Portland Public School District,

TechSmart Initiative 2021-2022 Evaluation Report

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PROJECT SUMMARY

Portland Public Schools (PPS) is focused on improving literacy outcomes for its students and closing the opportunity gap for 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 opportunity gap will be eliminated for impacted student subgroups; (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 Stephenson (Cohort 2). In SY 18-19, PPS included a further five schools: Astor, Cesar Chavez, Forest Park, Glencoe, and Woodstock (Cohort 3). During SY 19-20, PPS added five more TechSmart schools: Beach, Dr. Martin Luther King

METHODS

A general description of the methods included in the TechSmart evaluation appears in the introduction to the full report. Survey and conversation quotes have been edited for grammar and brevity. Data collection efforts for the SY 21-22 PPS evaluation are summarized below.

Teacher Survey: The teacher survey was administered online to educators. **234** educators in Cohorts 1-5 responded to the teacher survey between April and June 2022. Cohort 5 represented almost half (45.3%) of the survey responses and Cohort 2 had the least representation at 10.3%.

Teacher Focus Groups: Three focus groups were conducted with a total of **17** teachers representing schools in all five cohorts.

District Leader Interviews: In June of 2022, PRE interviewed one TechSmart coach. PRE also conducted focus groups and interviews with **five** principals with representation from Cohorts 1, 3, 4 and 5.

Student Achievement Data: DIBELS data were analyzed across cohort. When possible, comparisons were made to non-TechSmart schools (i.e. Comparison Groups). Also, when possible, data is presented in such a way as to show change over time. DIBELS data are included for Kindergarten through 3rd grade students, with the most data available for Kindergarten, 1st, and 2nd grade students.

Jr., Scott, Lent, and Whitman (Cohort 4). In SY 20-21, PPS expanded TechSmart to include the following 11 schools: Boise, Faubion, Harrison Park, James John, Kelly, Lee, Marysville, Rosa Parks, Vestal, Woodlawn and, Woodmere (Cohort 5). PPS scaled up TechSmart to include Grades 4 and 5 in SY 20 - 21. **A total of 31 schools across the district have received Professional Development (PD) and piloted the technology infrastructure provided by TechSmart funding.**

ABOUT SPRING 2022 SURVEY RESPONDENTS

A total of 234 teachers provided response data to the 2022 year-end survey. Table 1 displays representation on the Spring 2022 teacher survey by cohort, with greatest representation from Cohort 5. Cohort 2 had the least representation with 24 teacher responses.

	n	%
Cohort 1	31	13.2%
Cohort 2	24	10.3%
Cohort 3	33	14.1%
Cohort 4	40	17.1%
Cohort 5	106	45.3%

Table 1. Spring 2022 survey responses by cohort (N=234)

Surveyed respondents include a fairly even distribution of teachers from each primary school grade level from Kindergarten through 5th Grade, with many respondents teaching more than one grade (Figure 1).

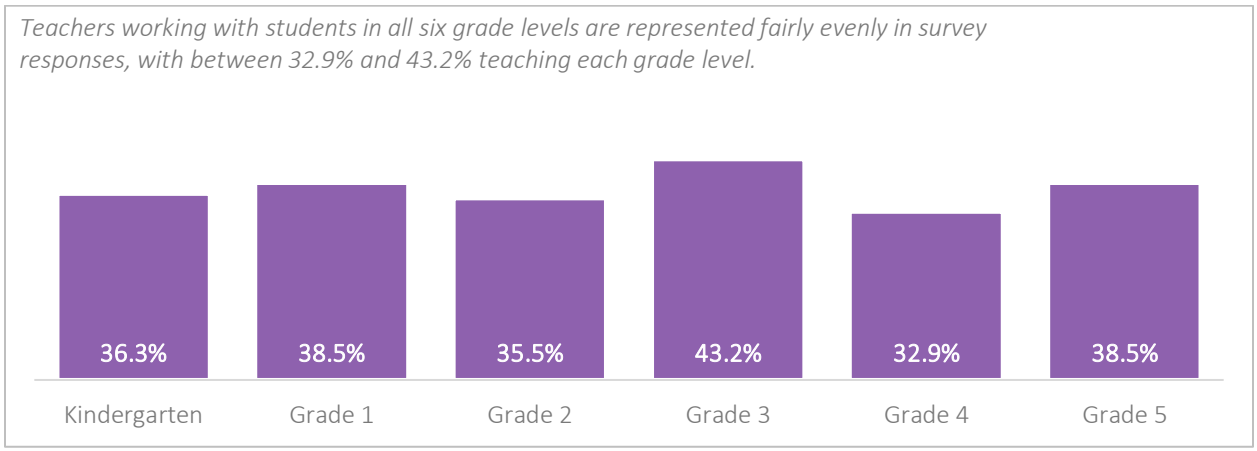

Figure 1. Grades taught by PPS Spring 2022 survey respondents (N=234)

Of the surveyed teachers, 80.8% have taught for six or more years with a fairly even percentage teaching for 6-10, 11-20, and 21-30+ years (Figure 2, next page).

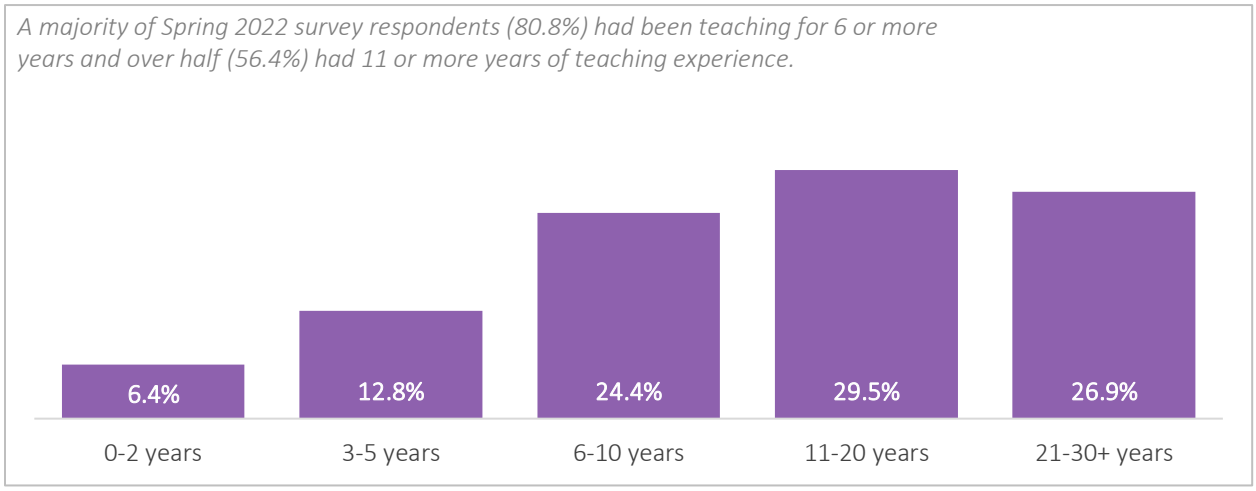

Figure 2. Years of Teaching Experience for PPS Spring 2022 survey respondents (N=234)

FINDINGS

The findings from the SY 21-22 at PPS TechSmart 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. Evaluation questions guiding this study were designed to respond to these seven factors and are used to organize results presented in Key Findings tables throughout this report.

TEACHING EFFECTIVENESS

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

PPS educators received varied professional development (PD) opportunities in SY 21-22, including but not limited to activities centered around promoting social-emotional learning and strategies that can be implemented in the virtual environment, how technology can support anti-racist teaching practices, use of tools like Lexia, MyOn, and Seesaw for individualized and group instruction, and use of Google Suite and PPS Digital Toolkits for supporting literacy learning. Teachers had access to literacy support through an online resource hub on the PPS TechSmart website, received monthly TechSmart newsletters, and had access to TechSmart coaches through the PPS Hive Google Chat. Coaches collaborated on "Learning Tech Road Shows" to help teachers work through questions and challenges and offered teachers ongoing embedded PD to increase familiarity with technology tools and use of app-provided data to inform instruction. Professional learning for coaches included meetings to discuss new tools in the Literacy and Innovation Library, virtually attending the Instructional Coaching Summit, and attending the IntegratEd PDX conference. In addition, TechSmart coaches and district leaders participated in their own professional learning communities (PLCs) focused on technology enhanced instruction. TechSmart efforts were supported by the district's Learning Technologies team, housed in the PPS Office of Technology and

Information Services and, in addition to other technology integration roles, this team included a TechSmart Teacher on Special Assignment (TOSA).

As shown in Figure 3, on the Spring 2022 teacher post-implementation survey, a large majority (71.7%) of TechSmart educators reported receiving 1 to 8 hours of technology-related Group PD over the course of the 2021-2022 school year. Approximately half (48.7%) of teachers reported receiving 1 to 8 hours of technology-related Individualized PD, while nearly as **many (40.2%) educators reported receiving no technology-related Individualized PD in the SY 21-22.**

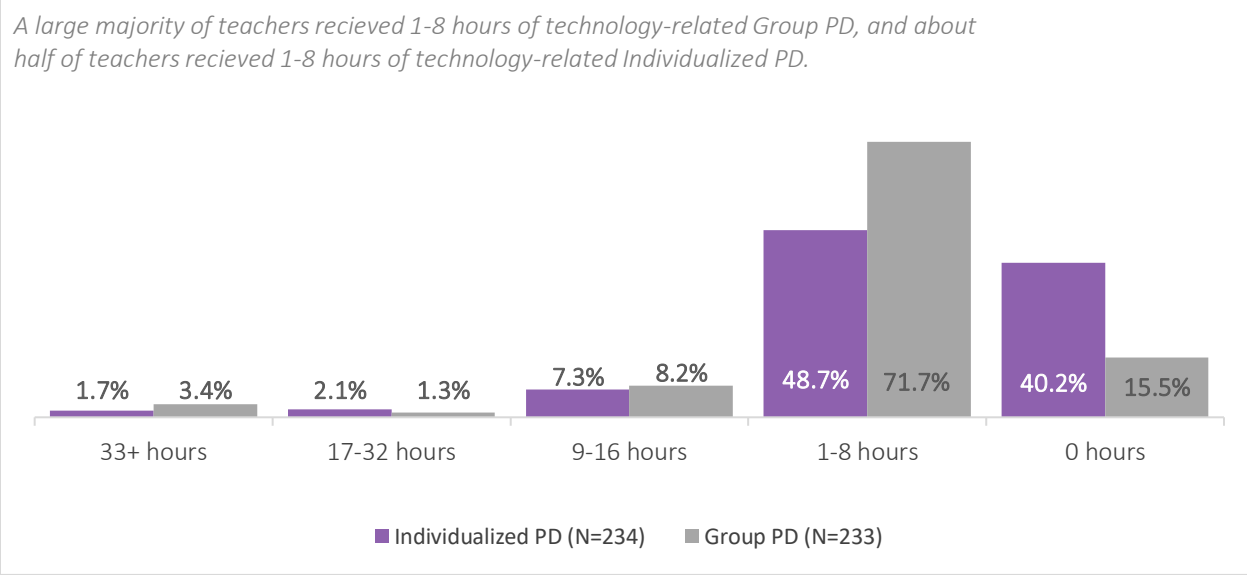

Figure 3. Hours of technology-related Individualized and Group PD received by teachers in SY 21-22

Eighty-five percent (85.4%) of TechSmart teachers found the technology-related Individualized PD they received in SY 21-22 to be moderately to extremely useful, while somewhat fewer (72.5%) rated their technology-related Group PD as moderately to extremely useful (Figure 4, on the following page). One 5th Grade teacher from a Cohort 5 school noted, "I found the professional development to be very helpful this year. I particularly liked learning about Securely."

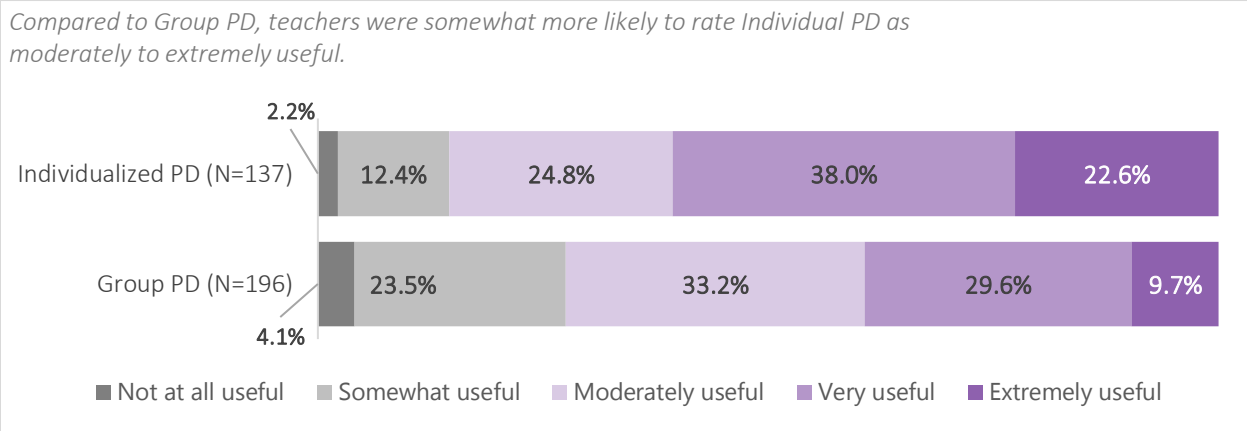

Figure 4. Teacher ratings of how useful Professional Development (PD) was, by Type

New to SY 21-22, the TechSmart coaches came together to offer teachers TechSmart Labs at several schools. Slightly more than a quarter of teachers (27.1%, n=48) participated in these Labs (Figure 5).

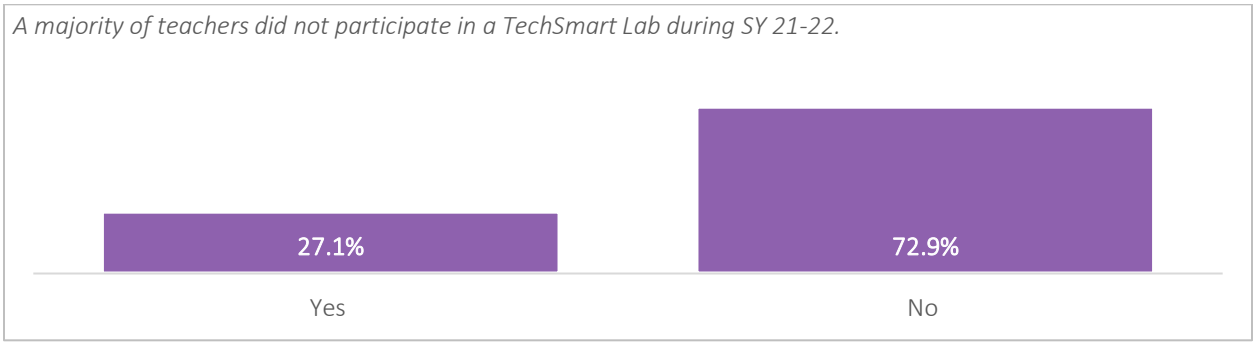

Figure 5. PPS teachers' participation in TechSmart Labs during SY 21-22 (N=177)

About half of the teachers who participated in a Lab (n=25) provided added, written feedback about their experience. Of those, almost all provided positive feedback, describing the Lab as "great," "helpful," and "fun." A few provided information on the Lab content (e.g., it was about robotics or LIL).

In focus groups, teachers provided varied feedback on the availability of PD during SY 21-22. Some affirmed that it was offered and/or that they participated in it, whereas others were uncertain if it was provided. A shared belief across focus group participants was that coaches were less available to teachers than they were in previous school years. Teachers observed that some coaches were "split between multiple buildings" and said that this resulted in coaches being unable to address everyone's needs.

