outcomes include: (1) teachers knowing how to develop effective PBL units; (2) teachers effectively implementing PBL practices and strategies; (3) use of technology-supported PBL instruction that supports student creativity, collaboration, communication, and critical thinking; and (4) improving student outcomes. All outcomes incorporate use of culturally relevant practices and meaningful, transformative technology.

CSD chose to focus on these outcomes based on an intensive, district-wide strategic planning process conducted during SY 17-18, which included examination of multiple types and sources of data. Some of these data showed that student achievement in math has declined in recent years. Other data showed noticeable achievement gaps in math and science for all historically underserved groups. Student survey data indicated low levels of student choice in learning and lack of authentic engagement in learning. Teacher survey data indicated a need for more support and resources for teachers, particularly to help differentiate instruction and implement classroom technology.

METHODS

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Survey and interview quotes have been edited for grammar and brevity. Data collection efforts for the SY 19-20 evaluation in CSD are summarized below.

Teacher Survey: The teacher survey was administered online to teachers at baseline and in May of 2020. Four teachers from Cohort 1 completed the survey at baseline in Fall 2018 and three teachers from Cohort 2 completed the survey at baseline in Fall of 2019. Ten teachers total completed the Spring 2020 follow-up survey.

Teacher Interviews: PRE conducted phone interviews with three teachers involved in the TechSmart grant in Centennial School District. One teacher was from Cohort 1 and two teachers were from Cohort 2.

District Leader Interviews: PRE conducted two interviews with leaders from CSD including the middle school principal and the STEM coach.

Student Surveys: A student survey was administered in May 2020 and completed by 193 students. A majority (82.3%) of participating students were in 8th grade.

Leadership Observations: Observations were scheduled to be completed in Spring of 2020 but were not completed due to the COVID-19 pandemic.

Student Achievement: Math credit attainment was examined for Cohort 1 students and a concurrent Comparison Group and analyzed by at-risk subgroup.

The primary vehicle for instructional changes at CSD centers on the PBL approach, which CSD plans to use to work with students to design interdisciplinary projects that apply to real-world problems. The first phase of the project focused on Cohort 1 teachers, which included four 7th and 8th grade math and science teachers. In the second year (SY 19-20), CSD onboarded Cohort 2, which consisted of the remaining 7th and 8th grade math and science teachers. In the third year (SY 20-21), CSD will onboard the final cohort, Cohort 3, which will include all 9th grade math and science teachers. Throughout the first three years of implementation, a full-time STEM coach will work with each cohort, supporting those teachers that have been onboarded and building capacity in those teachers who have not yet been onboarded. The final year of the project will focus on sustaining implementation, with no new teachers and half-time STEM coach support.

During each year, teacher cohorts create and implement two integrated math/science PBL units and self-reflect using rubrics to evaluate effectiveness of the projects. Following revision, PBL units will be archived and curated for other participating teachers to develop a digital community of practice. Teachers receive three days of training about PBL, as well as on-site support from a full-time STEM coach throughout the year. SY 19-20 was CSD's second year of implementation and this report presents data from Cohort 1 and Cohort 2. Spring 2020 survey data are combined for the two cohorts in order to create adequate sample sizes for reporting.

FINDINGS

The evaluation findings from the SY 19-20 evaluation at Centennial School District are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Within CSD, TechSmart-related professional development (PD) activities began with a three-day training about PBL for each cohort. The training is designed as an immersive seminar and during the first two years of the grant was facilitated by the Buck Institute for Education (BIE), a partner for the project. During year three, the same trainer provided instruction but not through BIE. Topics included foundational understanding of PBL, culturally relevant practices, using rubrics to create high-quality PBL opportunities, family engagement, designing a PBL unit, and ELL scaffolds for language development. Cohort 3 teachers completed this PBL 101 training on Feb. 12-14, 2020. This training included five teachers from Centennial Middle School (4 science and 1 math teacher) and eight teachers from Centennial High School (five 9th grade math, and three 9th grade science).

A classroom redesign training was offered on May 27th and June 4th, 2020, which allowed Cohort 1-3 teachers to explore research on how classroom design impacts student engagement and collaboration and to identify design changes needed to better support PBL in their own classrooms. Workshop participants identified functional changes needed in their classroom, and began work on what design

changes (furniture, flow, etc.) would allow new functions. Additional training during SY 19-20 included PBL 101 Unit planning for Cohort 2 and 3 teachers.

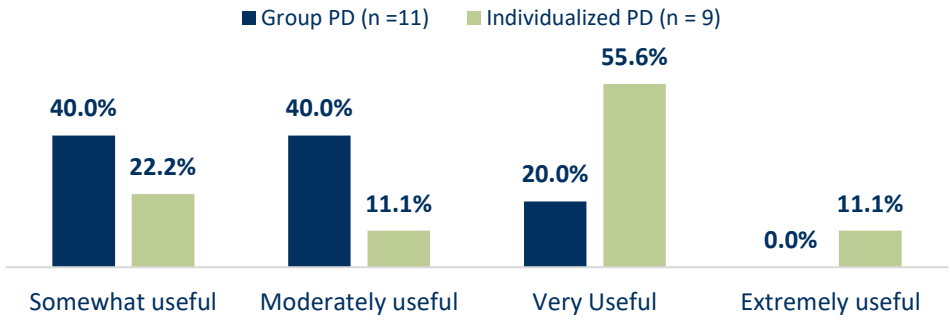
The other primary component of TechSmart PD is the full-time STEM coach, dedicated to integrating pedagogy and technology tools. One of the issues determined during project planning was that teachers have varying levels of skill and comfort with technology, despite shared enthusiasm about implementation. The full-time STEM coach allows for differentiation among teachers, providing different levels and types of support to each teacher based on their needs, experience, interests, and skills. In addition to providing support to participating cohorts that have been onboarded, the STEM coach is tasked with building capacity for those cohorts that have not yet been onboarded. All cohorts have access to technology for experimentation and receive support to take initial steps toward technology integration, logistics and device management, and use of Google tools and apps.

As shown in Table 1, the majority of TechSmart teachers reported receiving between **1-8 hours of both group and individual PD** during the 19-20 school year. Individual PD was rated as more useful than group PD (see Figure 1).

Table 1. Centennial School District Hours of Group PD (n = 11)

Hours of Group PD	Group PD	Individual PD
0 hours	0.0%	10.0%
1-8 hours	60.0%	70.0%
9-16 hours	20.0%	20.0%
17-32 hours	10.0%	-
33+ hours	10.0%	-

Figure 1. Centennial End of Year Teacher Ratings of PD Usefulness



One teacher described the PD during SY 19-20, "There was the three-day training over summer. And then in committee meetings we would meet in small groups and talk about projects we are working on. It was pretty structured. We'd start with a little reading and discuss that topic and then discuss the projects. We'd trouble shoot, give feedback, that sort of thing." This teacher was also involved in the TechSmart committee the prior year and noted, "This year there wasn't a lot of PD. The previous year we had more committee meetings. And we did a lot of training and group work in that committee. This year there were some issues with scheduling, we have a new administration, and I just remember that the schedule of meetings and committee meetings was a little disrupted."

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

How is professional development impacting teacher instruction?

Key Findings:

- The use of technology to support instructional practices was reported as a common practice by 50% of TechSmart teachers who completed the survey.
- Teacher self-reported technology skill level decreased from baseline to Spring of 2020. At baseline, 85.7% of survey participants rated their skill level at a four or five compared to 50.0% in the Spring of 2020.
- Additional focus on PD activities is needed in order to create change in teacher instruction.

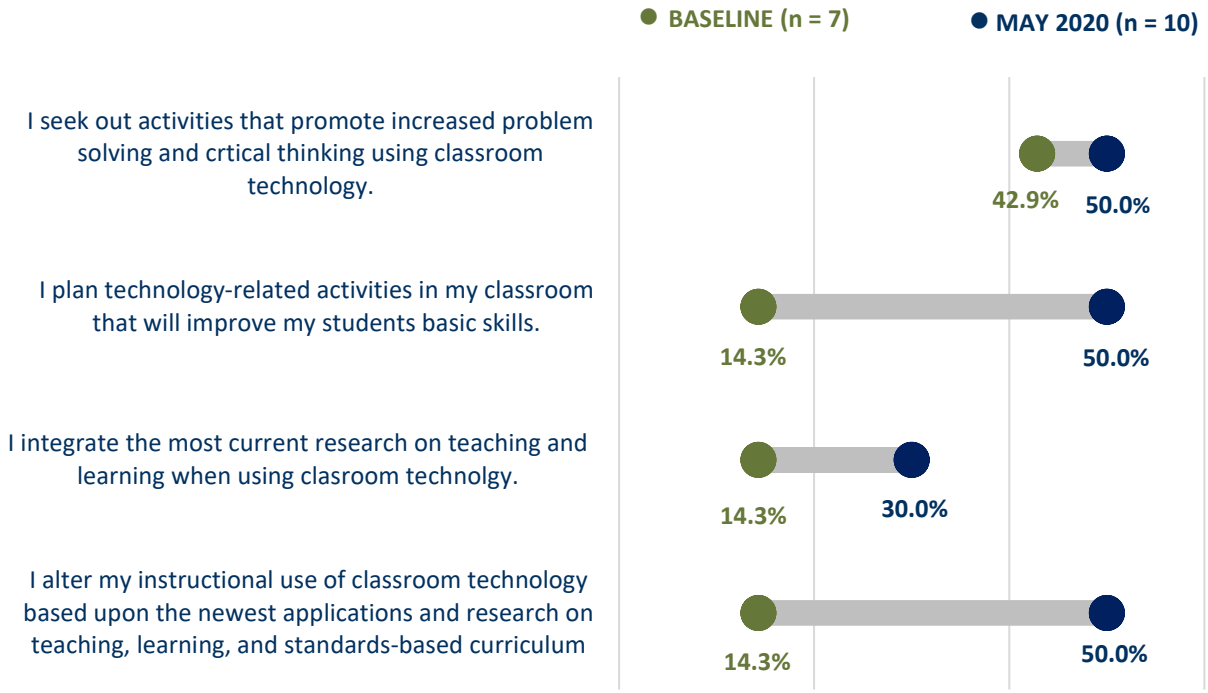
The teacher survey asked how effective the PD model has been in impacting teacher instruction. The four teachers who responded to this question shared a mix of opinions about the PD (see Table 2). In one teacher interview, the 1:1 coaching model was highlighted as the most effective PD for supporting instructional change due to the fact that teachers are at many different levels with their technology experience and the coach is able to meet them where they are. Another teacher echoed this sentiment, "I think having the STEM coach has been critically important. Access to someone who can do some research and help answer questions is what will make this work sustainable." Specific examples of support from the STEM coach included access to and support with genetic experiments equipment and the creation of online white boards where students can post anonymously. In the interviews, one teacher commented that a training they attended through pocket labs was useful and that the STEM coach followed up with support for planning pocket lab experiments during SY 19-20.

Table 2. Centennial School District Feedback on PD Model (n = 11)

It is very useful for teachers who have had little to no experience in integrating technology into their curriculum. I think a pathway for teachers to expand their use would have been more beneficial for me.
I like the idea of PBLs and incorporating more tech into our classrooms, but it is a challenge with the structure of our school. I do enjoy just learning about new technology and trying it out (WeVideo, for example). I think it is great to have the kids using different tools.
Very helpful. She is excellent at previewing lessons and providing ways to integrate technology.
I think it should be during staff meetings. Not having separate meetings.

Teachers reported the extent to which they are integrating technology into various instructional practices at baseline and in the Spring of 2020. Although the use of technology specific instructional strategies has increased over the course of the grant, only 50% of teachers indicated the statements were true or very true of their teaching practice (See Figure 2).

Figure 2. Centennial Instructional Strategies
(% True of Me/Very True of Me)



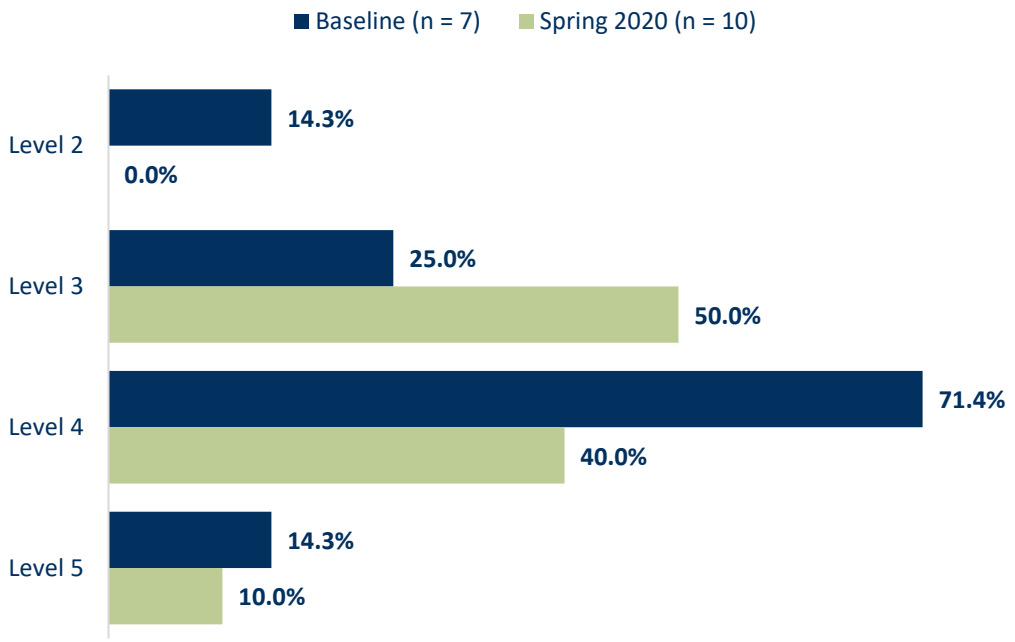
Teachers rated their technology skill level on the beginning-of-year and end-of-year surveys by placing themselves at one of the following five levels:

TECHNOLOGY SKILL LEVEL

1. I get someone else to do technology-based tasks for me.
2. I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.
3. I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.
4. I use a variety of technology tools and I use them efficiently for all aspects of my job.
5. I use technology efficiently, effectively, and in creative ways to accomplish my job.

There was a decrease in teachers' self-reported technology skill level from baseline to Spring of 2020. **At baseline, 85.7% of survey participants rated their skill level at a four or five compared to 50.0% in the Spring of 2020.**

Figure 3. Centennial Teachers' Technology Skill Level



TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

What new instructional strategies are teachers reporting?

Key Findings:

- Teachers most commonly reported using technology to differentiate instruction and to create online lessons and learning activities.
- Teachers reported most frequently using technology to support instruction for planning and preparation, engaging students in learning, and demonstrating flexibility and responsiveness.
- Teachers provided examples of how the technology is being used to support project-based learning, particularly in terms of increased collaboration among students.

Teachers provided examples of new technology related instructional strategies that they believe have been effective in their classroom instruction and rated the strategies on a scale of one to five, with five being the most effective. Table 3 shows the ways in which teachers described use of technology, along with average effectiveness ratings. Teachers most commonly reported **using technology to differentiate instruction and to create online lessons and learning activities**. In addition to the strategies listed below, teachers also listed tools such as Google slides, Kahoot!, Labs, and Quizzes.

Table 3. How New Technology is Being Used for Instruction

Instructional Supports	Effectiveness Rating
Differentiating	**3.2** (n = 5)
Creating online lessons and learning activities	**2.0** (n = 5)
Formative Assessment	**4.5** (n = 2)
Using technology to create hands on activities	**4.0** (n = 2)
To increase student engagement	**4.0** (n = 2)
Group work	**3.0** (n = 2)
Using technology to create models	**3.5** (n = 2)
Large group instruction	**4.0** (n = 1)
Other (Gather data like a scientist, physical space, daily routines, fostering discussion/collaboration)	--

Teachers were asked to self-assess their use of technology to support instruction using a rubric on the year-end survey. Teachers rated their use of technology to support instruction highest in the areas of **planning and preparation, engaging students in learning, and demonstrating flexibility and responsiveness** (See Table 4).

Table 4. Technology Used for Supporting Instructional Practices
(1 = Not At All, 2 = Very Little, 3 = Somewhat, 4 = To a Great Extent)

	(n =10)
Planning and Preparation	3.5
Managing Classroom Procedures	3.0
Organizing Physical Space	2.5
Communicating with Students	3.2
Using Questioning and Discussion Techniques	2.9
Engaging Students in Learning	3.5
Using Assessment in Instruction	3.4
Demonstrating Flexibility and Responsiveness	3.5

In a quote pulled from the year-end status report, a teacher summarized the recent use of technology to create video: "Students have used technology to research, learn, do simulations, record/edit video, collaborate on video scripts, and receive feedback." Another teacher provided an example of a successful PBL unit in their interview:

> *We did a team-wide PBL on redesigning an intersection. There is an intersection near our school that comes together at odd angles and we had students redesign it and it incorporated all four subject areas. We had guest speakers, discussed force and impact, and the students really enjoyed it. I was excited to do this again but we were not able to because of the closure.*

This teacher went on to say that PBL is challenging to think about during distance learning because students are not engaging in the same way they would be in the classroom. The teacher explained that

PBL is always on their mind in terms of thinking about how it could work with distance learning, but until students start to engage, it will be difficult to implement.

Another teacher described how they are just beginning to explore the hardware the grant has provided but has found the tools limited in terms of open ended exploration and collaboration and also commented that the tools take time to teach to students. She noted success in using NearPod and Desmos to increase collaboration among students:

> *Our tech coach introduced me to NearPod, which has the capability to have interaction because students can enter their answers and the rest of the class can see it. It's similar to Desmos in that way. I'm using a free version, because you know the District isn't going to pay for the corporate version so it's very limited. Those two are the big ones because they allow kids to work through a slide show and answer questions while other students in the class can see their answers.*

Another teacher commented on how her classroom looks differently as a result of the technology, "The amount of tech and usage has gone up in my classes because I'm able to lecture and I get to take advantage of the time when they're doing things on their own."

> *"During both of the PBL units that my students did between January 2020 and the closure, students worked in small groups to create a plan. The first was a meal plan on a budget. The second was a plan to provide the school with safe drinking water in the event of an emergency. Students did a lot of research online to create their plans."* -Teacher Interviewee

Barriers to project-based learning (PBL) were mentioned specifically with regard to the level of collaboration involved with PBL and the difficulty in training kids to do PBL as there is a big learning curve for students in terms of communication. A key barrier that teachers were facing the end of SY 19-20 is the ability to engage students in PBL through distance learning.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

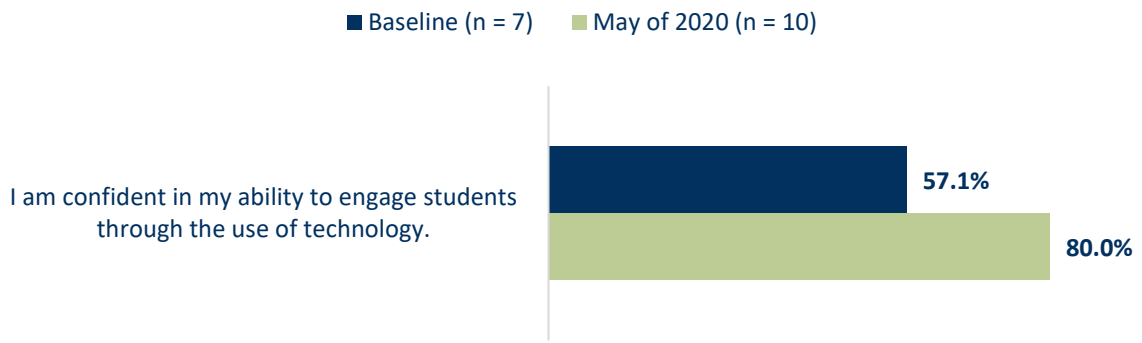
How are the new instructional strategies impacting student engagement?

Key Findings:

- There was a general trend in SY 19-20 of decreased engagement from students around the use of technology for instruction. This was likely due to the shift to fulltime distance learning that took place as a result of the COVID-19 pandemic.
- The majority of students (67.4%) responded that they would like to see about the same amount of technology used next year. A total of 13.0% of students desired even more technology use, and 19.7% desired less technology in the next year. Again, this may be reflective of students' desire to return to school.
- Of the 169 students who answered the survey question, 38.5% indicated that their prior experience with technology had helped them in distance learning. Twenty-two percent (21.9%) indicated it helped because they were already familiar with the technology being used and a small percentage of students (6.0%) indicated they prefer distance learning.

Teacher confidence in their ability to engage students through the use of technology increased from baseline to May of 2020 as shown in Figure 4 below.

Figure 4. Centennial Teachers Confidence in Ability to Engage Students



On the student survey, students rated the effect of technology on their classroom engagement by completing the statement, "I generally _____ using more technology in my classes this school year." **A quarter (24.9%) of students enjoyed using more technology in their math and sciences classes compared to 52.9% the prior school year**. Most students (60.6%) felt neutral about the use of technology.

Figure 5. Centennial Students' Feelings About Increased Use of Technology in Classrooms (n = 193)

Similarly, students rated their enjoyment of technology in class more broadly by completing the statement, "I generally _____ learning in class when technology is incorporated." Figure 6 shows student responses. The majority of students appear to feel neutral about the use of technology in their math and science classes and **32.6% of students said they enjoy learning when technology is incorporated in contrast to 45.9% the previous year**.

Figure 6. Centennial Students' Feelings About Learning when Technology is Incorporated (n = 193)

Figure 7 displays students' agreement with several statements about their feelings toward learning when technology is used. Students' feelings about learning with technology were less favorable in SY 19-20 than in SY 18-19. It is important to point out that students completed this survey after they had transitioned to distance learning as a result of school closures. Although students were asked to complete this survey thinking about their experiences **"prior to distance learning"**, it is possible that the experience with distance learning impacted student feedback.

Figure 7. Centennial Students' Feelings About Learning and Technology (% Agree/Strongly Agree)

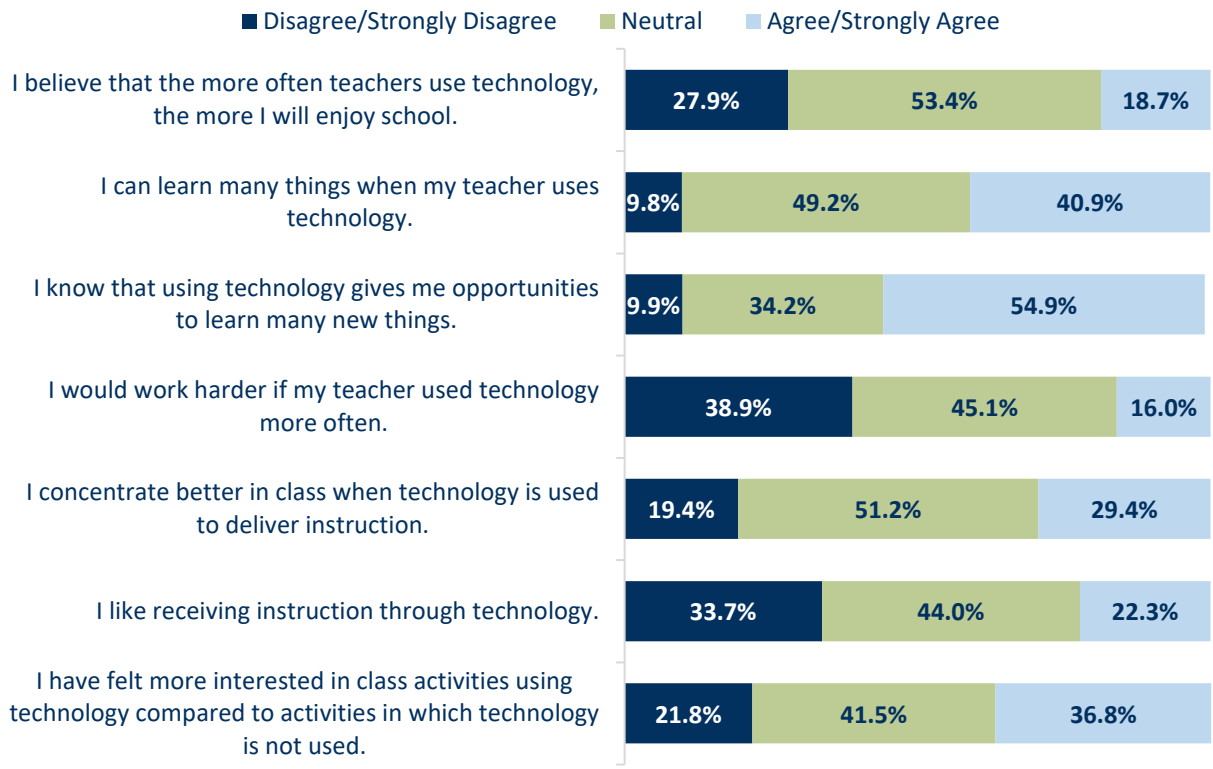


Figure 8 displays students' responses when asked to complete the statement, "After using more technology in my classes lately, I hope my teachers next year use…" The majority of students (67.4%) responded that they would like to see about the same technology use next year, indicating the level of technology use was satisfactory for most students. A total of 13.0% of students desired even more technology use, and 19.7% desired less technology in the next year. Again, this could be reflective of students' desire to return to school.