Focus group participants who could recall participating in PD often spoke positively about the experience. They described taking part in a mix of group and individualized PD, erring towards more one-on-one support. In practice, this could include having the coach model ways to use a new platform or device, assisting with lessons as new strategies were implemented, or providing general troubleshooting support. One participant remarked that teachers needed to be more proactive in engaging with Techsmart coaches, saying, "The Techsmart people are very, very helpful, as long as you reach out to them. If you don't know about their services and you don't reach out, we wouldn't have known about it at our school."

Notably, some focus group participants who had not received PD this past school year cited being overwhelmed by the transition from comprehensive distance learning (CDL) back to in-person instruction and not having bandwidth for more PD, or stated they felt reasonably tech savvy and that technology-related PD was not a strong need for them this past year.

Some teacher focus group participants shared suggestions for addressing PD needs which centered around getting help with specific apps and content. One felt it would be helpful to have someone provide training on navigating MyApps on the PPS website.

KEY FINDINGS	How is Professional Development (PD) impacting teacher instruction?
	Teachers who were able to engage in PD found it to be useful, engaging, and effective.
	Teachers improved problem-solving activities, critical thinking activities, and integrating the most current research on teaching and learning when using classroom technology.
	Half (52.7%) of survey respondents felt they used technology efficiently (Level 4 or 5) at baseline and 74.6% felt they used technology efficiently on the post-survey.

Surveyed teachers provided input on the effectiveness of the PD, and about a quarter provided suggestions for improvement. Teachers' comments were categorized as either effective (n=42), moderately effective (n=11), and/or ineffective (n=56). **Comments reflect a range of experiences, and about a quarter highlight how PD could be both effective and ineffective.** Positive comments about the PD model included a general affirmation that trainings were useful and engaging, and that the coaches were available and attentive to teachers' needs. Four teachers felt that individualized PD was most effective for them. **Of the 56 teachers who felt the PD model this past year was ineffective, 27 teachers cited having very minimal to no PD this year as a reason, and 16 teachers expressed that the PD they received was not useful to them because it did not apply to the curriculum closely enough or did not cover the topics for which they wanted support.** PPS teacher survey respondents' top two suggestions for improvements included that more PD be given, mostly related to specific PPS applications such as iReady, Dreambox, and Lexia (n=11) and that teachers be given more time for technology-related PD (n=9). Sample quotes within each response theme appear in Table 2 on the following page.

How effective has your TechSmart grant's Professional Development (PD) model been in terms of helping you change your instruction? Do you have suggestions for improvement?	
PD model is effective (n=42)	*"District TechSmart PD is consistently the best PD that the district provides. It is engaging and informative. I always learn something that I can immediately apply to improve my instruction."* *"I enjoyed when the team came out to model new technology resources with us; however, I will likely need a refresher session next year to utilize them most effectively."* *"I really like the way out TechSmart coach does PD. I love the sense of relationship he's made with our staff both as a whole school and individually. He is always up for anything and makes it fun for us educators to learn something new and get us engaged to try it in our classrooms."*
PD model is moderately effective (n=11)	*"The cadre approach has been somewhat helpful in that it allows me to hear what other educators are using and doing."* *"Slightly helpful."*
Ineffective PD model (n=56)	*"We barely had any training. I usually figure out how to do things."* *"Our TechSmart coach left in the beginning of the school year."* *"It has been very passive and most of the professional development they would like us to do that is technology related has to be on our own time. It is difficult to create/find time on my own to seek out the professional development that I'd need to effectively use many of the applications the district has bought.*
Mixed comments (n=22)	*"The model is fine, whether video or in-person. It's the content and pacing that could be improved upon. As for the tech side, the trainings are fine, but the platforms are not always great."* *"I am sure the model is effective; however, our coach left last year and was never replaced."* *"Good overview of tools, not much application in current classrooms."*
Suggestions for improvement of the PD model at PPS: More PD on specific content/apps (n=14)	*"We need to have more time dedicated to explicitly teaching technology around our new curriculum. We would also benefit from having trainings pertaining to other apps such as Canva, XLMath, Dreambox and definitely more iReady info."* *"More clear support for special education that is differentiated in a way that is meaningful for the students we serve would be helpful."* *"I would prefer instruction around apps and tech used daily in classroom - Chromebook how-tos or navigating Lexia."*
Suggestions for improvement of the PD model at PPS: More time for PD and implementation (n=9)	*"It would be really great to have allocated time set up and dedicated to this type of professional development. It would also be great to have time with others who serve the students whom I serve to decide which parts of the applications work best for them and how to cohesively work together to support our students."*

Table 2. Feedback on PD model, Spring 2022 survey data (N=107)

Teachers indicated the extent to which they were integrating technology into various instructional practices at baseline and in the Spring of 2022 (Figure 6). Teachers remained relatively stable between baseline and Spring 2022 when it came to seeking out problem-solving and critical thinking activities, altering their instructional use of classroom technology based upon new applications and research, and integrating the most current research on teaching and learning when using classroom technology.

Teachers self-reported that their usage of technology remained relatively stable from baseline to Spring of 2022.

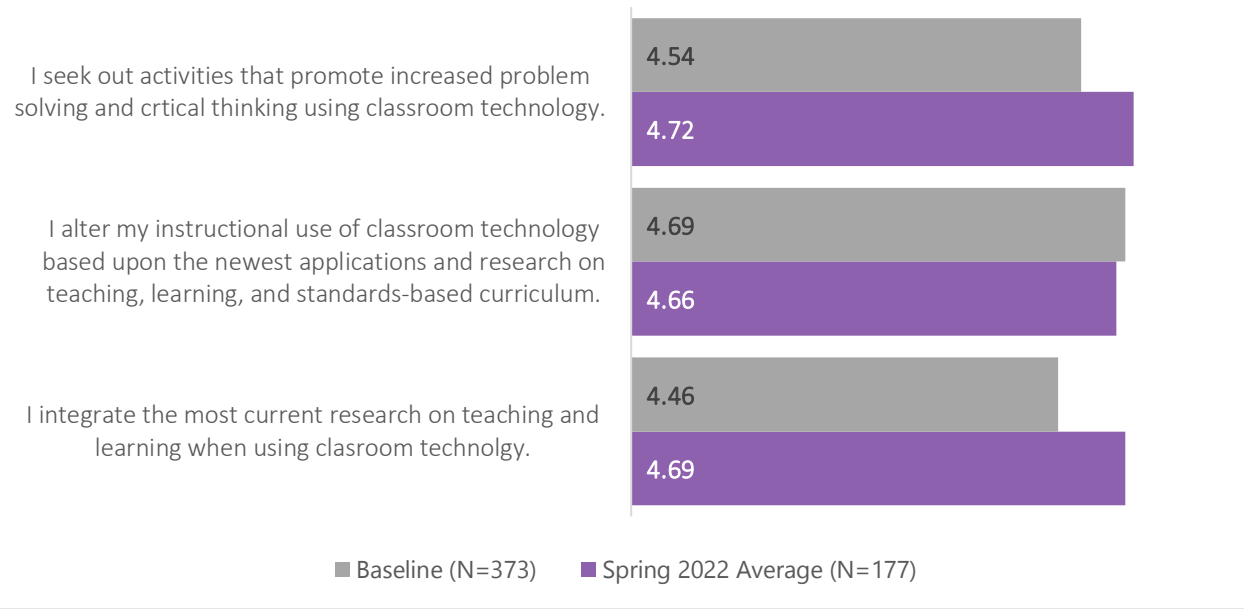

Figure 6. PPS teachers' average rating of their self-usage of technology (1 = Not all true of me, 7 = Very true of me)

Teachers' self-rated technology proficiency level based on the chart on the following page improved from baseline to Spring of 2022; **half (52.7%) of all respondents felt they used technology efficiently (Level 4 or 5) at baseline and 67.2% felt they used technology efficiently by Spring 2022** (Figure 7, next page).

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.

Teachers' technology proficiency level improved over baseline, as 67.2% of teachers felt they used technology efficiently (Level 4 or 5) by Spring of 2022.

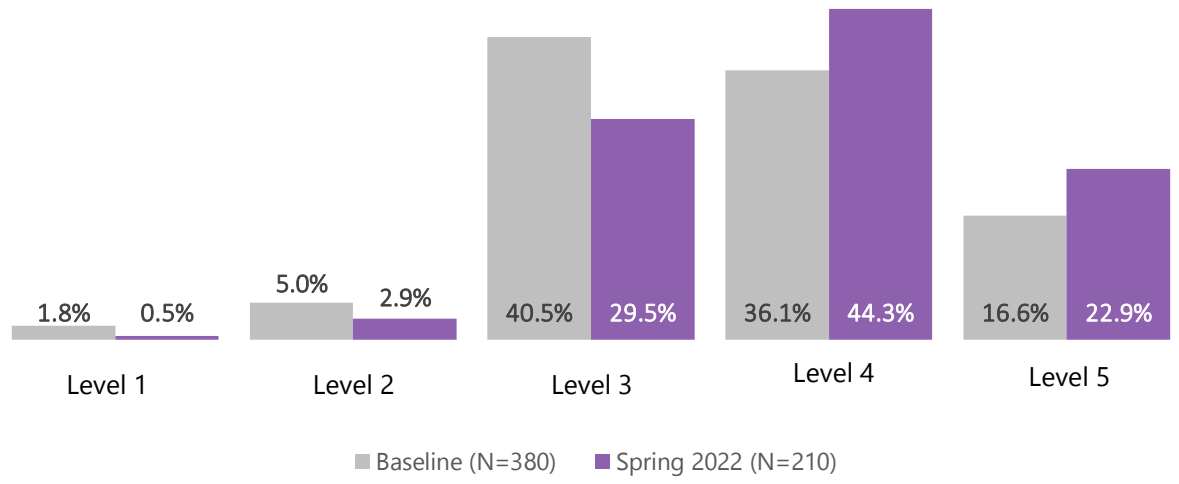

Figure 7. PPS teachers' self-reported technology proficiency level

Cohort 3 showed the most notable improvement in technology proficiency ratings, increasing from 44.2% of teachers feeling they used technology efficiently at baseline to 80.0% of teachers in Spring of 2022 (see Table 3, on the following page). Cohort 4 teachers showed the least improvement, from 58.1% rating their proficiency as efficient (Level 4 or 5) at baseline to 64.9% in Spring of 2022. The remaining three cohorts' Level 4 or 5 ratings in Spring 2022 ranged from 65.2% to 71.4% with growth between 7.7% and 28.0%.

	Baseline	Spring 2022	Growth
Cohort 1	32.0%	60.0%	28.0%
Cohort 2	55.3%	71.4%	16.1%
Cohort 3	44.2%	80.0%	35.8%
Cohort 4	58.1%	64.9%	6.8%
Cohort 5	57.5%	65.2%	7.7%

Table 3. Percentage of teachers self-reporting technology proficiency at Level 4 or 5, by cohort

TechSmart coaches and principals highlighted the overarching value that having TechSmart in the schools has had on teachers. **A coach noted that their presence in schools, and their ability to support and refine the work teachers are doing with technology, appeared to reduce stress for teachers.** A PPS principal affirmed this, stating, "It's been good having access to people who can help answer questions that we may have regarding technology and applications. It's helped us to be able to keep up."

Another coach highlighted the impact having access to technology was having on students.

> *It's beautiful to see the joy in schools; seeing kids, teachers, principals, all experience the joy of having these tools. We were over at a school and got to tell them that these devices are theirs. It felt freeing. We then took a staff meeting to play with devices – it was like the teachers were in a playground. It was informal and it gave teachers agency.*

KEY FINDINGS	What new instructional strategies are teachers reporting?
	Of the tools from the new Literacy Innovation Library kits, teachers were most likely to report using Bee Bots, Spheros, and Dash and Dots. However, most teachers were not yet familiar with these tools.
	Teachers' top three instructional strategies utilizing technology included differentiated instruction, small group instruction, and hands-on activities.
	District leaders observed teachers leveraging 1:1 coaching opportunities to continue advancing skills, troubleshoot technology, organize online classroom management tools, and build proficiency in online collaborative tools.

In SY 21-22, PPS deployed the new Literacy Innovation Library (LIL) kits to all TechSmart schools. Among the tools included, Bee Bots appeared to be the most frequently used (Figure 8, on the following page). Almost three-quarters (72%) of respondents did not use any of the available tools. Several teachers used the "other" option to write in that they were unaware of this resource.

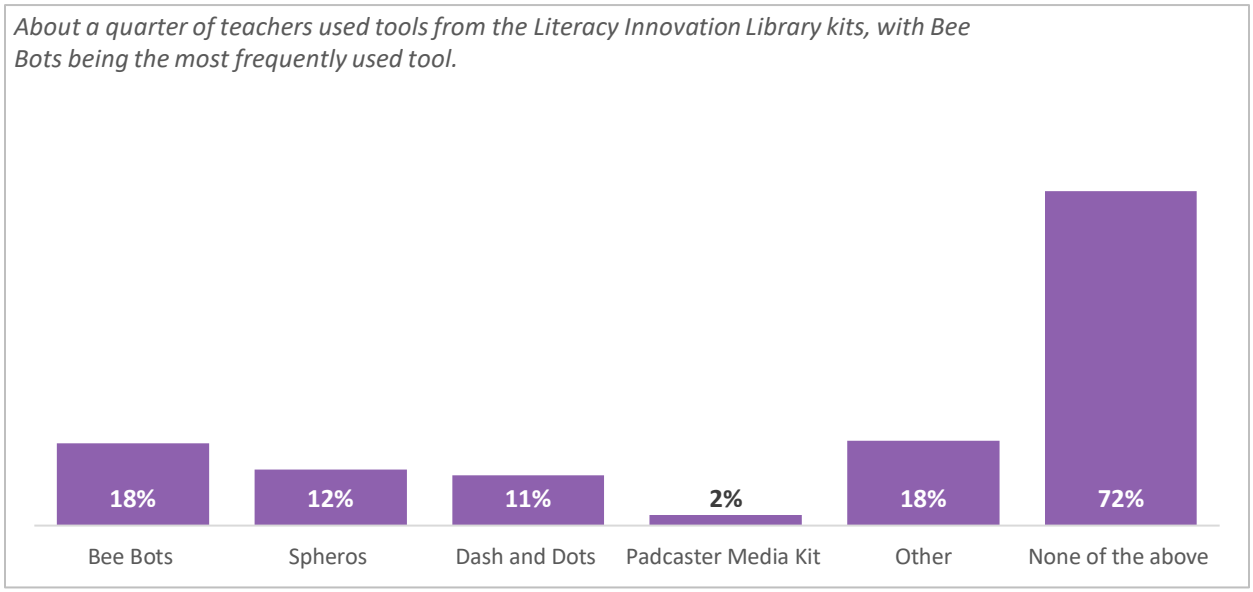

Figure 8. PPS Teacher usage of tools in the Literacy Innovation Library kit (N=174)

Teachers used the tools described above, as well as other available tools (e.g., i-Ready, Seesaw, DreamBox, etc.) to implement a range of instructional strategies. The top five strategies listed are shared in Table 4. **Differentiation was the most frequently mentioned instructional strategy listed. All listed strategies in Table 4 were rated as effective.**

Top 5 Instructional Strategies	n	Effectiveness Rating
Differentiated instruction	47	4.3
Small group instruction	29	3.8
Hands-on activities	27	3.6
Assessment	9	3.9
Independent work	6	4.6

Table 4. Teachers' top five instructional strategies using technology (1 = Not at all effective, 5 = Extremely effective)

Teachers were encouraged to share how access to the LIL kits impacted their classroom literacy instruction. **Several teachers used this space to reiterate that they were unaware of this resource, or that it had just arrived, and they had not yet had a chance to implement it**. Those who have had classroom experience with the tools shared that their students enjoyed using the technology and that they appeared to be engaged in their learning. Many also shared that their students appeared to be having fun. While experiences were mainly positive, some teachers highlighted barriers to increased usage. These include students having limited proficiency with technology, not having enough materials for a full class to participate, and needing more training on how to implement and teach students how to use tools.

When reflecting more broadly about technology, teachers expressed repeatedly that they used technology to differentiate lesson plans for students. Teachers used i-Ready, Seesaw, Lexia and DreamBox to monitor student progress and assign lessons or provide support on an individual basis. Several teachers highlighted that differentiation was particularly helpful for math and language classes. One

teacher mentioned that they used this information to assign pairs in class, being mindful of how various individual strengths or weaknesses could complement shared learning.

> *After coming back to in-person teaching this year, I noticed I use more personalized lessons assigned to the students in Seesaw. I noticed there are kids who have made different progress. I assign a personalized lesson based on their assessment data. I use it for differentiation for students.*

Additional accessibility supports teachers used include having students type or use speech-to-text rather than physically write out assignments. Book Creator was an app that has functionalities similar to general speech-to-text capabilities but allows students more opportunity to develop their literacy skills, which was particularly useful for providing support for non-verbal learners. **One teacher mentioned that their ESL students exhibited a preference for Lexia because it allowed them to hear words in English, giving them space to practice learning the language.** Further, a Chinese immersion teacher praised the platform for the way it leveled student engagement in this language.

> *It was really helpful to differentiate the work. Students who struggle with writing, or physically can't do the writing, were able to use the technology. They could speak to the computer and have it type things out for them. It [improved] the learning.*

Leaders briefly touched on instructional strategies in their interviews, echoing survey feedback with comments about teachers using technology to replace paper-and-pencil tests, support differentiation, and relying on digital tools for foundational literacy (e.g., fluency reads, or bridging content gaps for ESL students). **Leaders noted that teachers also leveraged one-on-one coaching opportunities to continue advancing skills, troubleshoot technology, organize online classroom management tools, and build proficiency in online collaborative tools.** While technology has proven effective at building student-teacher relationships, a principal shared an observation of the impact it can have, stating, "A side effect is that we have lost some of the richness of interactions. Learning is social. There is more plug and play than we'd like to see. Where we can lean in is with the idea of 'learning first, tech second,' and how to make tech interactive using instructional strategies we know work and connecting them to tech."

KEY FINDINGS	How are the new instructional strategies impacting student engagement?
	As of Spring 2022, more than 80% of PPS teachers felt confident in their ability to engage students with technology.
	Teachers shared a range of individual strategies they identified to support student engagement with online materials, to motivate students, and to help students stay focused.

In Spring 2022, **more than 80% of PPS teachers felt confident in their ability to engage students with technology**, which is similar to Spring 2021 (Figure 9).

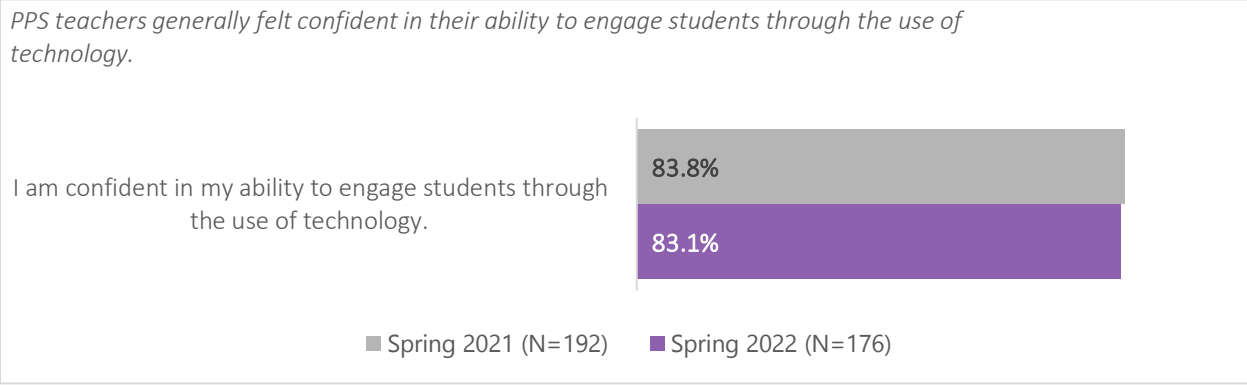

Figure 9. PPS teacher confidence in personal ability to engage students (% Agree/Strongly Agree)

Teachers spoke about the interactive nature of most technology supports and how those could be successful at sustaining student engagement. For example, one teacher appreciated that Chromebooks present material in color, and that visual components can be supported or deepened with audio (e.g., listening to a video). This was considered more engaging than printing workbooks, which is what was historically done. Another teacher liked using pop-up messages to check in with students in the morning. It was a fun way to keep students motivated and found to be more effective as the year progressed. Kahoot was also praised, with one teacher sharing, "Kahoot is a really great thing for testing kids in a fun way. Having kids design their own Kahoot has been a blast." Finally, one teacher shared that they have been using a calming app with students to help them focus when they experience "virtual fidgets."

KEY FINDINGS	Are the new instructional strategies showing promise for improving academic outcomes?
	Cohort 2 and Cohort 3 are outperforming their Comparison Groups when it comes to the percentage of students at benchmark on the DIBELS assessment. Although Cohort 1 fell below its Comparison Group, it is again trending upward according to the most recent two measurements (Fall 2021 and Spring 2022).
	Treatment cohorts as well as Comparison Groups generally experienced declines in DIBELS benchmark achievement following the COVID-19 pandemic, according to available data. Encouragingly, all cohorts are once again on an upward trajectory.

Student Achievement Data

When possible, outcomes related to student achievement were assessed by comparing student achievement data from schools participating in TechSmart activities (i.e., cohorts) with student data from schools that had not yet participated in TechSmart activities (i.e., Comparison Groups). Also when possible, change over time was assessed by considering available DIBELS data collected since SY 2016-2017. During each of the first three years of EBBL adoption, ten schools adopted the new literacy curriculum. Five of the ten schools were given access to new technology or professional development (PD) through TechSmart funding (i.e., Treatment schools), and five of the schools initially adopted the new curriculum without added technology or PD specific to TechSmart (i.e., Comparison schools). However, schools from each Comparison Group had to be removed as they were assigned to later Treatment cohorts with access to TechSmart technology and PD. Cohorts 4 and 5 were not matched with Comparison Groups because all available schools were either assigned to a previous cohort or Comparison Group. Table 5 (below and continued on the next page) displays sample sizes by school for Treatment cohort and Comparison Groups based on available student outcome data from SY 21-22. Students with missing Fall 2021 or Spring 2022 DIBELS scores were excluded from analysis. Note that one school in the Cohort 2 Treatment group (Rigler) did not provide any student outcome data, and therefore is not represented in this section of the report.

Group Name	First Year of TechSmart	Number of Schools	SY 21-22 Sample Size
Cohort 1	SY 16-17	5	386
		Bridger	29
		Grout	82
		Lewis	85
		Sitton	72
		Vernon	118
Comparison Group 1		2	238
		Arleta	97
		Laurelhurst	141

Group Name	First Year of TechSmart	Number of Schools	SY 21-22 Sample Size
Cohort 2	SY 17-18	4	390
		Atkinson	78
		Bridlemile	142
		Peninsula	65
		Rigler	0
		Stephenson	105
Comparison Group 2		2	263
		Duniway	150
		Markham	113
Cohort 3	SY 18-19	5	530
		Astor	92
		Cesar Chavez	37
		Forest Park	20
		Glencoe	148
		Woodstock	233
Comparison Group 3		2	216
		Chief Joseph	125
		Creston	91
Cohort 4	SY 19-20	5	328
		Beach	35
		MLK	112
		Lent	58
		Scott	85
		Whitman	38
Cohort 5	SY 20-21	11	960
		Boise-Eliot/Humboldt	109
		Faubion	119
		Harrison Park	46
		James John	74
		Kelly	100
		Lee	116
		Marysville	79
		Rosa Parks	84
		Vestal	69
		Woodlawn	106
		Woodmere	58
		Grand Total	3311

Table 5. PPS Treatment and Comparison School Sample Sizes for SY 21-22

The Dynamic Indicators of Basic Early Literacy Skills (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[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 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, and present results combined across all grades (Kindergarten through 3rd).

DIBELS

PPS DIBELS assessment data for K-3 students in TechSmart cohorts and Comparison Groups are reported below. Figures 10, 11, and 12 present the percentage of students achieving benchmark (i.e., ratings of Core Support on the DIBELS) on the DIBELS assessments for Cohorts 1, 2, and 3 compared to their Comparison Groups 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 (the inclusion of Fall 2019 vs Winter 2020 was determined based on which time point had more available student DIBELS data). Data collection during SY 20-21 was drastically limited due to the pandemic. Therefore, DIBELS data from last year are excluded from many of the comparisons made in this report. In Figure 10, caution should be exercised when interpreting Fall 2019 data due to the small sample size. Note that both Cohort 1 and Comparison Group 1 recorded drops in the proportion of students at benchmark following the start of the COVID-19 pandemic (i.e., in data gathered after the Fall 2019 timepoint). This drop was quite pronounced, but Cohorts 1 recorded greater subsequent gains at the final timepoint (Spring 2022) than the Comparison Group.

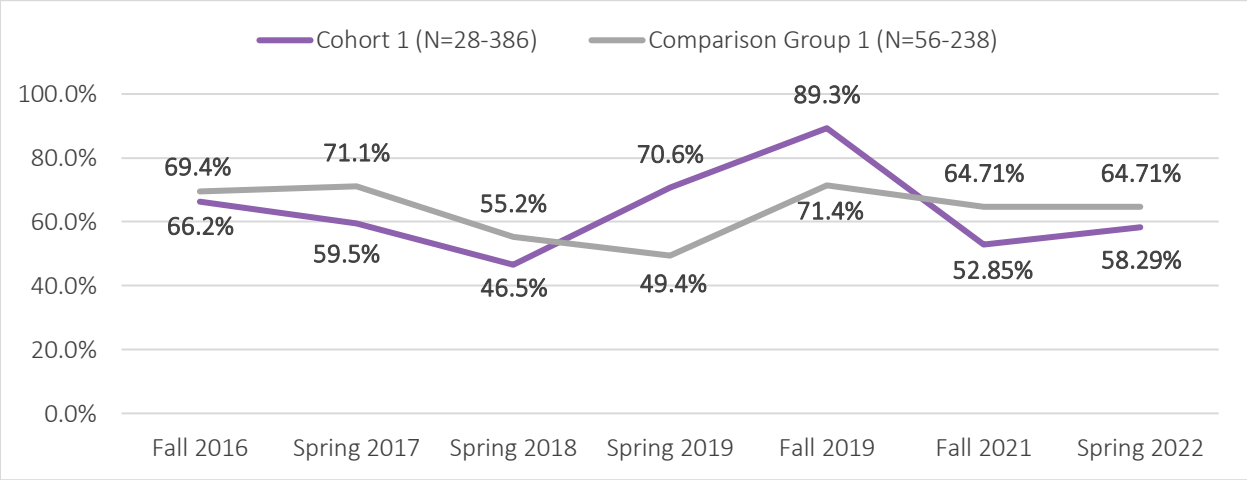

*Figure 10. Percentage of Students at Benchmark on the DIBELS Assessment – PPS **Cohort 1***

As shown in Figure 11 (next page), Cohort 2 continued to outperform Comparison Group 2 across time points. Similar to the pattern seen in Cohort 1, both Cohort 2 and Comparison Group 2 recorded notable

[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.

declines following Fall 2019, but both appear to be trending upward again according to the latest data collection (Spring 2022).

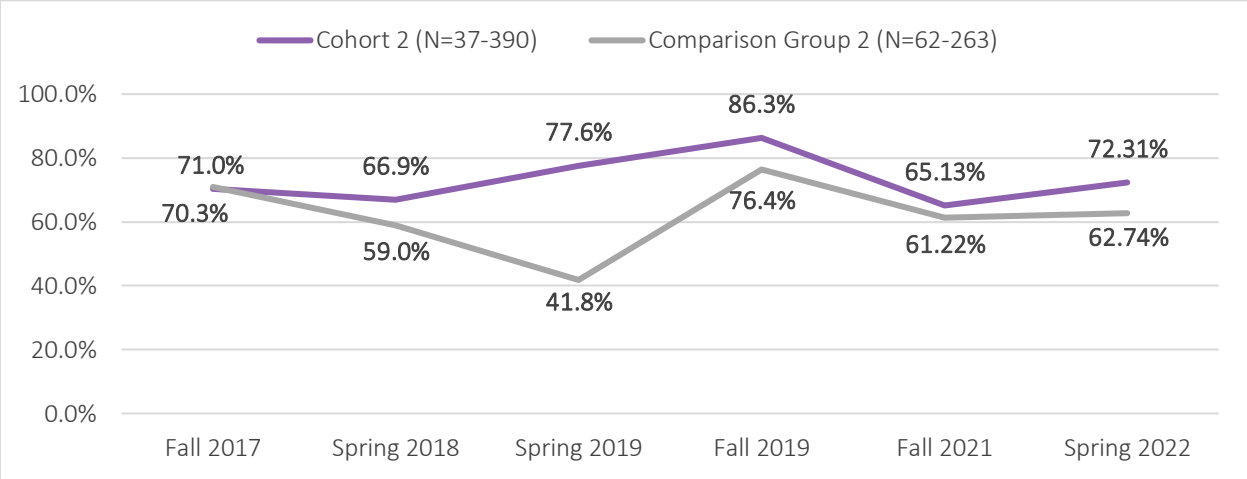

*Figure 11. Percentage of Students at Benchmark on the DIBELS Assessment – PPS **Cohort 2***

Figure 12 shows the percentage of students at benchmark for Cohort 3, which has remained relatively stable over time, with no drop recorded following the start of the COVID-19 pandemic and a slight upward trend displayed in the latest round of data collection.

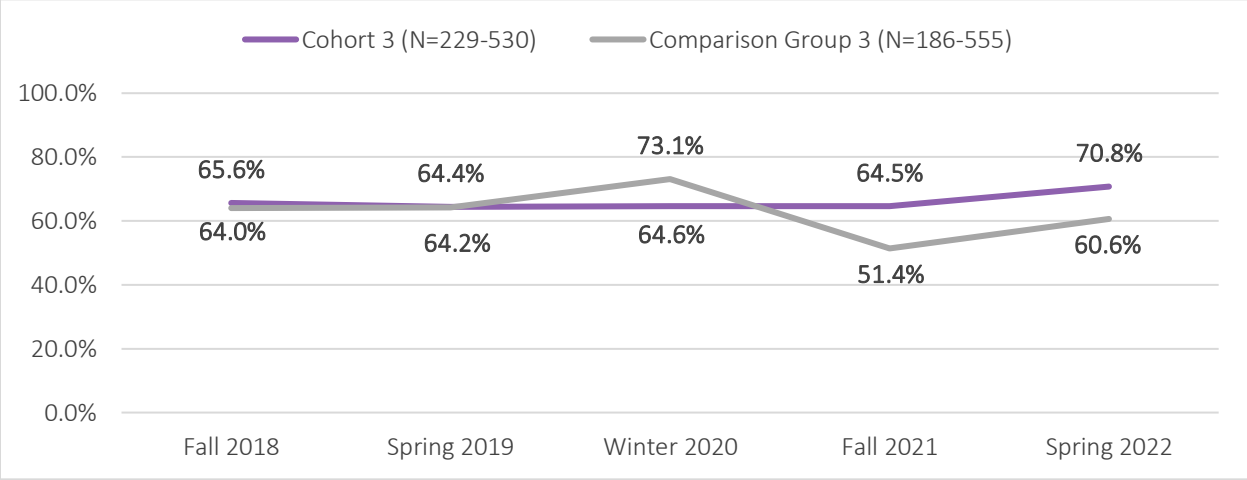

*Figure 12. Percentage of Students at Benchmark on the DIBELS Assessment – PPS **Cohort 3***

Figures 13 (next page) includes Cohort 4 and 5 data from SY 21-22 only. As mentioned above, no Comparison Groups are available for Cohorts 4 or 5, and data from SY 20-21 is not included due to limitations with the data that occurred as a result of COVID-19.