Figure 8. Centennial Students' Feelings Towards Future Technology Use

Students described whether their experience with technology has helped during the shift to distance learning. Of the 169 students who answered the question, 38.5% of them indicated that their prior experience had helped them in distance learning. Twenty-two percent (21.9%) indicated it helped because

they were already familiar with the technology being used and a small percentage of students (6.0%) indicated they prefer distance learning.

"Since the beginning of the year we've had assignments on the Chromebooks, so I would say it has helped with the change."

"It has helped because I prefer working on my own time and pace by myself."

"It lets me get my schoolwork done at home, and that's about it. I like to use paper and pencil rather than the computers."

– Student Quotes

Twenty-six percent (26.2%) of students who completed the survey indicated that their experience with technology did not help with the shift to distance learning and 16.6% said that they prefer face to face instruction over distance learning.

Teachers provided examples of how student engagement has been impacted by the technology enhanced instruction. One teacher discussed how programs like NearPod and Desmos allow students to share answers with the class without raising their hand which is helpful for increasing participation with shy students. Another teacher gave an example of how she is using Google forms to collect formative data in order to adjust the classroom instruction:

In the past, I might try to have each kid show me their answer on a whiteboard but in a classroom of 30 it is hard to see all 30 whiteboards. Now I give them a quick question in Google Forms and I get metrics right away. I can see all their answers in a graph and I can immediately identify the kids who are struggling.

On the year-end status report, one teacher described how the technology helps provide students with increased confidence, "There is an increase in participation when all students are able to use Chromebooks. Students seem far more comfortable providing written explanations than they do answering the same questions out loud. Having the Chromebook allows them to take the time to process before answering a question. Using certain websites also gives them anonymity which makes every middle schooler more confident."

One teacher said student engagement is "Sky high" when they are able to use the technology for PBL units. They provided an example of how students used velocity guns to measure how fast a ball was going when they threw it against the wall. "Students were buzzing about the activity throughout the day and by the end of the day, students were coming into class having heard about the activity and excited to get a chance to do the experiment." Another teacher shared how the use of touchscreens has been helpful for differentiating instruction as students are able to work at their own pace, "For some students, the touchscreens helped to expedite their ease in work completion. For most students, they were able to go deeper into topics because they were not limited by a single class pace; they could go faster or slower." Teachers report that student engagement has been much lower in distance learning.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Are the new instructional strategies showing promise for improving academic outcomes?

Key Findings:

- Math credit attainment was examined for Cohort 1 students and a Comparison Group during the year prior to TechSmart implementation and in Years 1 and 2 of the grant. During the first year of implementation TechSmart students had significantly higher math credit attainment than the Comparison Group. This trend did not sustain into the second year of implementation.
- Due to the fact that Cohort 1 project teachers were all teaching Math, only Math credit attainment was examined for this evaluation. Science credit attainment will be included in the next evaluation.
- On the 2019-20 student survey, 24.2% of students reported that technology helped them learn more (compared to 40% in 2018-19) and 54.4% reported that technology did not impact their learning.

Student Achievement Data

In order to examine the impact of the TechSmart grant on student achievement outcomes, math credit attainment was examined for Cohort 1 students and a Comparison Group during the year prior to TechSmart implementation and in Years 1 and 2 of the grant. Cohort 1 includes students who had a one of the four TechSmart project teachers during SY 18-19. Cohort 1 project teachers were all 8th grade Math teachers and as a result, only math credit attainment was examined for Cohort 1 students. The Comparison Group for Cohort 1 consists of students who were in 8th grade in SY 18-19 but did not have a TechSmart project teacher for Math. The sample size for Cohort 1 and Comparison Group students is detailed below. Data were available for Cohort 1 Treatment and Comparison students for their 7th, 8th, and 9th grade years. Cohorts were created during 2018-19 Math course enrollment.

Table 5. Cohort 1 Sample Size

	Year	Cohort 1	Cohort 1 Comparison
Prior to implementation	2017-18 (7th)	104	263
Year 1 of implementation	2018-19 (8th)	117	345
Year 2 of implementation	2019-20 (9th)	95	286

Figure 9 below presents the at-risk indicators for the Cohort 1 Treatment and Comparison Group students in CSD. Sixty-percent (59.8%) students in Cohort 1 are students of color and this percentage is slightly higher in the Comparison Group. Cohort 1 had 14.5% of students with Limited English Proficiency (LEP) and 17.1% were Special Education students, which are both slightly lower than the Comparison Group.

Figure 9. CSD Cohort 1 and Comparison Group At-Risk Indicators (n =117)

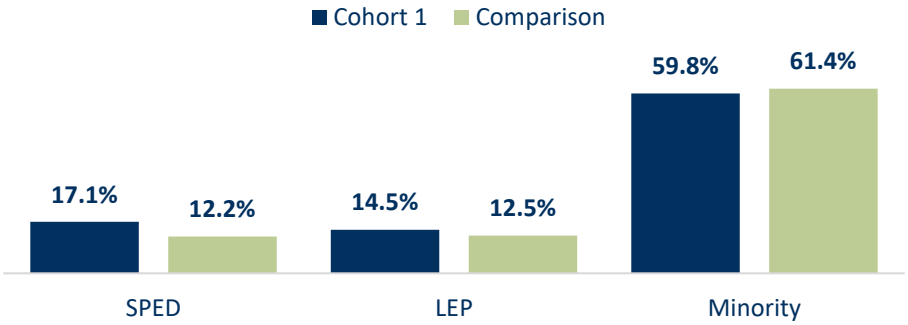
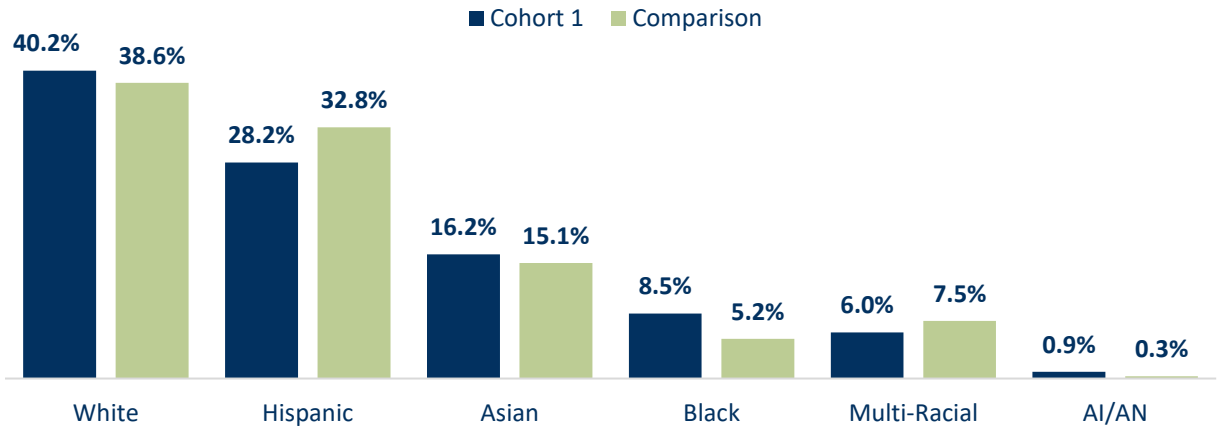


Figure 10 below provides a summary of the breakdown of student race/ethnicity in Cohort 1 and the Cohort 1 Comparison Group and shows a higher percentage of Hispanic and multi-racial students in the Comparison Group.

Figure 10. CSD Cohort 1 and Comparison Group Race/Ethnicity (n = 117)



The Centennial TechSmart grant focuses on improving student achievement in math and science, as measured by math assessment data, math and science credit attainment data, and English learners' progress. As mentioned previously, Cohort 1 only include Math project teachers so Science credit attainment is not a focus of this report. In addition, Math SBAC score were not available in SY 19-20 due to the COVID 19 pandemic and are not included in this report.

To explore whether instructional practices are showing promise for improving students' credit attainment, PRE examined math credit attainment for Cohort 1 students and their Comparison Group in the year prior to grant implementation (2017-18) and the following two years.

Math Credit Attainment

When examining changes in credit attainment over time, it is important to note that in 7th and 8th grade, the total possible math credit attainment is .90 credits per year (.30 per term), and in 9th grade the total possible math credit attainment is 1.0 credits per year (.50 per term). Thus, it is difficult to compare math credit attainment between 8th and 9th grade.

Table 6 shows that that Cohort 1 TechSmart students and their Comparison Group had similar math credit attainment in the year prior to TechSmart implementation. During the first year of implementation TechSmart students had significantly higher math credit attainment, $t(413) = 1.27$, $p < .05$. This trend did not sustain into the second year of implementation.

Table 6. Cohort 1 Math Credit Attainment

	Cohort 1	Comparison
17-18 (7th grade)	0.87 (101)	.87 (263)
18-19 (8th grade)	0.84 (104)*	.80 (311)
19-20 (9th grade)	0.93 (92)	.94 (286)

**Denotes a significant difference, p<.05*

Due to the fact that many students in the Cohort 1 Comparison Group will be exposed to TechSmart in 19-20, for future TechSmart reports we recommend creating a historical Comparison Group starting in SY 14-15 in order to create a Comparison Group with no TechSmart exposure over the entire course of the grant.

Figure 11 shows student reports of the effects of technology on learning. Approximately 25% of students reported that technology helped them learn more (compared to 40% in 2018-19), while over half of students (60.6%) reported that they learned the same amount whether they had technology or not. Fifteen-percent (15.0%) of students reported that technology slowed their learning.

Figure 11. Centennial School District Effects of Technology on Learning (n = 193)

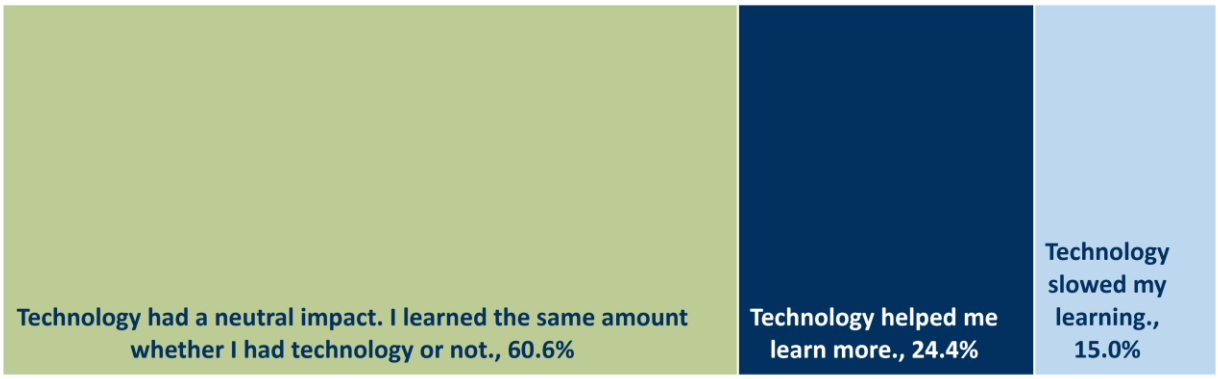
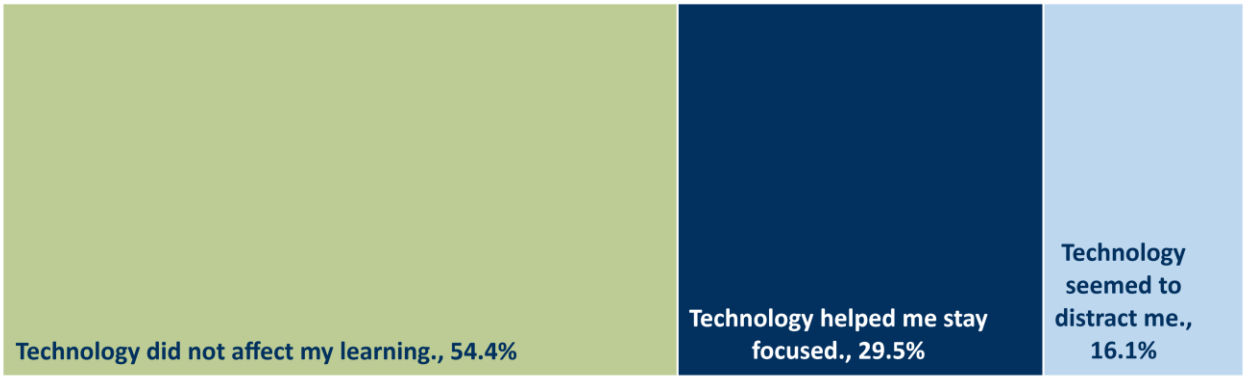


Figure 12 displays student responses regarding their experience with technology in the classroom and ability to focus. **About 30.0% of students responded that technology helped them stay focused compared to 48.0% in 2018-19.**

Figure 12. Centennial School District Effects of Technology on Classroom Focus (n = 193)



In an interview, one teacher described how they have anecdotally seen improvement in student outcomes prior to distance learning noting, "I think the grant work was definitely improving academic outcomes because anytime you have higher engagement, it improves outcomes." They described how students were prepared for certain units due to PBL work and how this has not been able to happen in a distance learning environment.