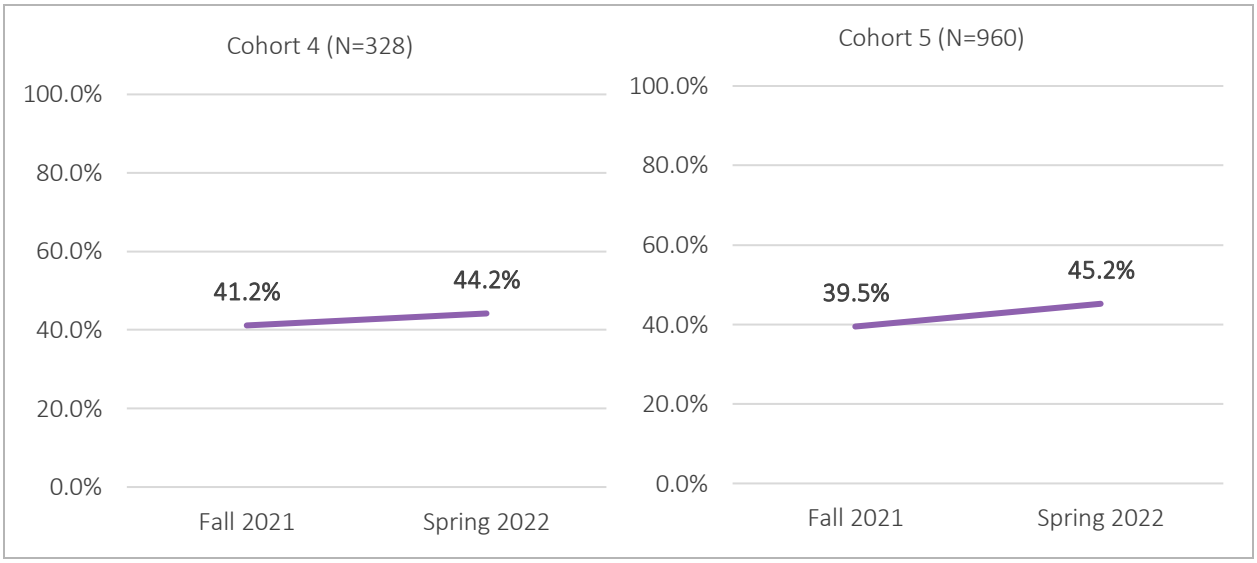

Figure 13. Percentage of Students at Benchmark on the DIBELS Assessment – PPS ***Cohorts 4 and 5***

In interviews, educators revealed that they have anecdotally noted students utilizing technology in ways that facilitate positive student outcomes, such as speech-to-text support for students who have challenges or barriers associated with physically writing. Additionally, teachers shared that at-risk students were successful at completing projects by utilizing technology such as Book Creator.

KEY FINDINGS	Do instructional practices show promise for improving student academic outcomes with at-risk student subgroups (i.e., students of color, students with limited English proficiency, and students with IEPs), and those not on track to meet academic standards?
	DIBELS data from LEP students, SPED students, and students of color showed promising results. In all groups, the percentage of students at benchmark on the DIBELS increased from Fall 2021 to Spring 2022 in the Treatment Group. Additionally, students of color in TechSmart Cohort 3 did not experience the decline in DIBELS benchmark achievement experienced by most other groups, including students of color in Comparison Group 3, following the start of COVID-19.
	Teachers used technology to differentiate learning and support student subgroups impacted by the opportunity gap. Teachers used strategies such as offering audio aids, visual aids, and voice to text options to meet students' different needs.
	Teachers noted the importance of supporting families, and reflected that some technology (e.g., Remind) had been a useful communication tool for them – particularly to communicate with families who don't use email.

At-Risk Indicators

To examine impacts of TechSmart implementation on at-risk subgroups, results of the DIBELS assessment were assessed for students in at-risk subgroups compared to all other students. Before comparing DIBELS data, the evaluation team first conducted demographic comparisons across cohorts and Comparison Groups for all those students who took the DIBELS assessment in Fall 2021 and Spring 2022. Figures 14, 15, and 16 (next page) display the at-risk indicators for Cohorts 1, 2 and 3, respectively, along with the at-risk indicators of their Comparison Groups.

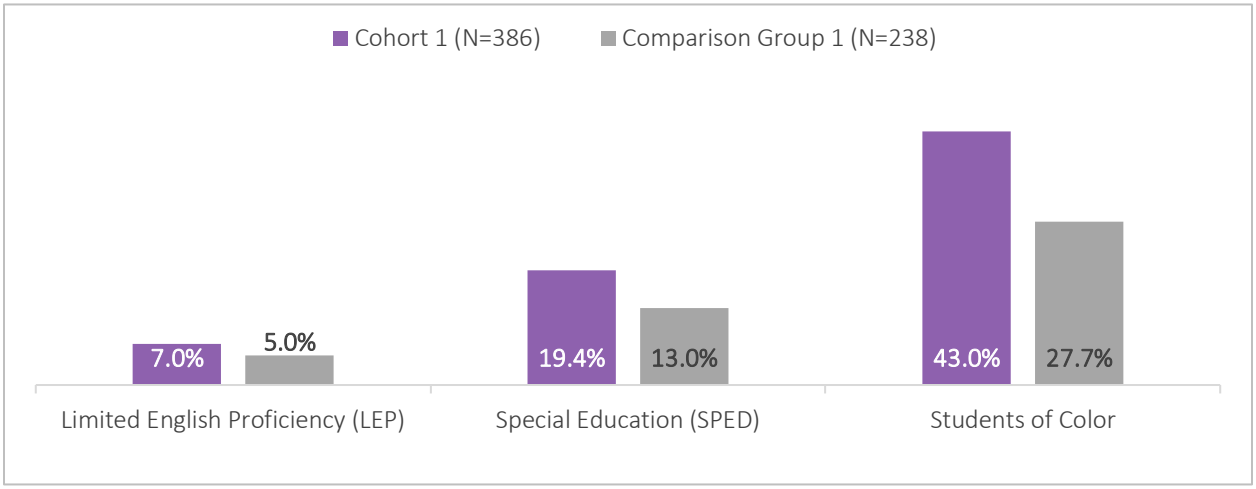

Figure 14. PPS Cohort 1 and Comparison Group 1 At-Risk Indicators

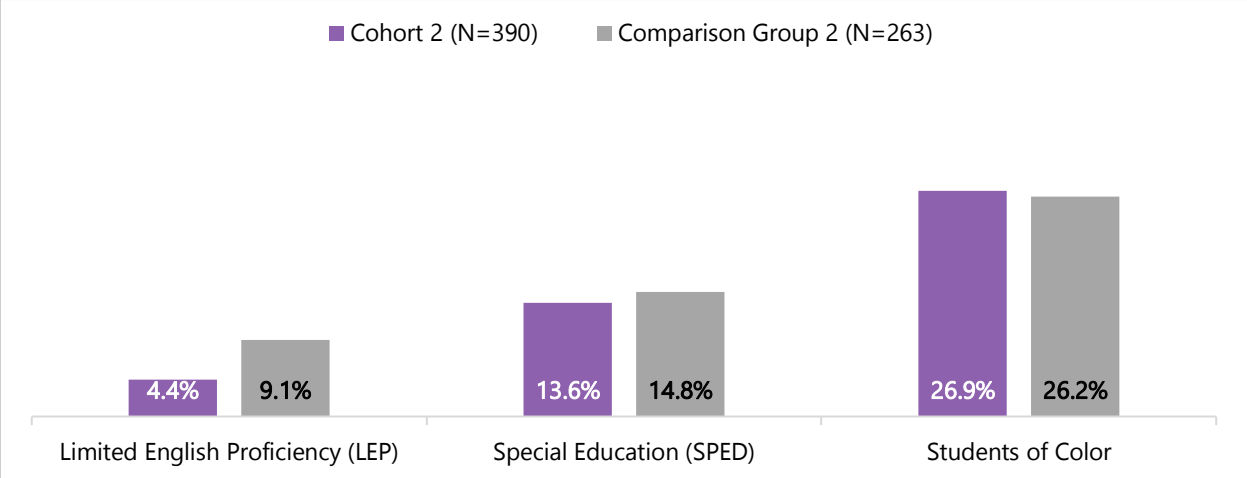

Figure 15. PPS Cohort 2 and Comparison Group 2 At-Risk Indicators

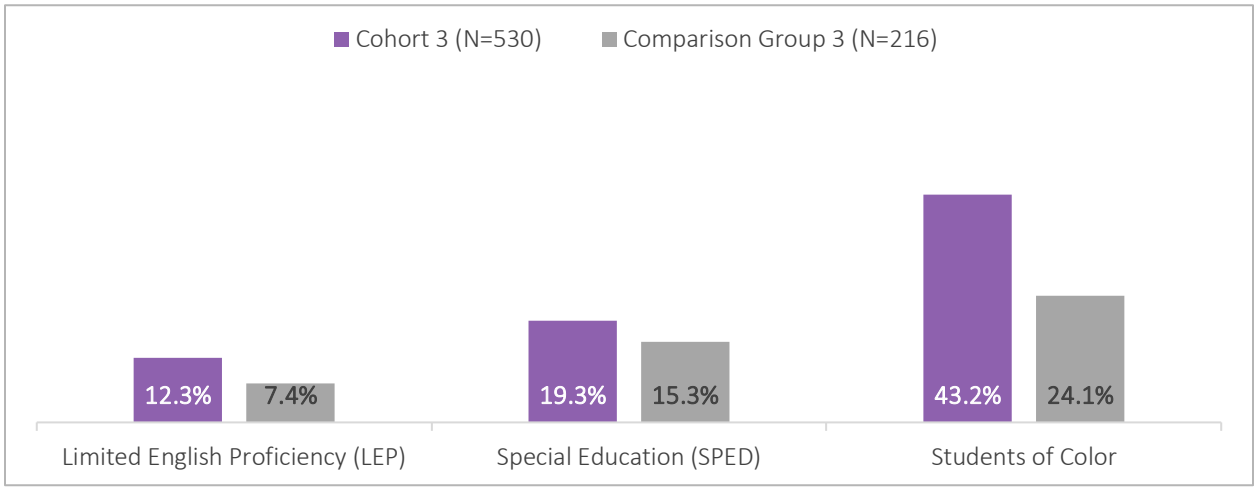

Figure 16. PPS Cohort 3 and Comparison Group 3 At-Risk Indicators

Figures 17 and 18 present the at-risk indicators for Cohorts 4 and 5, respectively (neither of which have Comparison Group counterparts).

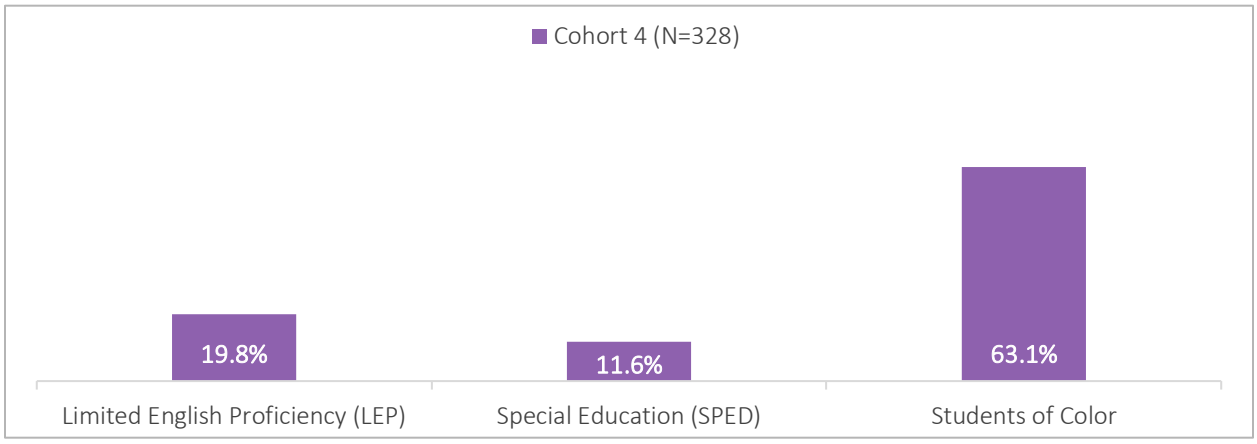

Figure 17. PPS Cohort 4 At-Risk Indicators

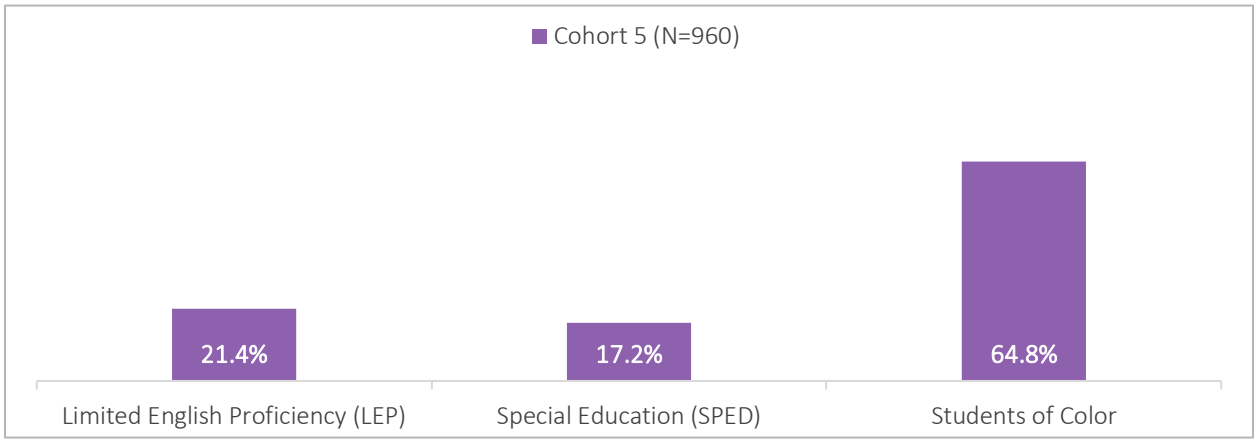

Figure 18. PPS Cohort 5 At-Risk indicators

Figures 19, 20 and 21 display a breakdown of student race/ethnicity for Cohorts 1, 2, and 3 and their respective Comparison Groups. Notably, Cohorts 1 and 3 had relatively smaller majorities of white students compared to Cohort 2 and Comparison Groups 1 and 3.

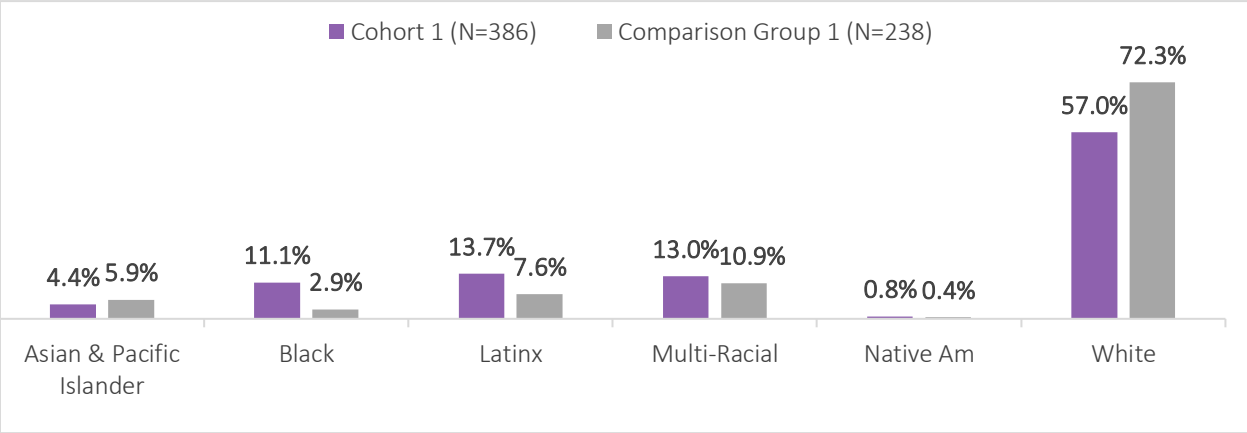

Figure 19. PPS Cohort 1 and Comparison Group 1 by Race/Ethnicity

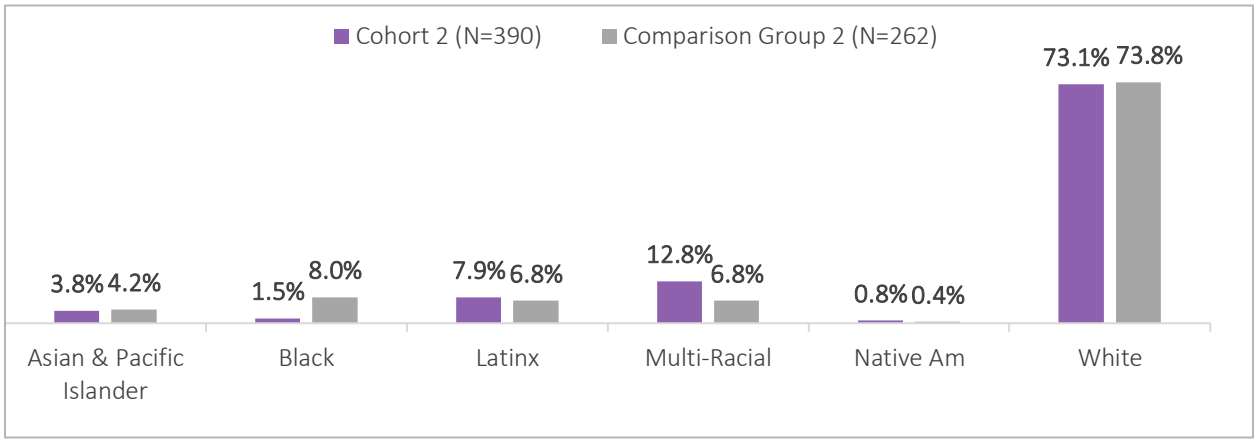

Figure 20. PPS Cohort 2 and Comparison Group 2 by Race/Ethnicity

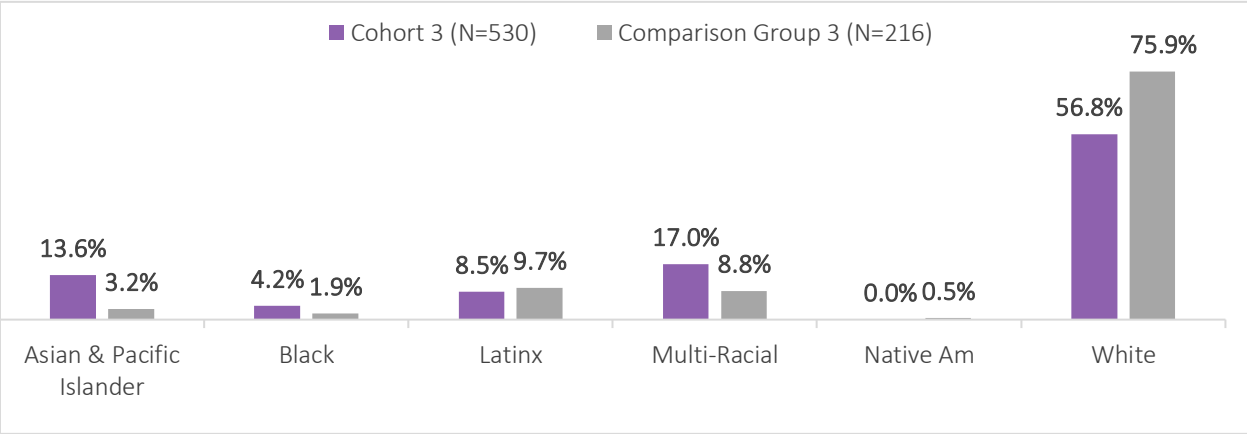

Figure 21. PPS Cohort 3 and Comparison Group 3 by Race/Ethnicity

Figures 22 and 23 display a breakdown of student race/ethnicity for Cohorts 4 and 5 (neither of which have Comparison Group counterparts). Both Cohorts 4 and 5 had greater proportions of Black and Latinx students and smaller majorities of white students, compared to other cohorts.

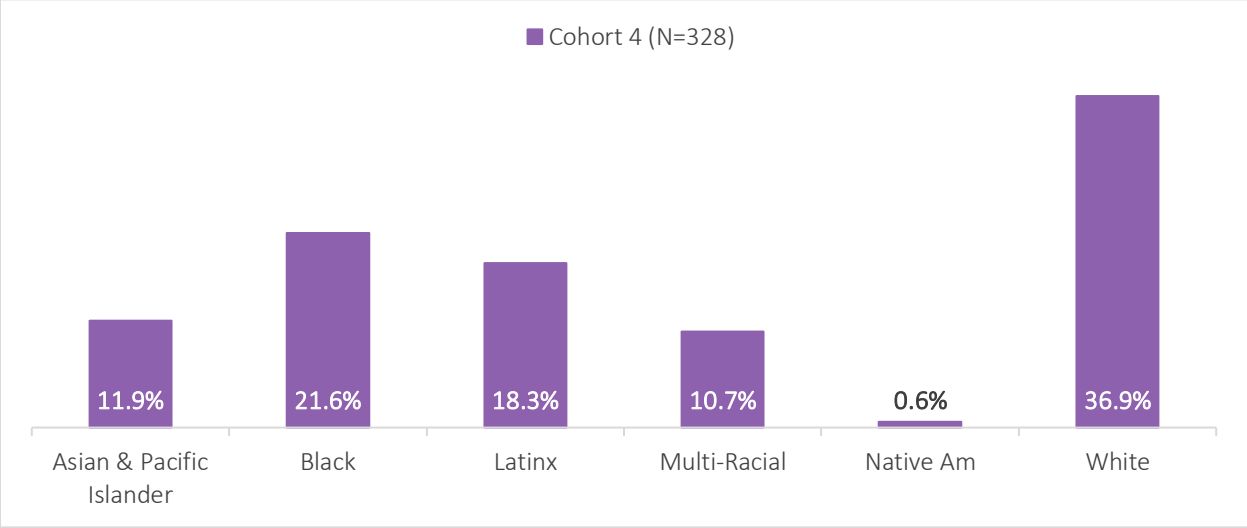

Figure 22. PPS Cohort 4 by Race/Ethnicity

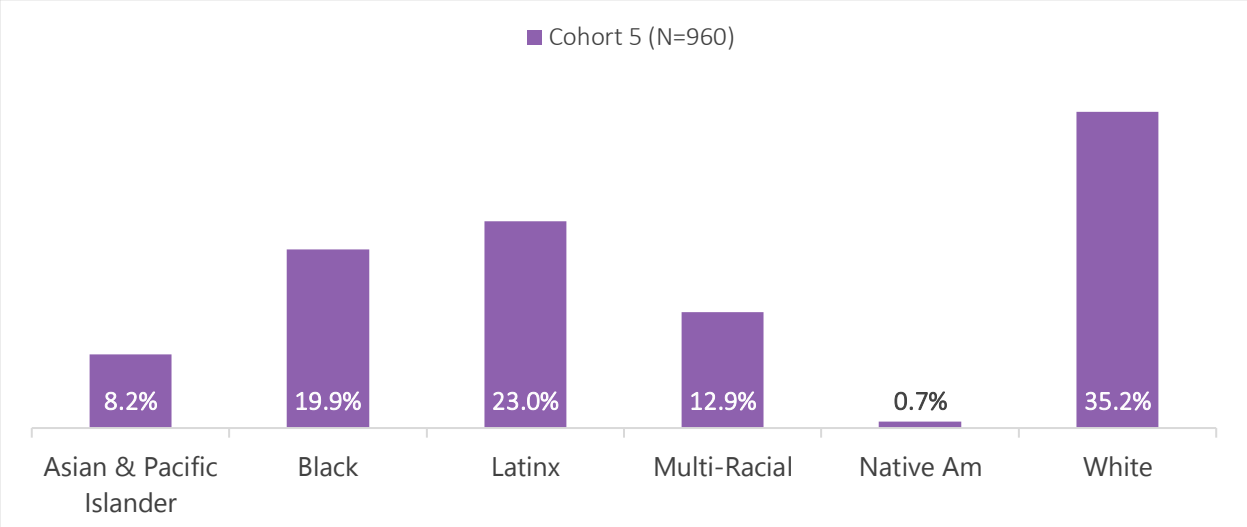

Figure 23. PPS Cohort 5 by Race/Ethnicity

Limited English Proficiency (LEP) Students

The evaluation team examined DIBELS results for students with limited English proficiency (LEP students) across Treatment and Comparison Groups. Because LEP students make up a small sub-sample of students in each cohort and Comparison Group, findings in this section are presented in a combined manner so that all Treatment Cohorts (including students from grades K-3) are compared to all Comparison Groups (also including students from grades K-3). This was the same method used in last year's report, and therefore, we were able to include findings from four timepoints spanning from Winter 2021 to Spring

2022. Notably, the percentage of **LEP students at benchmark increased at each timepoint from Winter 2021 to Spring 2022 in the Treatment Group but stayed relatively stable with slight decreases for the Comparison Group** (Figure 24). **These are promising results suggestive of a positive impact of TechSmart on LEP students.** Note that sample sizes were relatively small for the Comparison Group.

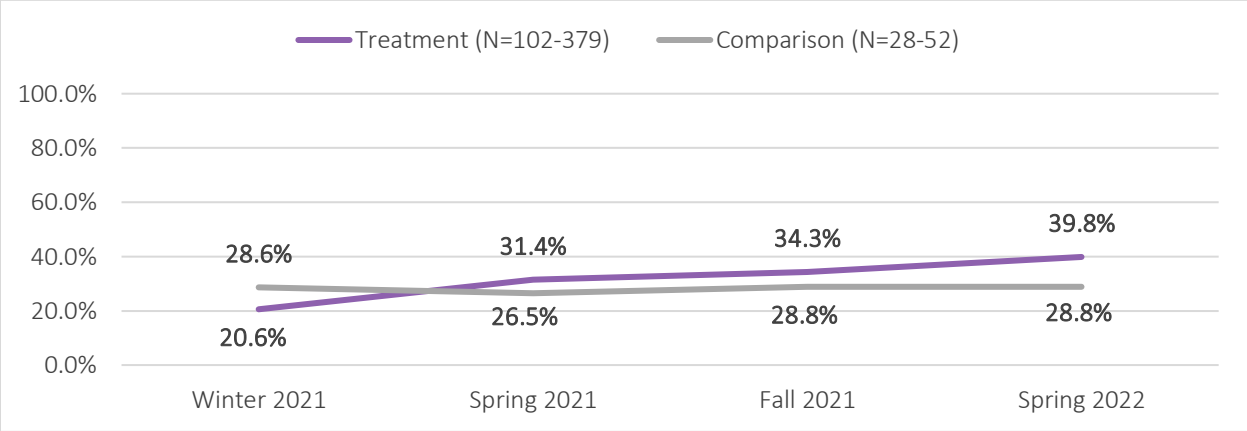

Figure 24. Percentage of LEP students achieving DIBELS benchmark by Treatment condition

Special Education Students

Next, results for students in special education (SPED) or those students with an IEP were compared across Treatment and Comparison Groups. Results, displayed in Figure 25, (next page) include those available from SY 20-21 as well as the current school year, and due to small sample sizes, are combined across cohorts. A lower percentage of SPED students in Treatment groups were at benchmark on the DIBELS in Winter and Spring 2021 compared to Comparison Groups, but the percentage increased for SPED students in Treatment groups in SY 21-22, putting them on par with Comparison Groups. Over time, Treatment groups increased faster than Comparison Groups for SPED students.

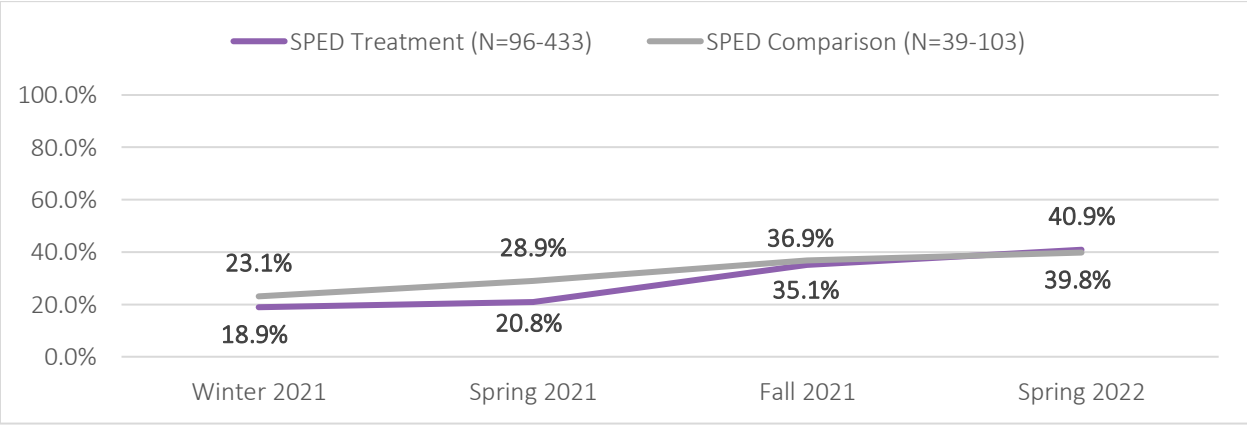

Figure 25. Percentage of SPED students achieving DIBELS benchmark by Treatment condition

Students of Color

Finally, DIBELS assessment results were compared for students of color in each cohort across Treatment and Comparison Groups. For the purposes of this evaluation, students who identify as multi-racial were included in the students of color subgroup. Based on the racial demographic information provided by

PPS, it was not possible to determine if this subset of students identify as white or non-white. As evaluators, we recognize that this method of disaggregating students includes limitations. The methods used in the current report are in line with those used on previous reports with the exception of the SY 20-21 report. Because of the limited available data from SY 20-21, and the different analytical methods used for that report, the following results do not include data from that year.

Results for Cohorts 1, 2, and 3 along with their Comparison Groups are displayed in Figures 26, 27, and 28 (on the following page). The percentage of students of color who reached benchmark on the DIBELS assessment increased from Fall 2021 to Spring 2022 in each of the Treatment and Comparison cohorts. **Promisingly, for Cohort 3, the drop that is seen for other groups, including Comparison Group 3, following the start of the COVID-19 pandemic in percentage of students achieving benchmark on the DIBELS assessment is not present.** More investigation is needed to determine whether TechSmart served as a protective factor for students of color academically during the pandemic.