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Do instructional practices show promise for improving student academic outcomes with at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

- At this point, there is no compelling evidence that the TechSmart implementation is impacting growth in math credit-attainment for at-risk subgroups, but additional years of data will allow for more meaningful analysis.
- Cohort 1 students were outperforming their Comparison Group on ELPA 21 in 8th grade.
- Teachers provided examples of how technology and PBL supported instruction has been helpful for differentiating instruction for at-risk subgroups as well as the use of technology for translation support.
- Although teachers are finding ways to differentiate instruction and provide accessible content to student subgroups, leadership acknowledges this is an area for increased focus in the future.

Student Achievement Data

To better understand whether technology-supported instructional practices are showing promise for improving academic outcomes with at-risk student subgroups, math credit attainment was examined by subgroup for Cohort 1 students and their Comparison Group. As shown in Table 7 below, students of color show a similar trend as the full Cohort 1 sample with a slight decrease in math credit attainment from 7th to 8th grade. This decrease was more drastic for SPED students but was not statistically significant. LEP students showed no change from 7th to 8th grade.

As mentioned previously, comparing growth from 8th to 9th grade is difficult due to difference in accrual of credits in middle and high school. At this point, there is no compelling evidence that the TechSmart implementation is impacting growth in math credit-attainment for at-risk subgroups but additional years of data will allow for more meaningful analysis.

Table 7. Average Math Credit Attainment for Cohort 1 At-Risk Subgroups

	7th Grade (17-18)		8th Grade (18-19)		9th Grade (19-20)	
	Cohort 1	Comparison	Cohort 1	Comparison	Cohort 1	Comparison
All Students	.87 (101)	.87 (263)	.84 (104)	.80 (311)	.93 (92)	.94 (286)
LEP Students	.80 (12)	.80 (21)	.80 (12)	.65 (32)	.80 (15)	.86(33)
SPED	.82 (11)	.84 (21)	.65 (11)	.77(30)	.88 (16)	.88 (30)
Students of Color	.88 (59)	.86 (155)	.84 (61)	.79 (188)	.94 (62)	.93 (174)

ELPA Assessment

Table 8 below presents the ELPA21 results for Cohort 1 students and their Comparison Group in 7th and 8th grade. Cohort 1 students were outperforming their Comparison Group on ELPA 21 in 8th grade with over 85% of Cohort 1 students scoring in the "Progressing" category in 8th grade compared to 63.4% of Comparison Group students.

Table 8. ELPA21 Results

Proficiency Determination	Cohort 1 7th Grade (n =15)	Comparison 7th Grade (n =28)	Cohort 1 8th Grade (n =16)	Comparison 8th Grade (n =41)
Emerging	13.3% (2)	21.4% (6)	6.3% (1)	34.1% (14)
Progressing	80.0% (12)	64.3% (18)	87.5% (14)	63.4% (26)
Proficient	6.7% (1)	14.3% (4)	6.3% (1)	2.4% (1)

Teachers and leaders discussed how technology and PBL supported instruction has impacted learning outcomes for at-risk subgroups. One teacher commented on how the technology is great for differentiating instruction to students at all levels. They commented, "I think it helps with more differentiation and more flexibility on how kids can approach the materials in order for all learners to benefit from it." They also commented on students' access to content in different languages through translation features. Two interviewees commented on the increased use of translation features to improve accessibility of content to students with an IEP or English Learners.

On the year-end survey, teachers discussed the strategies they have used with at-risk subgroups. Table 9 lists teachers' comments from the year-end survey. Differentiation was the primary theme from these

responses followed by increased opportunity for student collaboration and participation through the use of technology.

Table 9. Teachers' Use of Technology-Supported Instruction with At-Risk Subgroups

Adding leveled readings and assessments without anyone knowing. Providing extra practice, providing visuals and pictures. Providing alternate ways to show learning.
Building alternate pacing models for ELL students and students with IEPs.
Using technology to make quick, targeted formative assessments and to differentiate instruction.
Assigned tasks based on need (individualized).
Using technology allows students to ask questions, voice opinions, and participate in discourse without speaking up in class.
I have used Desmos activities for student practice in class. I have used other online activities like Quizlet live and PBL activities that help students interact and teach each other.
For ELL and SpEd students, I have used videos and PDFs via Chromebooks more than I did in previous school years; this has provided additional perspectives and more background information, tailored to what the students can grasp at their level.
Allowing students to have quick accessibility to Google translate and other translation tools, tools to help with reading, color coded assignments.
Low SES students received more training in utilizing technology and also the ins and outs of managing technology - so they got beyond the skills needed to navigate a smart phone. SpEd students got different tests/ assessments -for instance an autistic student received Google Slides tests so he could do drawings/ diagrams instead of answering questions. This was much more effective.

One teacher described how the work being done through the grant has been beneficial for students with an IEP, "With the IEP students I have seen quite a bit of closing the gap because there is more time in small groups. In traditional learning, you learn and then you take a test to show what you learned. With PBL you learn and have 5 days to show what you learned. It gives students more processing time and group support that some really benefit from. PBL also provides the opportunity to show knowledge in really different ways such as through pictures, google slides etc."

Although teachers are finding ways to differentiate instruction and provide accessible content to student subgroups, there is not yet evidence of closing the achievement gap as noted in one leadership interview, "I would guess that we are not really addressing our EL gap very well." Another leader echoed this sentiment:

> *When I look at grades compared to last year to this year, I don't believe that the achievement gap was reduced during the first two trimesters with regard to grades. Our Asian and our white students were outperforming our African-American and our Hispanic students.* -CSD Administrator

In the year-end status report, leadership detailed how there are plans to focus on the use of grant funded technology to support equity in the 2020-21 school year, "Our district strategic plan prioritizes equity in all that we do. This will be an area of focus with grant-funded technology during the 2020-21 school year." They explained how the district is

working to strengthen the K-12 coaching program in order to increase teacher capacity to support the implementation of culturally responsive instructional practices and to "advocate for educational equity, in order to improve engagement and learning for all students."

TEACHING EFFECTIVENESS

Districts support regular, inclusive and shared professional development among teachers.

Is the rate of student growth in one or more AHR outcomes greatest for at-risk student subgroups (i.e., students of color, low SES, LEP, special education (or those with an IEP), and those not on track to meet academic standards)?

Key Findings:

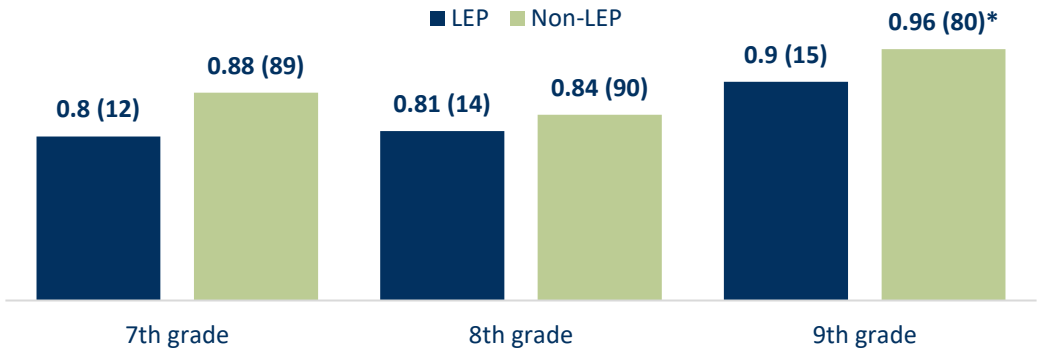
- There is no evidence of an achievement gap between students of color and white students in terms of math credit attainment. In 9th grade, students of color had higher math credit attainment than white students.
- The achievement gap between SPED and non-SPED TechSmart students on math credit attainment decreased between the first and second year of the grant.

PRE examined math credit attainment data for Cohort 1 to assess how student progress may differ for at-risk subgroups as compared to non-at-risk subgroups. Results are presented below and include data from: Cohort 1 students in 7th, 8th, and 9th grade.

Math Credit Attainment

As shown in Figure 13 below, non-LEP TechSmart students earned more math credits in the year prior to TechSmart (7th grade) and this trend continued during grant implementation. In 9th grade, non-LEP students were earning significantly more credits than LEP students, (t (93) = 3.39, p <.05).

Figure 13. Math Credit Attainment for LEP Subgroup



**Denotes a significant difference, p <.05*

Figure 14 shows math credit attainment for Cohort 1 TechSmart students of color and all other students in 7th, 8th, and 9th grade. There were no significant differences between these two groups in any year. In 9th grade, students of color had higher math credit attainment than white students.

Figure 14. Math Credit Attainment for Students of Color

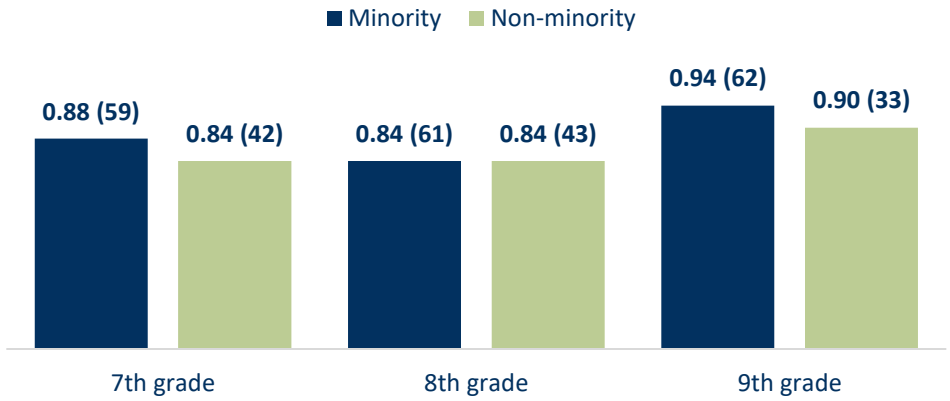
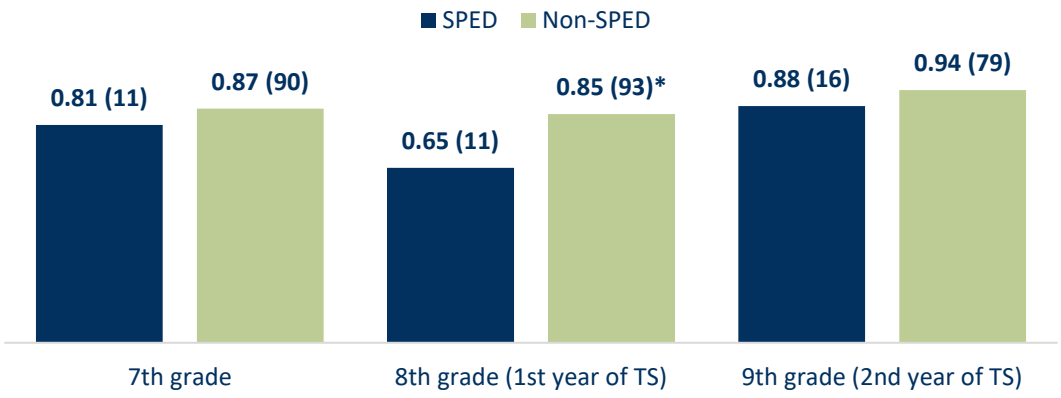


Figure 15 shows math credit attainment for Cohort 1 SPED TechSmart students and non-SPED TechSmart students. In 7th, 8th, and 9th grade, non-SPED students earned a higher number of math credits on average. The achievement gap between SPED and non-SPED TechSmart students decreased between the first and second year of the grant.