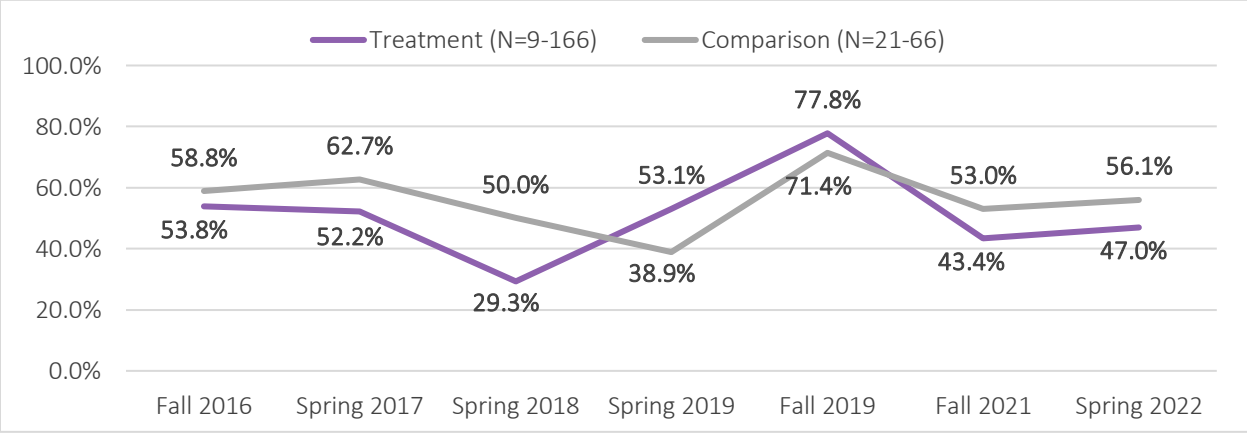

*Figure 26. DIBELS Composite Growth for TechSmart vs. Non-TechSmart Students of Color – PPS **Cohort 1***

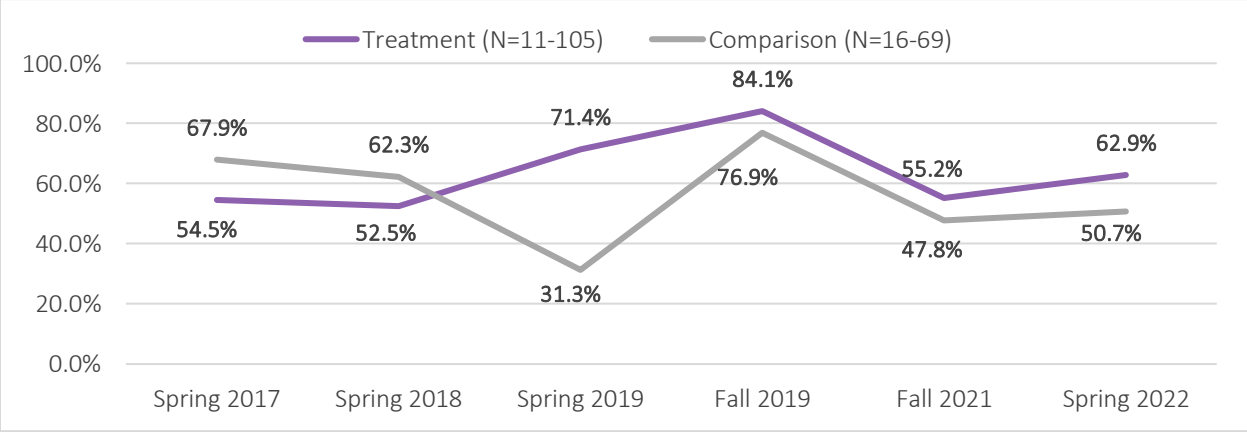

*Figure 27. DIBELS Composite Growth for TechSmart vs. Non-TechSmart Students of Color – PPS **Cohort 2***

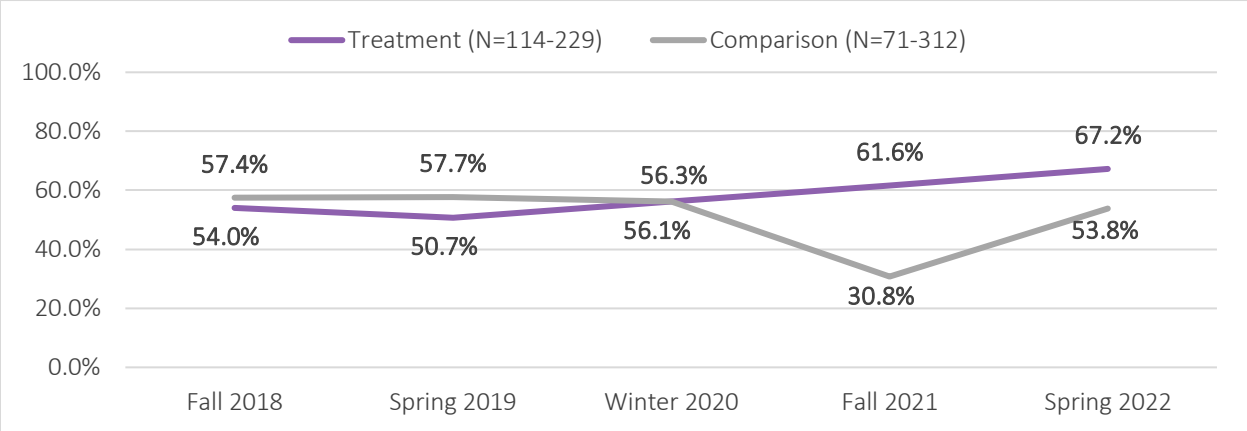

Figure 28. DIBELS Composite Growth for TechSmart vs. Non-TechSmart Students of Color – PPS ***Cohort 3***

Because of data limitations and the different methods used in the SY 20-21 report, multi-year longitudinal data were not available for the DIBELS benchmark achievement of students of color in Cohorts 4 or 5. The following graph (Figure 29) shows the growth in percentage of students of color in Cohorts 4 and 5 reaching benchmark according the DIBELS assessment from beginning to end of SY 21-22.

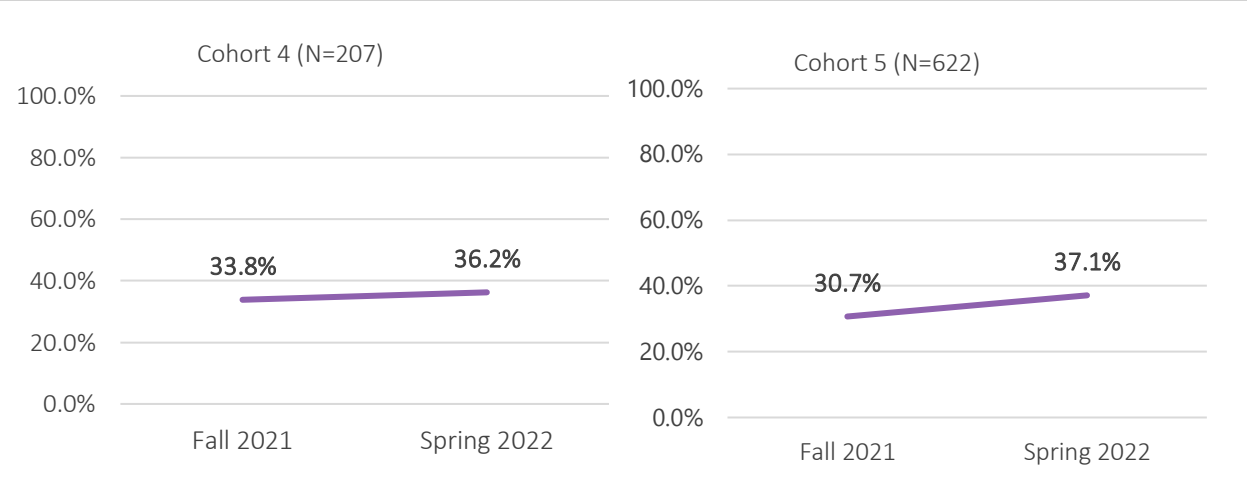

Figure 29. DIBELS Growth for TechSmart Students of Color – PPS ***Cohorts 4 and 5***

KEY FINDINGS	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, SPED (or those with an IEP), and those not on track to meet academic standards)?
	Although students from at-risk subgroups showed a lower rate of achieving benchmark on the DIBELS assessment, the percentage of students at benchmark generally increased for students from at-risk subgroups at a similar rate as that of their non-at-risk peers.
	When looking at students of color subgroups, certain timepoints stand out for Cohorts 2 (Fall 2019) and 3 (Fall 2021 and Winter 2022) in which the achievement gap is narrower, suggestive of a potential positive impact of TechSmart for those groups.
	Students of color in Cohort 3 did not experience the same decline in DIBELS benchmark achievement seen in other groups following the COVID-19 pandemic. More research is needed to understand if TechSmart may have been a protective factor buffering students in this at-risk groups during the pandemic.

To determine whether the rate of student growth in academic outcomes as measured by the DIBELS assessment was greatest for at-risk student subgroups, the percentage of students whose scores met benchmark was compared by membership in at-risk subgroups (i.e., English proficiency, SPED status, and racial group).

Limited English Proficiency Students

First, DIBELS results were compared for LEP students and non-LEP students. Because LEP students make up a small number of students in each cohort, results are presented for all TechSmart cohorts together. This was the same method used in the SY 20-21 report, allowing us to include DIBELS data results from that school year to see change over time. Results are displayed in Figure 30 (next page), for four timepoints from Winter 2021 to Spring 2022. **LEP students had a lower percentage of students at benchmark on the DIBELS assessment at all time points, and the percentage increased in a manner similar to the increase observed for non-LEP students** (approximately 17.6%). Further investigation is needed to understand the impact, if any, of TechSmart on closing the achievement gap for LEP students.

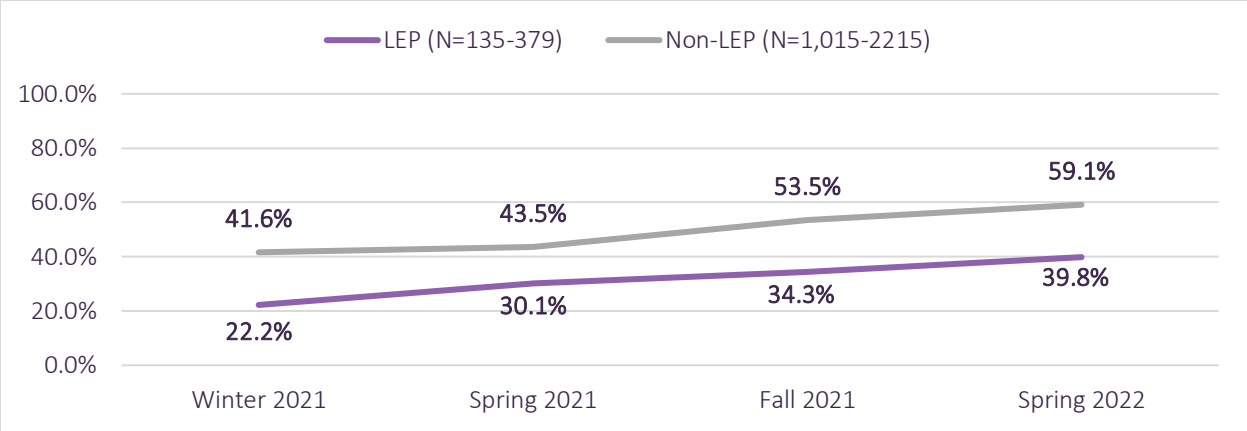

Figure 30. Percentage of LEP and non-LEP TechSmart students at benchmark on DIBELS assessment

Special Education Students

Next, results for students in SPED were compared to results for non-SPED students. Because SPED students make up a small number of students in each cohort, results are presented for all cohorts combined. Since this was the same method used in the SY 20-21 report, DIBELS data from that school year are included to further assess change over time. Results are displayed in Figure 31. SPED students had a lower percentage of students at benchmark on the DIBELS assessment at all time points, but promisingly, **the percentage increased by nearly 21% from Winter 2021 to Spring 2022 for SPED students**. **For non-SPED students, the percentage at benchmark increased only 17.24 percentage points.**

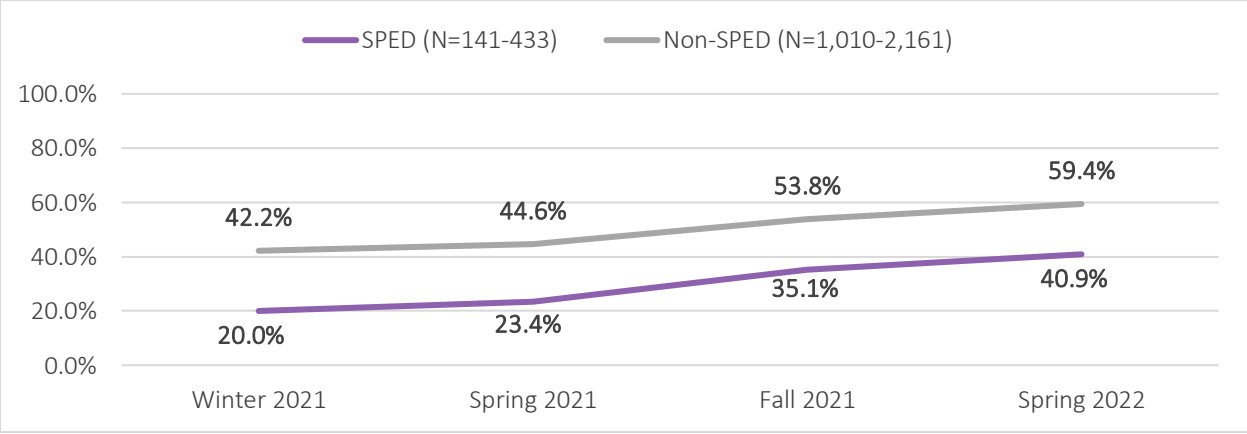

Figure 31. Percentage of SPED and non-SPED TechSmart students at benchmark on DIBELS assessment

Students of Color

Finally, DIBELS assessment results were compared for students of color and white students. There were large enough sample groups to break results down by cohort and timepoint, for all years with the exception of the SY 20-21 (which, for the same reason, are excluded). Results are displayed in Figures 32-35 on the following pages. **A lower percentage of students of color reached benchmark compared to white students across all cohorts and time points. However, the pattern of results highlights some data collection timepoints when the achievement gap is narrower than others. Particularly, at the Fall 2019**

timepoint, students of color in Cohort 2 were only three percentage points behind white students in Cohort 2. Similarly, in Fall and Spring of SY 21-22, Cohort 3 students of color were only approximately five percentage points below white Cohort 3 students. These findings suggest that there is some promise of closing the achievement gap for students of color in TechSmart schools and may serve as a basis for future investigations.