Figure 15. Math Credit Attainment for SPED students



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

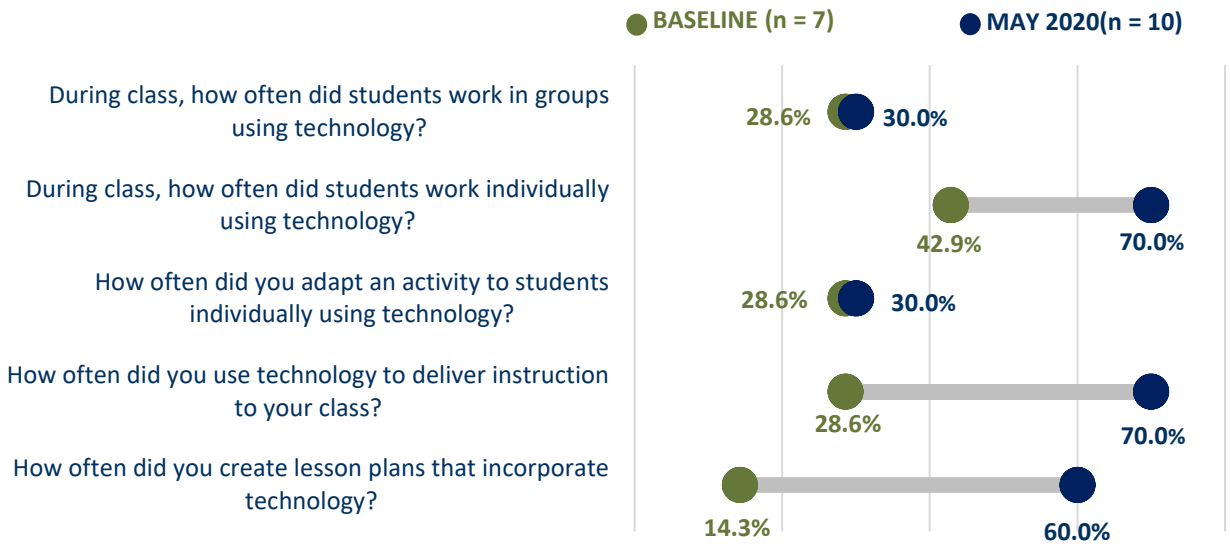
Has the use of technology to support instructional practices increased?

Key Findings:

- By May of 2020, 70% of TechSmart teachers who completed the survey reported using technology to deliver instruction a moderate amount to a great deal, which represents an increase of 41.4% over baseline.
- By May of 2020, 70% of TechSmart teachers who completed the survey reported that students are working individually using technology a moderate amount to a great deal, an increase of 27.1% over baseline.

In terms of frequency of technology use, the areas that saw the greatest increase from teachers were **the general use of technology to deliver instruction and the frequency in which teachers create lesson plans that incorporate technology** (See Figure 16).

Figure 16. Centennial Frequency of Technology Integration (% A Moderate Amount/A Great Deal)



DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

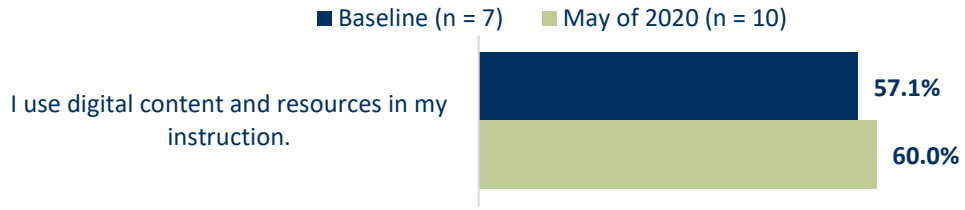
Do teachers have increased access to and use of digital content and resources?

Key Findings:

- 100% of teachers completing the survey felt students had adequate access to technology *in their classroom* by the Spring of 2020. This does not necessarily mean that all students had adequate access to technology for distance learning.
- Students were asked if they would like to see the school using any new technology and 34.3% of those taking the survey said they like the Chromebooks that are currently being used.
- WeVideo was highlighted as a digital tool widely used by the district for both PBL and is distance learning in SY 19-20.

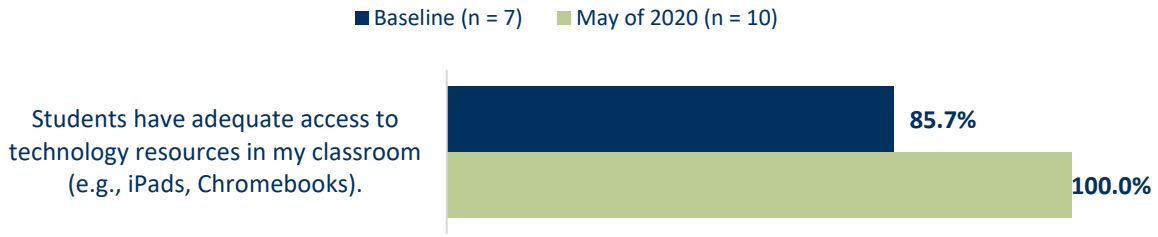
Centennial teachers provided reports of how often they use digital content and resources during instruction. Data were provided at baseline and in May of 2020 and results are shown in Figure 17. By Spring of 2020, sixty-percent (60.0%) of teachers who completed the survey reported that they use digital content and resources "a great deal" or "a moderate amount", which is a slight increase from baseline.

Figure 17. Centennial Students' Access to Technology Resources (% A moderate amount/a great deal)



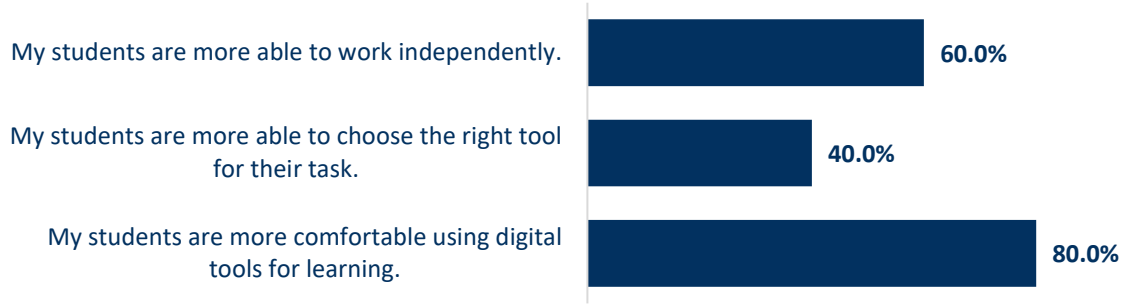
Teachers rated their perceptions of the adequacy of students' access to technology resources within their classrooms. The responses are shown in Figure 18, which indicates that all teachers felt students had adequate access to technology *in their classroom* by the Spring of 2020. This does not necessarily mean that all students had adequate access to technology for distance learning.

Figure 18. Centennial Students' Access to Technology Resources (% True of me/Very True of me)



Finally, teachers were asked to rate a series of statements comparing their current students to students from their previous year of teaching. As shown in Figure 19 below, 80.0% of teachers agreed or strongly agreed that their students are more comfortable using digital tools for learning by the end of SY 19-20.

Figure 19. Centennial Year-End Student Technology (% Agree/Strongly Agree) (n = 10)



Students were asked if they would like to see the school using any new technology and 34.3% of those taking the survey said they like the Chromebooks that are currently being used. Six students asked to use phones for learning, seven requested more videos, and nine students suggested using iPads or tablets.

The year-end status report provided examples of how access to digital content and resources has increased for teachers as a result of the TechSmart grant funding. At the middle school, there is schoolwide access to WeVideo. This was reported as a great tool to aid instruction in the distance learning environment and also for student projects, "In one science classroom, students used WeVideo to make professionally produced news segments, including use of green-screen technology, advanced editing skills, and learning how to use copyright-free media." The year-end status report also noted that teachers are relying less on pre-printed paper units and "more on dynamic online simulations, pooled data collection, varied readings and videos, and real-time assessment tools."

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

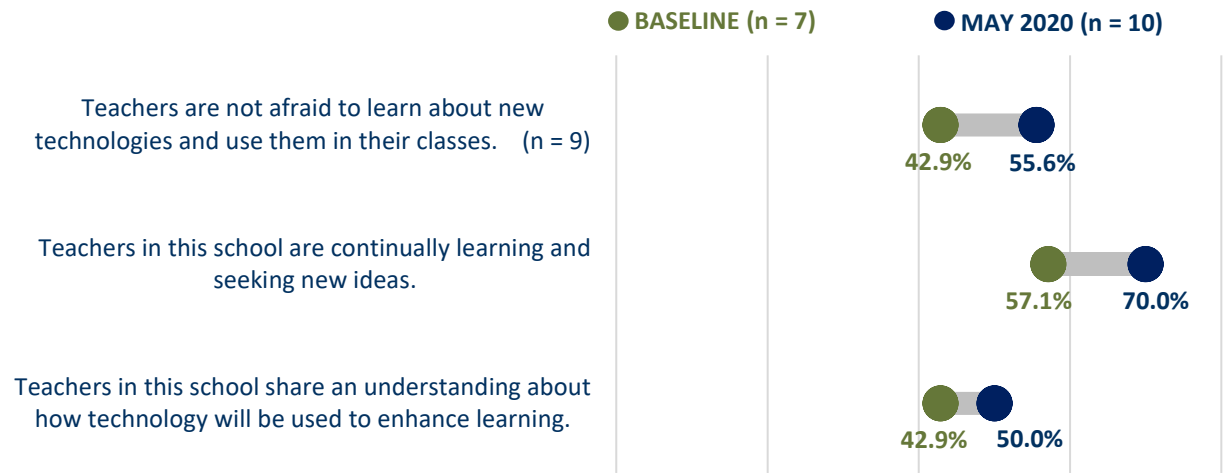
Is there evidence of district wide support for technology integration?

Key Findings:

- There appears to be an opportunity to improve the culture of support for technology integration with only 50.0% of survey respondents agreeing that teachers in the school share an understanding about how technology will be used to enhance learning.
- Leadership changes created a shift in teacher reports of district wide support for technology integration compared to previous years.
- Cohort 1 teachers are beginning to support other teachers in the use of PBL and technology supported instruction.

During the teacher survey, teachers were asked to rate their agreement with several statements regarding school culture of support for technology integration. These data show an opportunity to improve the culture of support for technology integration.

Figure 20. Centennial Teacher Perceptions of a Culture of Support for Technology Integration (% Agree/Strongly Agree)



Feedback from teacher interviews supports room for growth in the district's culture for technology integration as noted by one teacher, "It's not like there's been school-wide adoption. Individual teachers are happy to share if you find the supportive teacher but overall teachers are doing their own thing. You can find the people that support you and you can turn to them with questions and then other people are just doing things the way they've been comfortable doing for a while." Another teacher echoed this response, "I think there is a big gap in knowledge about how to use technology. I also think that it is a teacher's choice as well."

Interviews highlighted the challenge with creating a district wide culture of support for technology given the leadership changes that occurred between the first and second year of TechSmart. Due to that transition in the curriculum director and middle school principal positions, it was described as "the perfect storm…with two new people just trying to get through the year with as much information as possible."

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Do parents have an increased understanding and utilization of districts' technology assets?

Key Findings:

- Teachers are communicating with parents through Remind which is a school communication platform.
- Parent education and engagement with technology is an area of improvement for the Centennial TechSmart project.

Teachers described a few examples of how they are using technology to engage with parents including communication through Remind and Google Classroom. They use Remind for all communication with parents including sharing PBL work. One teacher expressed a desire to get more parents engaged with technology, "Certainly, now there's been more incentive to get on it, so I'm hoping that next year we can rely more heavily on it." The year-end status report included details of parent engagement events and indicated that four events took place in SY 19-20 prior to the school closure with an average of 10 parents at each event. These were described as monthly coffee and doughnuts with the principal where several topics were discussed including technology.

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

Are an increased number of students utilizing and engaging with new technology?

As mentioned in previous sections, student engagement with technology appears to have decreased in SY 19-20. Figure 21 displays the percentage of students who responded that they would prefer to complete an assignment with or without technology. In total, 61.1% of students indicated they prefer completing assignments with technology than without (compared to 85.3% in SY 18-19), while 38.9% indicated they prefer not to use technology for assignments.

Figure 21. Centennial School District Student Assignment Completion Preference (n = 193)

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

How has TechSmart impacted the shift to distance learning?

Key Findings:

- Teachers and leaders report that the shift to distance learning was more seamless for project teachers and their students due to familiarity with the technology.
- Cohort 1 teachers provided support to other non-TechSmart teachers during the transition.
- Distance learning provided teachers with the opportunities to explore new platforms and applications.
- Leadership acknowledged how TechSmart tools increase equity and engagement in the classroom but create an equity divide during distance learning.

For the SY 19-20 evaluation, teachers, leadership, and students were asked to reflect on how their experience with TechSmart has impacted the shift to distance learning. Leadership reported that the transition to distance learning was fairly seamless for the Cohort 1 TechSmart teachers. The middle school principal noted, "Particularly the first cohort were the most technology savvy. They were seamless in their transition to distance learning. They were able to apply things that they had acquired through the trainings in TechSmart. They were working with the coach." The middle school principal also described how the TechSmart teachers were able to provide support for other teachers during this transition period:

> *What I really liked was the added support that my other teachers got through the TechSmart teachers that were trained, and not solely rely on the STEM coach to support everyone. That was I think the most critical part of the transition to distance learning was the shared duties that my TechSmart teachers had with Amy's role as well.*

The STEM coach had a similar observation of project teachers, "A lot of these project teachers were saying, 'Oh, I can do so much of this with what I already know. I don't need to grab a ton of paper resources.' I think that was pretty big. Since the closure, some of those same project teachers have been real leaders in how we use technology to continue to teach."

TechSmart teachers agreed that the transition to distance learning was less challenging for them and their students as a result of prior exposure to the technology as described by one teacher, "Well it's just been great, there's been some continuity. I know that the transition has been much harder for teachers who have not been using the tools in the classroom. There was a much steeper learning curve and it was hard for their kids to get used to it. It could be little things like how do you turn in an assignment? You can't look at an assignment until you turn it in and it's just a matter of one button but if you haven't shown

them how to do that in the classroom it's much harder to show them. You have to basically to talk to every student individually, some of them get it, but a lot of them don't." Another teacher reported that the move to distance learning "didn't shift my classes too significantly when it comes to the actual assignments." One teacher commented on how the use of WeVideo has been critical in the transition as teachers are making videos for distance learning.

> *As a side note, I have been forced to create and manage many more digital tools since distance learning has begun. With what I have learned during this time I see the potential of so many more uses in my classroom. I look forward to increasing my use of technology in the coming years.* -Teacher Interviewee

Teachers also described how distance learning has provided the opportunity to test out different technology platforms. One teacher commented, "So, the transition has definitely been easier because I was familiar with it and the kids were too. It's also encouraged me, because a lot of the sites are offering their premium features for free which has allowed me to explore other platforms to see how it might work…It is a little frustrating because you never know how things are going to work until you test them out in the classroom…It's been great and I'm excited about the possibility but so much more work needs to be done."

Leadership discussed how the transition has looked for students who have had a TechSmart teacher and commented that students are pretty comfortable with it because TechSmart teachers have many of the daily routines in the classroom through websites and apps. It was acknowledged that the shift to distance learning could be more difficult for English Learners as described by one leader:

> *I think it it's a mixed bag. It's for kids that have language learning going on at the same time that it can be more challenging because now they're navigating multiple different screens and they're going back and forth and the instructions might be more complicated. I think there's still this really intense need that everything that we're putting in front of kids that is going through a vetting process with our EL teachers and our special education teachers to make sure that it's really robust curriculum, that's going to work for all of our kids.*

A comment included in the year-end status report echoed the equity concerns with distance learning, "The challenges that come with distance learning, however, can't be overstated. In-classroom use of TechSmart tools increased equity and engagement. As students have shifted to work at home, access to devices, internet, peer and staff support, is highly varied and inequitable. Many teacher plans, especially around PBL work, have been thwarted or underwent significant revision. This new educational landscape has some benefits, such as students and teachers quickly learning new technology tools, but many impacts have been negative. We recognize these challenges and seek ways to grow equity and best practices as we continue into next school year."

VISIBLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

Are districts identifying effective instructional practices and disseminating information and results to other districts?

Key Findings:

- Due to leadership changes, administrators did not have the opportunity to share effective practices with other districts.
- The STEM coach continued to engage in and benefit from the monthly East County Technology Consortium meetings with other East County technology coaches.
- The STEM coach and middle school principal both attended the TechSmart shared learning event in February 2020.

The STEM coach described how she continues to collaborate monthly with other technology integration coaches through the East County Technology Consortium and has involved another instructional technology coach at CSD in these meetings:

> *I think that that has been very positive because it's so easy when you are in a district to kind of limit the ideas of what's possible. Seeing how other districts are proceeding and even just knowing what technology they've used has been really helpful because it gives me a place to start exploring and figure out what's a good fit for us. I feel like it's been very beneficial and I just love that I can reach out to them with every question on the planet.*

One leader described how they have not had the opportunity to share what they are doing with the TechSmart grant with other districts due to the staffing changes that took place at the administrator and principal level in November, 2019.

The year-end status report detailed how the STEM coach and middle school principal attended the TechSmart shared learning event and how student PBL work has been shared at conferences and other community outreach events. There is a desire form the district to have more of these events and have them more broadly communicated as TechSmart moves forward at CSD. Finally, the year-end status report noted that TechSmart efforts were shared in the district newsletter in SY 18-19 and although they were not shared in SY 19-20, there are plans to continue this in SY 20-21.

VISABLE LEADERSHIP

District leadership is actively involved and working with key communities to accomplish change.

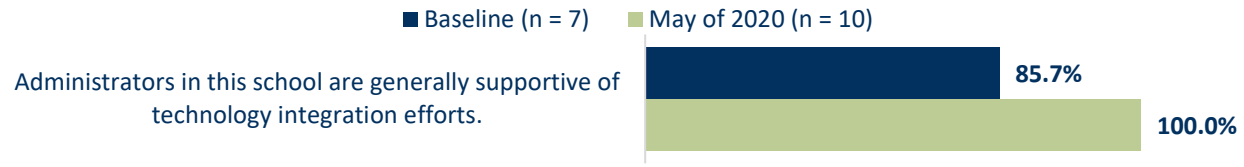
Do teachers feel increased support from district leaders regarding technology integration?

Key Findings:

- Leadership changes in SY 19-20 slowed the momentum of the grant slightly but the evaluation showed that there is excitement and optimism around new leadership and buy-in for the work being done through TechSmart.
- All teachers who completed the survey report support from administrators around technology integration efforts.

By the end of SY 19-20, all teachers who completed the survey agreed or strongly agreed that administrators at CSD are generally supportive of technology integration efforts, representing a slight increase from perceptions at the beginning of the year. The qualitative data collected through the evaluation, however, do not align with the survey responses. One teacher expressed concern with the grant implementation efforts moving forward since the current STEM coach will be leaving the district.

Figure 22. Perception of Administrators' Support of Technology Integration (% Agree/Strongly Agree)



Qualitative data collected through teacher and leadership interviews called out the change in leadership during SY 19-20 and identified opportunities for increased support from leadership. One teacher described how the previous leadership was very responsive to grant related requests such as the purchase of WeVideo, and this has not been the case recently. One interviewee noted, "To be honest with you, I don't think support from leadership has fully been there. Not because the lack of interest but rather because there was a big transition in early November with our curriculum director and new middle school principal." Another interviewee reported that there is still progress to be made but is optimistic about moving forward with new leadership:

> *I would say there's interest and a belief in it but I think we're still lacking clear systems of how we're going to do it. Our new leadership is starting to understand all the goals of the grant and I think that they are bought into the work. We are in a place where I'm very hopeful that they are going to make some very concrete decisions next year about how PD time will be used to support our work.*

DATA-DRIVEN IMPROVEMENT

Current, relevant, and high-quality data from multiple sources are used to improve schools, instruction, professional development, and other systems.

How are schools using data to improve instruction, professional development, and student performance?

Key Findings:

- At baseline, 14.3% of teachers who completed the survey reported using technology to differentiate instruction. This percentage increased to 60.0% by Spring of 2020.
- The percentage of teachers reporting confidence in differentiating instruction using student data increased from 71.4% at baseline to 90.0% in May of 2020.
- 100% of teachers who took the survey indicated they use formative assessments "a moderate amount" or "a great deal" by the end of SY 19-20.

The survey asked teachers to describe how frequently they use technology for evidence-based instruction, differentiating instruction, and analyzing and using data about student learning. Over half of survey participants reported using technology for evidence-based instruction and to differentiate instruction by the end of SY 19-20, which represents a large increase since baseline. The percentage of teachers that reported using technology to analyze data about student learning decreased from baseline to Spring of 19-20.

Figure 23. Centennial Instructional Technology Use
(% A Moderate Amount/A Great Deal)

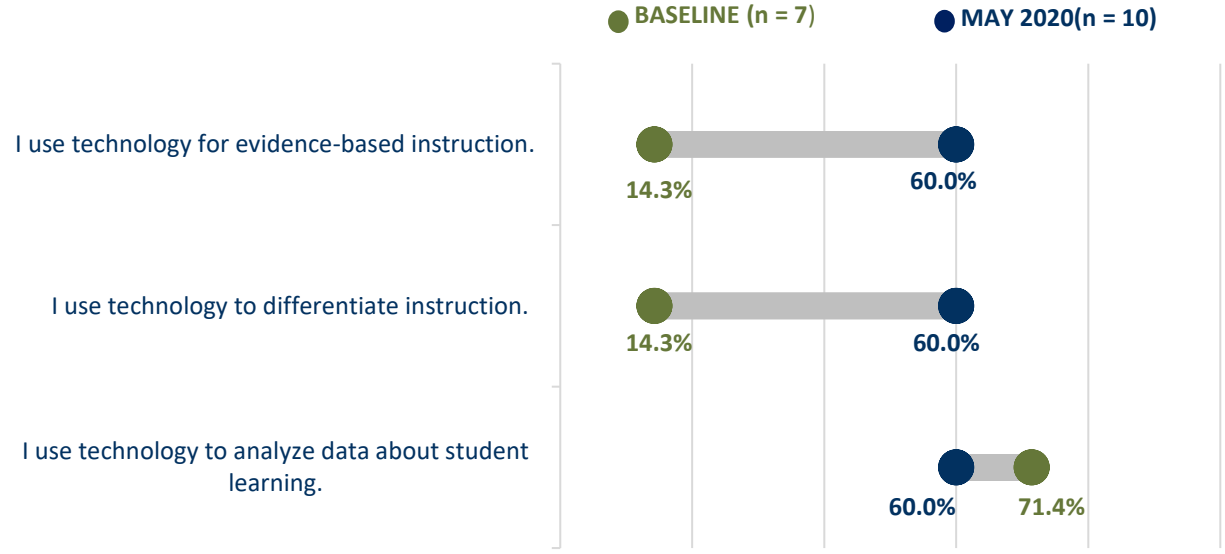
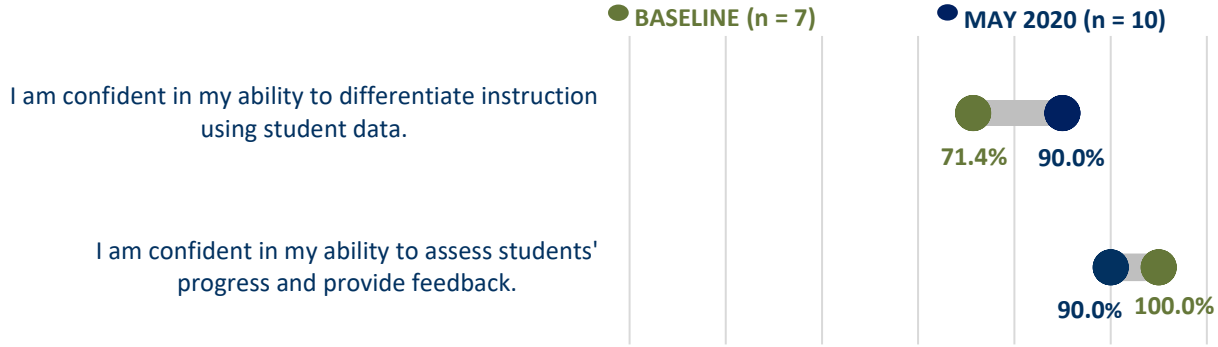


Figure 24 displays teachers' ratings of agreement with several statements about data-driven improvement. All (100%) of TechSmart teachers were confident in their ability to assess students' progress and provide feedback at baseline and 90% of teachers were confident in this area by May of 2020. The percentage of teachers reporting confidence in differentiating instruction using student data increased from 71.4% at baseline to 90.0% in May of 2020.

Figure 24. Centennial Instructional Technology Use
(% A Moderate Amount/A Great Deal)



An additional survey question asked teachers to report the extent to which they are using formative assessments. Results showed that all (100.0%) teachers indicated they use formative assessments "a moderate amount" or "a great deal" by the end of SY 19-20.