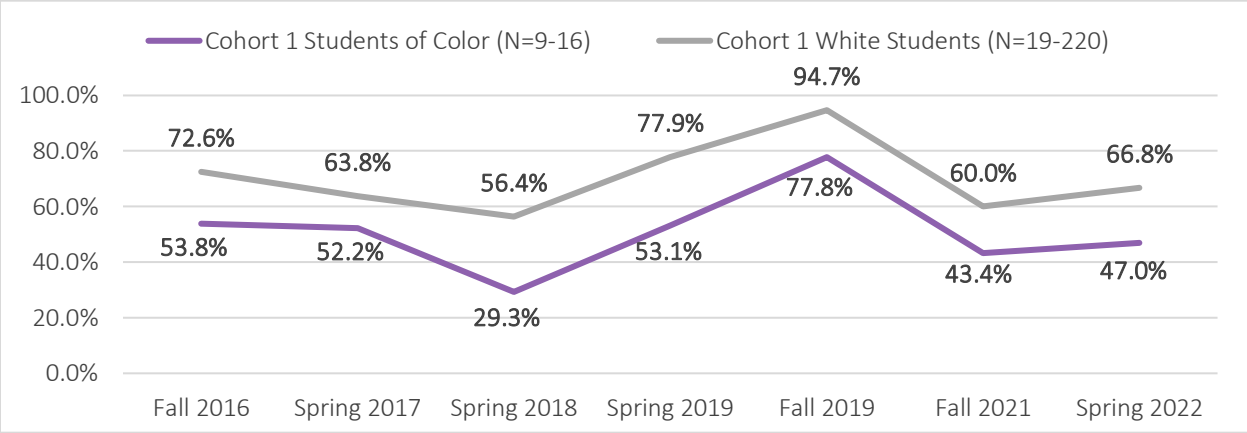

*Figure 32. DIBELS Composite Growth for Students of Color vs. White Students – PPS **Cohort 1** Treatment group*

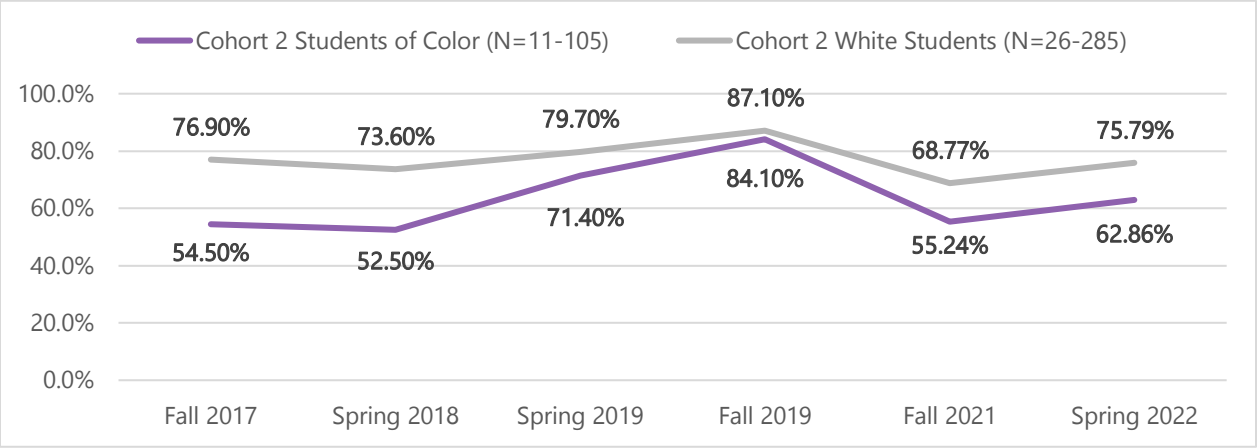

*Figure 33. DIBELS Composite Growth for Students of Color vs. White Students– PPS **Cohort 2** Treatment group*

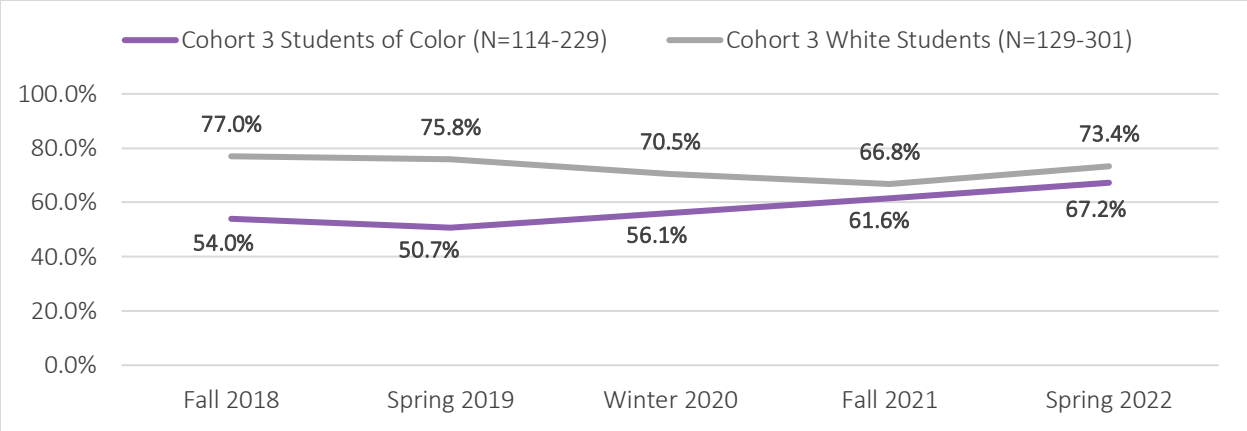

*Figure 34. DIBELS Composite Growth for Students of Color vs. White Students– PPS **Cohort 3** Treatment group*

As mentioned previously, because of data limitations and the different methods used in the SY 20-21 report, multi-year longitudinal data were not available for the DIBELS benchmark achievement of students of color in Cohorts 4 or 5. The following graph (Figure 35) compares the DIBELS benchmark achievement of students of color and white students in Cohorts 4 and 5 from beginning to end of SY 21-22.

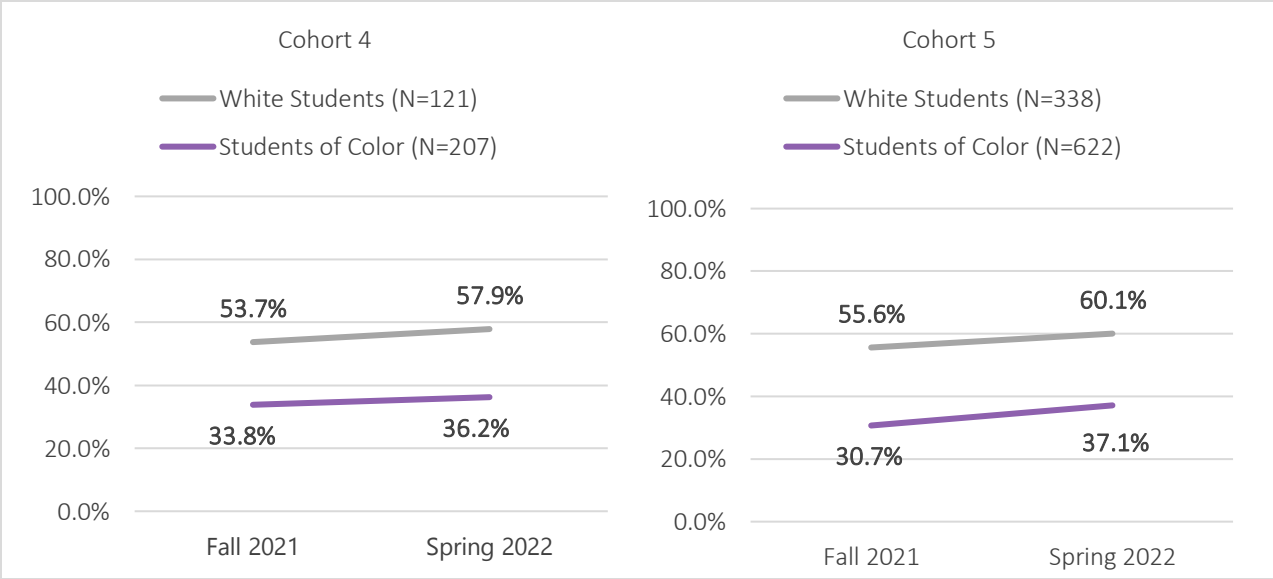

*Figure 35. DIBELS Growth for TechSmart Students of Color vs. White Students– PPS **Cohorts 4 and 5** Treatment groups*

Additional Insights for At-Risk Students

Outside of student achievement data, survey data provided additional insight into the impact of TechSmart on at-risk students. During distance learning, teachers used technology in a variety of ways to support instruction for students impacted by the opportunity gap. **Of the 138 teachers who provided open-ended input, 30% (*n*=41) used technology to differentiate learning for their students with tools such as Seesaw or Jamboard. Additionally, teachers leveraged small group instruction (*n*=36) and one-on-one instruction via breakout rooms (*n*=13) to student subgroups.** Around 10% (*n*=13) of teachers offered audio aids, such as recorded instructions for assignments, and visual aids, such as slides or screen sharing, to support LEP students with learning vocabulary. Teachers offered voice-to-text options, which proved to

be particularly effective for SPED students, and built in culturally responsive content. A sample of responses are included in Table 6, below and on the next page.

Please provide examples of how you have used technology to support instruction for at-risk subgroups (students of color, ELL, SPED, low SES) during distance learning.	
Differentiated learning (n=41)	*"I provided small group instruction specifically in ELA and Math. One example was book clubs; students would read a chapter book together in small groups. Groups were differentiated based on current data of reading levels. It was very effective because I could offer support and modeling of skills during this meeting time."* *"Technology helped me differentiate for my learners because I am able to assign adaptable programs and apps (Lexia, Learning A-Z, Dreambox). I also was able to create assignments that allowed for creativity and a variety of ways to respond or access via Seesaw."*
Small group instruction (n=36)	*"Breakout rooms to scaffold content and engage students and support language acquisition."* *"Small group interactive collaboration tools (Jamboard, Padlet, etc.), differentiated videos & lesson materials."* *"I teach intervention groups for at-risk students, one to one support with my student teacher, or small group work in a breakout room with myself or my student teacher, and one to one support when I had office hours."*
One-on-one support (n=13)	*"One-on-one support using Google meet, Jamboard, Padlet, and Seesaw."* *"Using breakout rooms to provide one-on-one instruction."* *"We provided one-on-one reading support to 2nd-5th grade students who showed they needed it, prioritizing Native and Black students, then Latinx students."*
Audio aids (n=13)	*"Provided my voice recorded as a read aloud option for all reading passages in Seesaw."* *"Providing recordings of readings that students can listen to and see the text, create fill in the blank vocabulary assignments."* *"The best features I used were the video and/or microphone to read directions aloud on assignments so students without reading skills could better access the content".*

Please provide examples of how you have used technology to support instruction for at-risk subgroups (students of color, ELL, SPED, low SES) during distance learning.	
Student choice (n=12)	*"Students were allowed to present their work in different modalities, particularly students that struggle with writing and students that are neurodiverse. Recording their thinking and or drawing their ideas out in Seesaw."* *"Providing students with choice board activities."*
Visual aids (n=11)	*"I can easily add visuals/video to presentations for ELL kids."* *"Jamboard is great for kids who can do the work independently or we work on the page together. It is also great to use when I simply share my screen for my younger kids who are less tech savvy but benefit from having lots of visuals (color coded, pictures, etc.) and can work on their papers at home as they watch me model how to do it."*
Voice-to-text (n=10)	*"Voice-to-text is great for SPED students."* *"Speech to text support and use of "captions" in Seesaw to provide verbal support."* *"All students in at-risk subgroups were able to demonstrate a level of writing by creating a piece in Book Creator. The app can allow students to use voice-to-text if they are unable to spell and form a sentence."*
Culturally responsive content (n=9)	*"Use of EPIC books featuring BIPOC."* *"BLM Seesaw assignments."* *"I have been able to design activities such as a "culture basket" to allow students to explore and share their diverse cultural identities."* *"One example is choosing read a-louds showing more families/children of color."*

Table 6. Ways technology supported instruction for at-risk subgroups during distance learning (N=138)

In focus groups, teachers echoed the survey input, highlighting what an advantage technology has been to support students. Again, audio aids were noted by several teachers as being particularly useful tools. **One teacher shared how being able to record lessons plans in Seesaw in their own voice helped connect to students, as well as make it easier for substitutes (e.g., they can play pre-planned recordings rather than having to develop their own material). The ability to record lessons was also found to be an important way of supporting parents who don't speak English, generally and during distanced learning.** Students had a familiar voice to listen to while they moved through lessons at their own pace. Another way teachers connected with parents included the Remind app. Several teachers found this to be helpful for connecting with parents, specifically for those who do not have email. One teacher shared, "Last year,

half of my families didn't have an email address. Remind was the only way I could keep in touch with them."

Additional supports that teachers shared in focus group conversation include speech-to-text capabilities for students who have difficulty writing and using differentiation to help students progress through content at their own pace.

In interviews, principals reviewed the ways technology expanded access and engagement opportunities for students, reiterating feedback from teachers. One principal highlighted the speech-to-text functionalities offered through BookCreator was impactful. Another noted that platforms like Lexia and Google Suite offered students more accessibility options.

> *The text to speak has been a big one. When a kid struggles with writing, as well as spelling, they can say it and then it all is on right there in the computer, saved automatically. There is no worry about messing up and erasing.*

Many principals also shared deeper reflections on what it means to address the achievement gap. One teacher shared that differentiation is where their efforts are focused. **A TechSmart coach shared that their team centers equity, paired with a recognition that the team lacks internal diversity; the group seeks to hire more intentionally moving forward and will continue with internal equity-aligned PD.** Another coach added observations about similar needs across the district, "There is an issue with district's lack of support for our bilingual teachers and teachers of color. As coaches, we focus on offering additional supports to them. We prioritize these teachers."

DIGITAL AGE LEARNING CULTURE

Districts embrace a cultural shift and view technology as positive.

KEY FINDINGS	Has the use of technology to support instructional practices increased?
	Frequency of technology use during class increased from baseline, with the greatest increase in teachers adapting activities to students individually using technology.
	Support from TechSmart coaches allowed teachers to have the resources to better adapt activities to individual student learning.

As shown in *Figure 36*, **teachers increased the frequency of their technology usage in class from baseline**. Increases ranged from 8-20%, with the largest increase being the amount of time students spend working individually using technology.

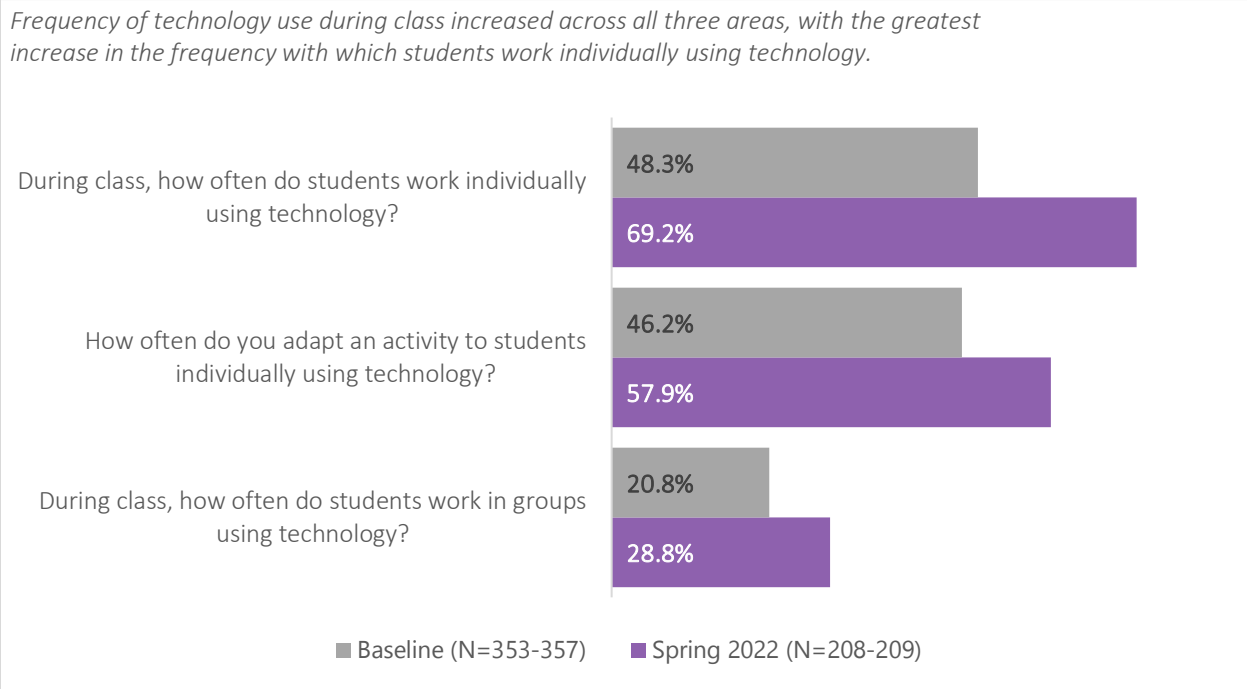

Figure 36. PPS teachers observed frequency of technology integration (% A Moderate Amount/A Great Deal)

In focus groups, TechSmart coaches emphasized that they supported teachers, providing them the resources they needed to break down their instruction into individualized learning tasks. Tactics they described using include co-teaching and modeling, integrating student devices into classroom-based instruction, attending class meetings, and developing protocols to guide coaching. A principal shared during their interview that they were able to communicate more with teachers via online meeting and chat messaging platforms, allowing them to be nimbler in providing support.