The year-end status report provided several examples of how teachers are using real-time, formative assessment data to differentiate learning in the classroom. One teacher described the use of technology to support formative assessment:

> *Online assessments allow me to adjust my teaching in the moment, because I get an immediate and clear picture of where students are. Online exploration helps students make connections. Also students are much more comfortable with the digital format and that's made the transition to distance learning SO much easier."*

Another teacher described how they are using Google forms for formative assessment, "I was able to provide feedback during their work time using Google Classroom (and Hapara). I also used Google Forms for the first time to quickly assess their basic understanding of the concepts addressed during the unit."

FUNDING & BUDGET

District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.

Have districts identified at least one opportunity for repurposing resources to support technology integration?

There was minimal data to evaluate this question in SY 19-20. The year-end status report indicated that the district has increased student access to computers to a 1:1 ratio for grades five and higher. They also reported an increased emphasis on instructional learning opportunities for staff through CRT trainings, and the train the trainer model.

STRATEGIC PLANNING

District strategic plan reflects shared commitment to improving outcomes for students.

Does the district's strategic plan reflect shared commitment to improving outcomes for students?

Leadership were asked to reflect on how the districts' strategic plan incorporates technology in a way that reflects a shared commitment to improving outcomes for students. Leaders described the districts' efforts as moving in the right direction in terms of ensuring access to technology in the classrooms. The year-end status report detailed students' increased access, "Technology use expands in CSD each year, as more TechSmart carts are added and students have access to more digital data collection tools. Teachers outside of the grant project have also gained increased access to carts, with most 6-12 teachers having a classroom cart of Chromebooks." One leader described a desire for the district to get to a place with technology where teachers are more confident about when it's the right time to incorporate it into instruction and minimize its use as a digital babysitter. One leader commented,

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I think there is a sense in the district that technology can really help. It can address some of our learning disability areas that we don't have tools to address. I don't know if the district is seeing it this way, but one of the most promising things I see is that I see kids really becoming authentic creators by using technology tools. They are not just digesting and taking in other people's stuff, they are really learning how to make professional products. That's where I get really get excited.

The year-end status report described how the district has increased technology trainings since the shift to distance learning. The district offers weekly/bi-weekly technology trainings on many topics (examples: Screen-casting, Video-editing, Digital Meetings, Google Classroom, Using Google Forms for Assessment, Syncing Google Classroom Scores with Synergy, and more). These trainings are recorded and shared on a district technology PD website.

EVALUATION INSIGHTS

The SY 19-20 evaluation at CSD produced the following insights:

- The evaluation revealed how the TechSmart grant positively impacted CSD's transition to distance learning in the Spring of 2020. In interviews, teachers and leaders noted that the shift to distance learning was more seamless for TechSmart project teachers than other teachers in the district due to their familiarity with the technology and the various applications. In CSD, Cohort 1 teachers became a resource to non-TechSmart teachers during this transition time along with the STEM coach. Despite the positive impact of TechSmart on distance learning transitions, leadership acknowledged that although technology increased equity and engagement in the classroom, it is creating an equity divide during distance learning.
- Although the STEM coach continues to be the most valuable aspect of the TechSmart professional development model, there is not strong evidence that the PD is impacting teacher instruction. For example, teacher self-reported technology skill level decreased from baseline to Spring of 2020. At baseline, 85.7% of survey participants rated their skill level at a four or five compared to 50.0% in the Spring of 2020. Teachers reported that professional development activities decreased during SY 19-20.
- Distance learning has been a barrier to Project Based Learning and has somewhat stunted the momentum of CSD's TechSmart grant. Teachers and leaders described how it is difficult to get students engaged in distance learning and although teachers are still thinking about PBL, implementation has halted.
- During SY 19-20, CSD has faced challenges with TechSmart due to new leadership. There was a new administrator at the district level and also a new principal at the middle school. Qualitative feedback detailed that the support from leadership has decreased with this staffing change. There is hope that this is temporary as staff become familiar with aspects of the grant. This is an area for increased focus moving forward with the grant.
- Math credit attainment was examined for Cohort 1 students and a concurrent Comparison Group during the year prior to TechSmart implementation and in Years 1 and 2 of the grant. During the first year of implementation TechSmart students had significantly higher math credit attainment than the Comparison Group. This trend did not sustain into the second year of implementation.
- Overall, student survey feedback regarding the use of technology for instruction showed decreased engagement and perceived learning associated with the technology. Qualitative data showed that most students prefer in person instruction compared to distance learning and are eager to return to the classroom.

Appendix A. Evaluation Planning Tool

The following planning tool includes the TechSmart Initiative logic model, evaluation plan, and timeline. The logic model and evaluation plan have been designed to align with the MHCRC Framework for Successful Technology Implementation as described below. Pacific Research and Evaluation will work with MHCRC and each district to create a district specific program evaluation plan utilizing the tools in this document. The goal of utilizing this model is to provide consistency in the evaluation of projects across the TechSmart Initiative.

MHCRC Framework for Successful Technology Implementation: The framework includes seven factors that have been identified as essential to effective transformations to technology rich teaching and learning environments. As you can see, the components do not stand in isolation from each other; many components are linked and substantially overlap.

- Teaching Effectiveness: District supports regular, inclusive and shared professional development among teachers.
- Digital Age Learning Culture: District embraces cultural shift and views technology as positive.
- Visible Leadership: District leadership actively involved and working with key communities to accomplish change.
- Data Driven Improvement: Current, relevant and high quality data from multiple sources are used to improve schools, instruction, professional development and other systems.
- Funding & Budget: District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.
- Strategic Planning: District strategic plan reflects shared commitment to improving outcomes for students.
- Engaged Communities & Partners: Parents, stakeholders, community groups and others are actively and systemically involved in helping students develop, learn and achieve.

GOAL 1: School districts funded by MHCRC grant investments will understand and implement effective instructional strategies and practices that use technology to foster improvement in academic outcomes for all students.

GOAL 2: The MHCRC and school districts will validate and disseminate effective instructional strategies and practices that use technology to foster improvement in academic outcomes for all students.

ACTIVITIES	OUTPUTS	SHORT TERM OUTCOMES – Y1-2 (TEACHING OUTCOMES)	INTERMEDIATE OUTCOMES – Y3-5 (STUDENT OUTCOMES)	LONG TERM OUTCOMES --Y6+
What are the key elements of the districts' project plans?	*What are the direct results of our activities?*	*What changes do we expect to occur within the short term?*	*What changes do we want to occur within the scope of the project?*	*What changes do we hope will occur over time?*
Teaching Effectiveness • Districts create a systemic PD plan, which includes technological, content and pedagogical knowledge. • Districts offer relationship based PD that includes the following components: a) Using technology effectively, b) implementing evidence-based instructional strategies. • Teacher PD familiarize teachers with the MHCRC Common Criteria*. • Districts provide technology support on-site for teachers. • MHCRC and districts identify and evaluate effective instructional practices using the Common Criteria*.	• Number of teachers who participate in PD annually. • Number and type of shared learning opportunities for teachers and administrators. • Number and type of project-related district learning cohorts (horizontal and vertical). • Number of students in student cohorts. • Number of cohort students representing targeted student subgroups (i.e., ethnic minorities, low SES, ELL's and SWD's).	• PD has helped teachers increase the use of technology for evidence-based instructional practices. • PD has helped teachers use technology to analyze and use data about student learning. • PD has helped teachers use technology to differentiate instruction. • The use of technology has increased teachers' ability to engage students and improve teaching of Common Core standards. • Instructional practices show promise for improving student academic outcomes.	• Student achievement has increased in one or more AHR outcome, as measured by student growth over time. • The rate of student growth in one or more AHR outcome is greatest for at-risk student subgroups (i.e., ethnic minorities, low SES, ELL's, SWD's, and those not on track to meet academic standards). • There is a positive correlation between teacher implementation of instructional practices and student AHR academic outcomes. • The positive correlation between teacher implementation of instructional practices and	• Instructional practices are transferable to varied classrooms or academic settings. • Longitudinal data show sustained and/or ongoing progress in relevant AHR outcomes.

			improvement in AHR academic outcomes has been replicated in multiple academic settings.	
<u>Digital Age Learning Culture</u> • Districts conduct an assessment of physical technology assets and how assets are being used. • Districts use a learning management system to provide data about student achievement. • Districts use learning management systems to identify and validate effective practices. • Districts have a system to provide digital content and resources across a district. • Districts provide trainings for parents to understand technology integration.	• Number of technology assets being used. • Number of teachers and administrators using the learning management system. • Number of parent trainings offered. • Number and percentage of parents attending training.	• The use of technology to support instructional practices has increased. • The learning management system is useful for identifying effective instructional practices (more efficient, easier, data driven). • Teachers have increased access to and use of digital content and resources. • There is district wide support for technology integration/innovation. • Parents increase understanding and utilization of districts' technology assets.	• An increased number of students are utilizing and engaging with new technology.	• Technology integration is seen as a shared responsibility among teachers, district leaders, and parents.
<u>Visible Leadership</u> • Districts participate in cross-project networking to share effective instructional practices.		• Each district identifies one or more effective instructional practices and disseminates information and results to other districts.		• Districts actively exchange data and information about effective instructional practices, so that those practices can be

• Leaders provide clear communication about the district's vision for instructional technology.		• Teachers feel increased support from district leaders regarding technology integration.		implemented and validated in new settings.
<u>Data Driven Improvement</u> • Districts use formative assessments for studying the effectiveness of instructional practices. • Teacher PD includes techniques to use student learning data and differentiate instruction. • Districts evaluate projects in relationship to their project-specific logic models and continuously adjust project activities based on evaluation data.	• Percentage of teachers using formative assessments.	• Teachers increase their use of formative assessments to identify effective instructional practices. • Teachers have increased ability to assess students' progress and provide feedback. • Teachers have increased ability to differentiate instruction using student data.	• Differentiated instruction improves student learning outcomes.	
<u>Funding and Budget</u> • Districts allocate adequate funding for technology transitions. • Districts seek funding for sustaining technology integration.	• Number and percentage of students with access to technology.	• Districts have identified at least one opportunity for repurposing resources to support technology integration.	• Student learning outcomes provide evidence to support continued funding in order to sustain technology integration.	• District resources sustain and enhance technology based instructional practices.
<u>Strategic Planning</u> • Districts' strategic plans prominently include technology as well as		• Diverse stakeholders are involved in developing the technology components of strategic plans.	• Evaluation data inform active strategic planning over time.	

mechanisms for scaling programs. • Districts identify long range plans to fund technology and PD supports.				
<u>Engaged Communities & Partners</u> • District leaders maintain effective communication with outside stakeholders regarding technology integration. • Districts create structures to support communication among stakeholders (e.g. website, community meetings).		• District leaders demonstrate increased communication with and among outside stakeholders regarding technology integration.		

Appendix B. Teacher Survey

Introduction

You are receiving this survey because you have participated in technology-related professional development or training as part of your school's TechSmart grant funded by the Mt. Hood Cable Regulatory Commission (MHCRC). MHCRC has partnered with an external evaluation company, Pacific Research and Evaluation, to conduct an evaluation of these grants and to learn about the effective instructional teaching practices that have emerged. A key element of this evaluation is to hear directly from teachers.

This survey will ask about your experience with technology-related professional development, new ways you have incorporated technology into your instruction, and other questions related to technology use. Your responses to this survey will go directly to Pacific Research and Evaluation and will only be shared with your school in aggregate form. We appreciate you taking 15 minutes to complete this survey.

This survey will ask you to report your PEID. We are asking for your PEID so Pacific Research and Evaluation can address research questions requiring analyses of how teachers implementation of instructional practices influences student outcomes. This information will in no way be used for purposes of teacher evaluation and will only be seen by these external researchers.

If you have questions about this survey, please contact Kristi Manseth at Pacific Research and Evaluation (Kristi@pacific-research.org).

Clicking on the "Next" below indicates that you understand that you do not have to answer any question(s) you choose not to answer. In addition, you understand that your identity will not be revealed in any way except to the researchers at Pacific Research and Evaluation involved in the TechSmart project, and that the results will not be reported in a way that will reveal individual participants.

Please complete this survey thinking about your classroom instruction during 2019-20 PRIOR TO SHIFTING TO DISTANCE LEARNING.

Background Questions

1. **Please indicate your ID**
2. **What grade level(s) do you currently teach? (Mark all that apply)**
    - *Response options for this item will be tailored to the targeted grades for each project*

3. **How many years have you taught at the K-12 level?**
    - 0-2 years; 3-5 years; 6-10 years; 11-20 years; 21-30+ years
4. **What is your school?**

Professional Development Dose (Post Only)

5. Indicate the number of hours spent in technology-related group professional development (PD) over the past school year. (0 hours; 1-8 hours; 9-16 hours; 17-32 hours; 33 hours or more)
    - Please rate the extent to which this group PD was useful for integrating technology into your classroom (1 = Not at all useful; 5 = Extremely Useful)
6. Indicate the number of hours spent in technology-related professional development (PD) in the form of individualized training/coaching over the past school year. (0 hours; 1-8 hours; 9-16 hours; 17-32 hours; 33 hours or more)
    - Please rate the extent to which this individualized PD was useful for integrating technology into your classroom (1 = Not at all useful; 5 = Extremely Useful)
7. Has the professional development you have received through TechSmart been different from what others are receiving to support distance learning in the COVID 19 pandemic? (Y/N/IDK). If yes, how?
8. How effective has your districts' professional development model been in terms of helping you change your instruction? Do you have suggestions for improvement?

Technology Skill Level

9. **Choose the statement that best describes the level of your technology skills. Please choose *only one* of the following:**
    - I get someone else to do technology-based tasks for me. (1)
    - I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job. (2)
    - I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose. (3)
    - I use a variety of technology tools and I use them efficiently for all aspects of my job. (4)
    - I use technology efficiently, effectively and in creative ways to accomplish my job. (5)

Technology Integration (• 1 – Very untrue of me • 2 – Untrue of me • 3 – Somewhat untrue of me • 4 – Neutral • 5 – Somewhat true of me • 6 – True of me • 7 – Very true of me)

Thinking about your classroom instruction, rate the extent to which the following statements are true or untrue of you.

10. I alter my instructional use of classroom technology based upon the newest applications and research on teaching, learning, and standards-based curriculum.
11. I integrate the most current research on teaching and learning when using the classroom technology.
12. I plan technology-related activities in my classroom that will improve my students' basic skills (e.g., reading, writing, math computation).
13. I seek out activities that promote increased problem-solving and critical thinking using classroom technology
14. Students have adequate access to technology resources in my classroom (e.g., iPads, Chromebooks)

Teacher Support (Innovative Culture): (1 = Strongly Disagree; 5 = Strongly Agree)

Please indicate the extent of your agreement with each of the following statements. 5-point agreement scale

15. Teachers in this school share an understanding about how technology will be used to enhance learning.
16. Teachers in this school are continually learning and seeking new ideas.
17. Teachers are not afraid to learn about new technologies and use them with their classes
18. Administrators in this school are generally supportive of technology integration efforts.

Frequency of Technology Use: (1 – Never, 2 – Rarely, 3 – Occasionally, 4 – A moderate amount, 5 – A great deal)

Please answer the following questions looking back at the **2019-20** school year prior to the COVID 19 pandemic.

19. How often did you create lesson plans that incorporate technology?
20. How often did you use technology to deliver instruction to your class?
21. How often did you adapt an activity to students' individual needs using technology?
22. During class, how often did students work individually using technology?
23. During class, how often did students work in groups using technology?

Logic Model Outcomes

Please rate your agreement on the following items (1 = Strongly Disagree; 5 = Strongly Agree)

24. I am confident in my ability to assess students' progress and provide feedback
25. I am comfortable integrating technology into my instruction
26. I am confident in my ability to differentiate instruction using student data
27. I am confident in my ability to engage students through the use of technology
28. I have identified effective instructional practices that use technology (Post Only)
    - Please provide an example of an instructional practice utilized in your classroom. (Post Only)

Please how frequently you do each of the following (1 – Never, 2 – Rarely, 3 – Occasionally, 4 – A moderate amount, 5 – A great deal)

29. I use technology for evidence-based instruction
30. I use technology to differentiate instruction
31. I use formative assessments to identify effective instructional practices
32. I use technology to analyze data about student learning
33. I use digital content and resources in my instruction

34. **Please list and rate the effectiveness of new technology related instructional practices that you have integrated into your classroom this year. (List up to three practices) (POST Only)**

_____ **1 2 3 4 5**

_____ **1 2 3 4 5**

_____ **1 2 3 4 5**

Please rate how much you agree or disagree with the following statements about your current students in comparison with your students in the 2015-16 school year. (POST Only)

35. My students are more comfortable using digital tools for learning.
36. My students are more able to choose the right tool for their task.
37. My students are more able to work independently.

Please rate the extent to which technology supports the following aspects of your instruction. (1 – Not at all, 2 –Very little, 3 – Somewhat, 4 – To a great extent) **(POST Only)**

38. Planning and Preparation (including knowledge of content and pedagogy, knowledge of students, setting instructional outcomes, knowledge of and access to resources, designing coherent instruction, and designing student assessments)
39. Managing Classroom Procedures (including instructional groups, transitions, materials and supplies, non-instructional duties, and efficient classroom procedures)
40. Organizing Physical Space (including safety and accessibility, and arrangement of furniture and resources)
41. Communication with Students (including expectations for learning, directions and procedures, explanations of content, and use of oral and written language)
42. Using Questioning and Discussion Techniques (including quality of questions, discussion techniques, and student participation)
43. Engaging Students in Learning (including activities and assignments, student groups, instructional materials and resources, and structure and pacing)
44. Using Assessments in Instruction (including assessment criteria, monitoring of student learning, feedback to students, and student self-assessment and monitoring)
45. Demonstrating Flexibility and Responsiveness (including lesson adjustment, response to students, and persistence)

46. Please provide examples of how you have used technology to support instruction for at-risk subgroups (students of color, ELL, SPED, low SES) in the areas defined above. (POST Only)

Additional questions specific to distance learning

- **I have sufficient knowledge and skill to use online instruction during the Covid-19 pandemic**
- **I am confident in using online instruction during the Covid-19 pandemic**
- **I have experience with online instruction**
- **The use of online instruction during this pandemic is not convenient for me**
- **What is your school/district doing to minimize barriers to online instruction for at-risk subgroups (students of color, ELL, SPED, low SES).**

Appendix C. Teacher Interview Questions SY19-20

My name is _____and I am a research consultant with Pacific Research and Evaluation. We are talking with you today because you have participated in professional development or training as part of your school's TechSmart grant and are integrating new technology into your classroom. We are conducting an evaluation of the TechSmart initiative across all 6 funded school districts and a key element of this evaluation is to hear directly from teachers so we greatly appreciate your time today.

We are conducting interviews with several teachers from your district and will be reporting in aggregate so feel free to be open with your feedback. We do like to record our interviews for accuracy purposes. Are you okay with this? Do you have any questions for me before we get started?

Note: Most questions can be answered thinking about before your transition to DL. I will ask a couple of questions related to DL too, but most of the questions will be about what your classroom instruction looked like prior to this shift.

1. Can you start by telling me what grade you teach and how many years you have been involved in the grant?
    a. If the district has cohorts, confirm cohort with teacher.
2. Can you talk about the professional development you have received as part of the TechSmart grant this year? That could be…
    a. Group vs. Individualized
    b. Had PD focused more on teaching you how to use technology or on how to change your instruction using technology?
3. Has this PD model been helpful in terms of helping you change your instruction?
    a. Suggestions for improvement?
4. How are you using technology to support new instructional techniques?
    a. Can you give examples of technology related instructional strategies that have been particularly effective in your classroom?
    b. How does your teaching look different than before TechSmart?
5. Have you experienced any barriers to integrating technology into your classroom instruction?
6. How has your use of technology supported instruction impacted student engagement?
7. A focus of the TechSmart grants is closing the achievement gap. How has the use of technology supported instruction impacted learning for students of color, English Language Learners, those with an IEP, etc.
8. Have you adopted any new practices that show promise for improving student academic outcomes?
9. Are you using formative data from the technology to guide classroom instruction?

10. What type of support have you received at the district level for using technology to support instructional change?
    a. Is there a culture of support around technology in your school?
11. Have you used the technology to engage with parents?
12. Do you have suggestions for making technology supported instruction more sustainable at your school?
13. Can you describe how your experience in the TechSmart initiative has prepared you for this shift to DL?
14. Do you have any other comments about your PD experience or technology integration?

Appendix D. District Leader Interview Protocol

My name is ____ and I am a research consultant with Pacific Research and Evaluation. PRE is working with the Mt. Hood Cable Regulatory Commission to conduct an evaluation of the TechSmart grants across all six of the Multnomah County School Districts. A key piece of this evaluation is speaking with coaches, principals, and administrators that have been part of the TechSmart implementation efforts. We greatly appreciate your time in input for our research efforts.

We are conducting interviews with individuals from your district and will be reporting in aggregate so feel free to be open with your feedback. We do like to record our interviews for accuracy purposes. Are you okay with this? Do you have any questions for me before we get started?

As we go through these questions, feel free to discuss how TechSmart has impacted your school both before and after the shift to distance learning.

1. What are the primary ways that you have seen the TechSmart grant funding impact your district this year?

2. Can you talk about how the grant funding has impacted teachers' instructional strategies?
    a. Have you seen or heard about new instructional strategies being implemented?
        i. Classroom
        ii. Distance Learning
    b. Do you think these instructional practices show promise for improving student academic outcomes?
    c. A focus of the TechSmart grants is closing the achievement gap. How has the use of technology supported instruction impacted learning for students of color, English Language Learners, those with an IEP, etc.

3. How is the district leadership providing support for technology integration/innovation?

4. Have you shared with other districts' what you are doing with your TechSmart grant?
    a. If yes, what type of information have you shared?
    b. If not, do you have plans to share successes with other schools/districts?

5. The MHCRC is interested in whether districts have repurposed resources to support technology integration in classroom learning. For example, changing a staff position role or shifting budget expenditures. Has your district repurposed resources in any way this year?

6. How does technology fit into your districts' strategic plan?

7. What are your thoughts about the sustainability of the TechSmart efforts in your district?

8. Do you have any other comments about the TechSmart grant and the impact within your district?

Appendix E. Student Survey

This survey will ask you some questions about the technology that has been used in your classes this year. Please answer the questions below honestly and to the best of your ability. Your responses will not affect your grade in class and will not be shared with your teacher. Thank you for your participation!

(Note: When the survey uses the word "technology," it refers to the use of computers, iPads, etc.)

Please respond to the questions in this survey thinking about your classroom experience prior to moving to distance learning.

1. What grade are you in?
- 9th
- 10h
- 11th
- 12th

2. Rate the following items from Strongly Disagree to Strongly Agree
- The use of technology in my classes has increased since last school year.
- I have felt more interested in class activities using technology compared to activities in which technology is not used. (Consider iPads, etc.)
- I like receiving instruction through technology.
- I concentrate better in class when technology is used to deliver instruction.
- I would work harder if my teacher used technology more often.
- I know that using technology gives me opportunities to learn many new things.
- I can learn many things when my teacher uses technology.
- I believe that the more often teachers use technology, the more I will enjoy school.

3. The use of technology in my class this year…
- Helped me stay focused.
- Did not affect my learning.
- Seemed to distract me.

4. When it comes to your learning, which of the following generally describes your experience with new technology tried in class this school year.
- The technology helped me learn more.
- Technology had a neutral impact; I learned the same amount whether I had technology or not.
- The technology slowed my learning.

5. Of the activities listed below, which TWO kept your INTEREST most in class in the last year? (Mark 2 choices)
- Lecture/presentation by teacher

- Large group work
- Small group work
- Reading/working by yourself
- Completing worksheets, posters, study guides, textbooks, questions, etc.
- Using apps (on iPads, Chromebooks, etc.)
- Using computers (typing, researching, creating presentation)
- Watching movies/films

6. Of the activities listed below, which TWO do you feel you LEARNED the most from in class in the last year? (Mark 2 choices)
- Lecture/presentation by teacher
- Large group work
- Small group work
- Reading/working by yourself
- Completing worksheets, posters, study guides, textbooks, questions, etc.
- Using apps (on iPads, Chromebooks, etc.)
- Using computers (typing, researching, creating presentation)
- Watching movies/films

7. I generally _____ using more technology in my classes this school year.
- Enjoyed
- Felt neutral about
- Disliked

8. After using more technology in my classes lately, I hope my teachers next year use…
- Less technology overall
- About the same amount as this year
- More technology overall

9. If you were given the choice to complete the same assignment with or without the use of technology, which would you generally choose?
- With technology
- Without technology

10. I generally _____ learning in class when technology is incorporated.
- Enjoy
- Feel neutral about
- Dislike

11. What technology do you wish your teachers would use? How would this help you to learn or make school more meaningful for you?

12. Has your experience with technology this year helped with the change to distance learning? Explain