> *I think we have made steps toward moving for a more integrated collaboration with technology across different subjects.*

KEY FINDINGS	Do teachers have increased access to and use of digital content and resources?
	By Spring of 2022, a majority (83.0%) of surveyed teachers were using digital content and resources A Moderate Amount or A Great Deal in their instruction.
	A majority (84.9%) of teachers perceived that their students' comfort level with digital tools increased over time.

As seen in Figure 37, **in Spring of 2022, a majority (83.0%) of surveyed teachers were using digital content and resources A Moderate Amount or A Great Deal in their instruction.** This represents some decline from the previous year, where 88.3% of teachers reported increased usage of the same tools.

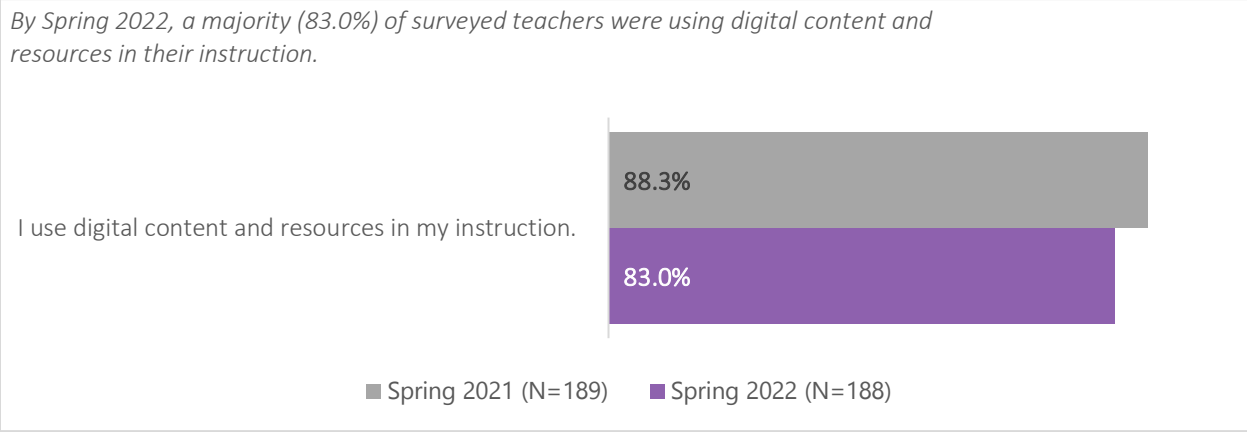

Figure 37. PPS teacher integration of digital content (% A Moderate Amount/A Great Deal)

In Spring of 2022, **teachers reported increases in their students' ability to engage with and use digital tools for learning** (Figure 38, on the next page). Teachers observed the most growth with students' general comfort using digital tools, demonstrating a 13.5% increase from baseline.

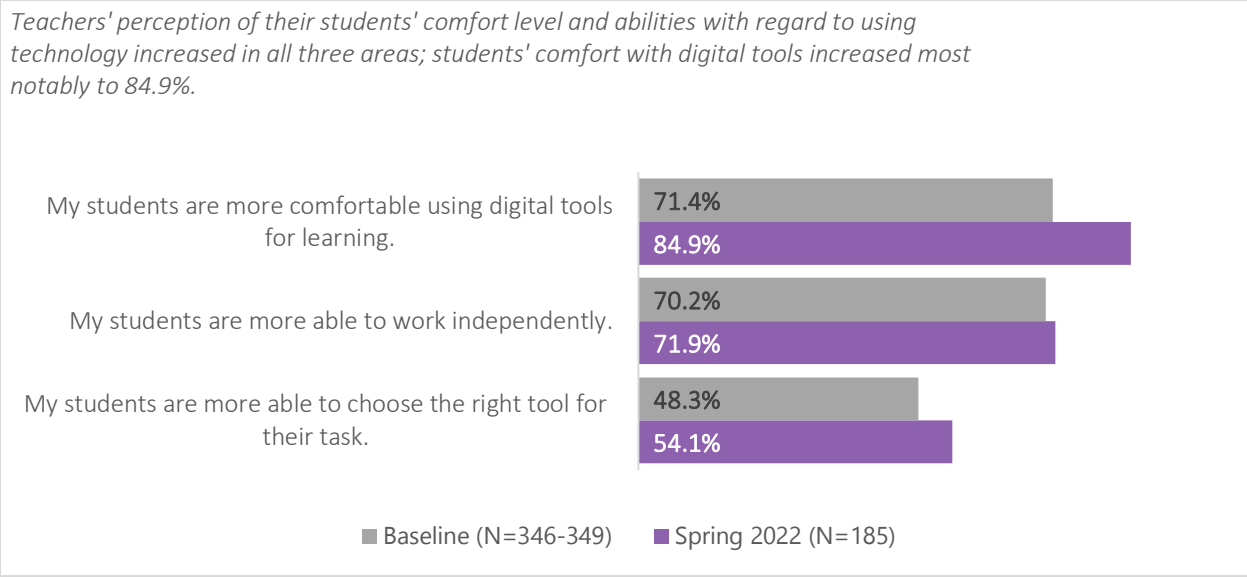

Figure 38. PPS teachers' perception of student technology proficiency (% Agree/Strongly Agree)

KEY FINDINGS	Is there evidence of district wide support for technology integration?
	Teachers increasingly feel they are among peers who understand how technology can be used to enhance learning.
	Principals felt positively about the culture of support around technology integration from the district, describing support as consistent and proactive in providing support to teachers.

Teacher survey data, presented in Figure 39 (next page), show an **increase in teachers' perception that peers in their school understand how technology will be used to enhance learning**, from 53.7% at baseline to 62.1% by Spring 2022, and **a decrease in teachers' perception that teachers in their school are continually learning about technology**, from 76.2% at baseline to 69.5% by Spring 2022.

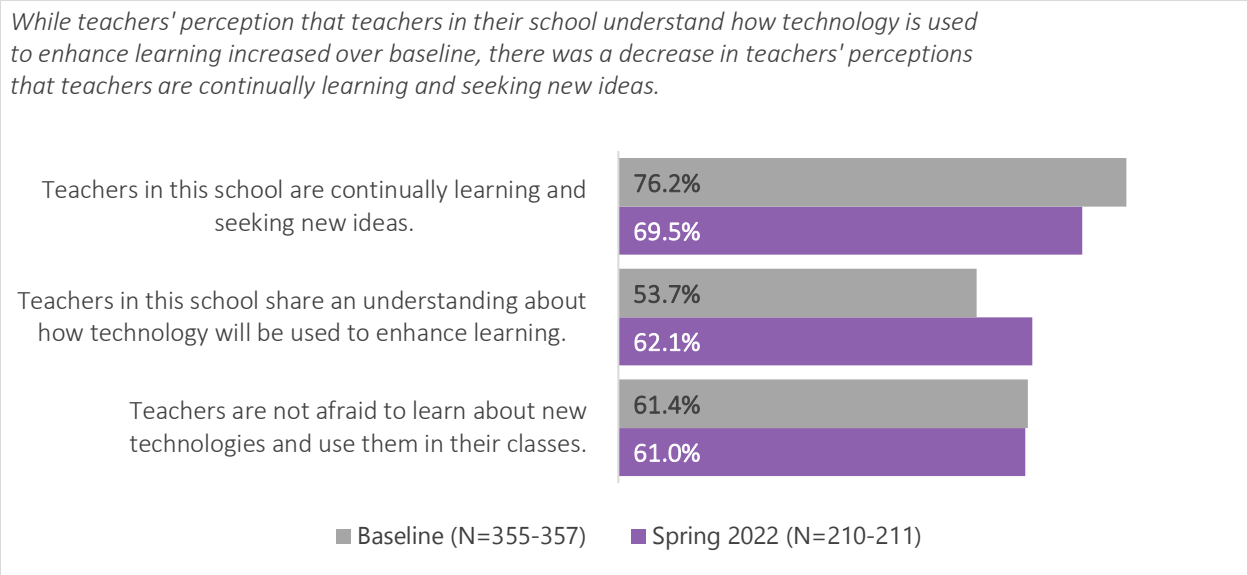

Figure 39. PPS teachers' perception of culture of support for technology integration (% Agree/Strongly Agree)

TechSmart principals felt positively about the culture of support around technology integration from the district. They described the support received from coaches as consistent, highlighting their presence in meetings, on campus, and being proactive in providing support to teachers. One principal reflected on the previous year, noting that it was "a heavy lift to get our teachers going with CDL." They further shared that working with coaches highlighted a need for more technological proficiency beyond working a computer camera. They felt supported by coaches as they helped teachers learn various platforms and how to manage content across them.

KEY FINDINGS	Do parents have an increased understanding and utilization of districts' technology assets?
	The Remind app was used by teachers and administrators to message parents, though teachers across the district had varied perspectives on how accessible or equitable the app was.
	Teachers and principals described a goal of providing a range of access points and supports to parents, suggesting it was part of a more holistic approach to meeting student needs.

The SY 21-22 PPS year-end status report indicated that families continued to receive direct communications and supports through the TechSmart grant. The Remind app was used by teachers and administrators to message parents. Further, a reference document for MyPPS/Classlink using Quickcards for grades K-2, as well as a document with usernames and passwords for course materials across grades 3-5, were translated into PPS's five main languages. Digital books continued to be accessible at home, and instructions for how to access the TechSmart funded eLibrary (and therefore how to access these books) were also translated into the district's top five main languages. Further, the Seesaw app continued to be a

valued tool for family engagement across all impacted grades, with teachers primarily using it to share student assignments and performance. Parent-teacher conferences were offered virtually. Chromebooks and hotspots were made available to families in need to ensure that parents could participate in these conversations.

Teachers reiterated that many of the strategies they use to engage with at-risk students include parents in the process. As such, **being able to provide a range of access points and supports to parents through technology appeared to be part of a more holistic approach to meeting student needs**. This included providing audio recordings of lesson plans for at-home learning, using parent portals on available apps or learning management systems, and trying to message parents in the most convenient way possible. **Teachers had contrasting experiences with the messaging app, Remind.** One found it to be the most effective way of reaching parents without email addresses and in lower socioeconomic groups. Another shared that for their families, the majority of app users were "white affluent families," and that many of the at-risk or underserved families they teach do not have the technology to access the app. This dichotomy was reiterated by another teacher who noted that parents' needs and ways of engaging with them vary across the district.

> *The equity piece is really key. Though parties across our district are in this study, for those of us working at a Title 1 school, the majority of our families are not English speaking. A lot of the support we give to those families is on our own time, including a lot of troubleshooting and showing them how to use these tools.*
>
> *'Remind' can make it really easy to communicate with some families, but then really challenging to communicate with other families. I have to go to traditional phone calls, or in-person, or other creative manners.*

Two principals provided perspectives on parents and family experiences with online learning. One reflected on the differences they've observed as they have moved across schools amid the pandemic. Students at their previous school, where approximately 40% of students qualified for free and reduced lunch, were observed to have more difficulty engaging in online learning. The principal described it as "a lot to ask of families." They shared that, even when hotspots were provided, learning how to use the technology was often burdensome, particularly for English learners. The other principal spoke about ways they and their teachers engaged with parents. They noted that emailing or message blasts were effective at engaging with those active in the Parent-Teacher Association (PTA), both directly and through an app. They further noted that most meetings had moved to being virtual so that people could be in the comfort of their own home. Parents were also invited to track student performance through a portal on Canvas, NearPod, Lexia, and DreamBox.

KEY FINDINGS	How has TechSmart impacted the shift to distance learning?
	The PPS year-end status report documented that some teachers and students struggled with adapting to in-person learning after CDL.
	Several teachers shared that they continue to use online platforms for posting assignments, monitoring student progress, and connecting with parents.

The SY 21-22 PPS year-end status report touched on the struggles some faced adapting back to in-person learning after a year of CDL. It noted some decline in the depth and quality of student engagement with technology. However, PPS administrators are working on solutions. TechSmart funding allowed for PPS to invest in classroom robotics libraries for all 31 TechSmart schools. These libraries include Bee Bots, Dash & Dot robots, Spheros, SAM Labs kits, and Padcaster video production kits. TechSmart coaches were reportedly able to introduce the LIL to nearly all TechSmart teachers, and several students, across SY 21-22. These LIL activities were found to be particularly effective at helping students balance the connection between technology and physical objects in the classroom. LIL activities are more interactive than traditional "sit-and-get-Chromebook" activities previously used in the classroom for technology engagement.

Teacher survey data provided additional insight into the ways in which experiences during CDL impacted classroom-based instruction during SY 21-22. When prompted to share strategies that they learned during SY 20-21 and are bringing to their classrooms, many teachers mentioned various technological tools. A brief list is shared below.

- Bee Bots
- Book Creator
- Canva
- Canvas
- Dreambox
- Epic
- Google Suite
- JamBoard
- Kahn Academy
- Kahoot
- Lexia
- MyOn
- Paddlet
- Quizziz
- Readworks
- Seesaw
- Sora
- Words Their Way

Some teachers provided added context for why they chose to bring these tools back into the classroom. One shared, "Having the knowledge of how to use these tools was very helpful in creating lessons, having students interact online with each other, and being able to show their own creativity." Another spoke about how they were able to make more dynamic content (e.g., lessons, newsletters, assembly presentations, etc.). Several teachers shared that they continue to use online platforms for posting

assignments, monitoring student progress, and connecting with parents. This was found to be particularly helpful for keeping students on track when they were absent from in-person instruction.

VISIBLE LEADERSHIP

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

KEY FINDINGS	Are districts identifying effective instructional practices and disseminating information and results to other districts?
	Principals felt that they had limited interaction with others across the district, but that the Director of Technology was an active, engaged resource when needed.
	The district is migrating towards using technology intentionally designed for curriculum or learning management, rather than having teachers adapt tools for these purposes (e.g., using Seesaw as intended, as a student portfolio).

Principals noted that their interactions with peers and other schools throughout the district was limited. That being said, they felt the district was a consistent presence in their work. One principal noted that the Director of Technology was "a really proactive and strong communicator, sending easy-to-read and accessible newsletters every week." He was also praised for having a keen understanding of how various schools work, and how teachers' time is a limited resource. Similarly, another principal shared that their school was assigned a technology person who would conduct site visits with the purpose of solving technological issues, conducting minor repairs, and removing e-waste. Again, the consistency was applauded, with the principal noting that teachers appreciated having a stable support to rely on.

The SY 21-22 PPS year-end status report recorded that the district used a combination of Seesaw and Atlas during distanced learning to help organize learning and share practices at the K-3 level but moved away from this practice when returning to classroom-based learning. The status report explains that this was intentional, as Seesaw was not designed to be a comprehensive learning management system. While it served an important purpose during distance learning, moving forward PPS plans to use it as a student portfolio (it's intended function). Similarly, Atlas will be replaced by a web-based curriculum platform. The report does not mention intentional cross-district idea sharing. However, it does note that several staff participated in an external conference, iPDX, which included networking opportunities with other districts.

KEY FINDINGS	Do teachers feel increased support from district leaders regarding technology integration?
	As of Spring 2022, many (78.2%) teachers felt that administrators in their school were supportive of technology integration.
	Teachers felt that the district was invested in technology but noted that there was room for more cohesion and long-term planning. Changing platforms each year made it difficult to build student habits.

As of Spring 2022, **about three quarters (78.2%) of teachers felt that administrators in their school were supportive of technology integration,** a slight decrease from baseline (Figure 40).

By Spring of 2022, about three quarters of teachers agreed that administrators in this school are generally supportive of technoligy integration efforts, though this was a slight decrease from baseline.

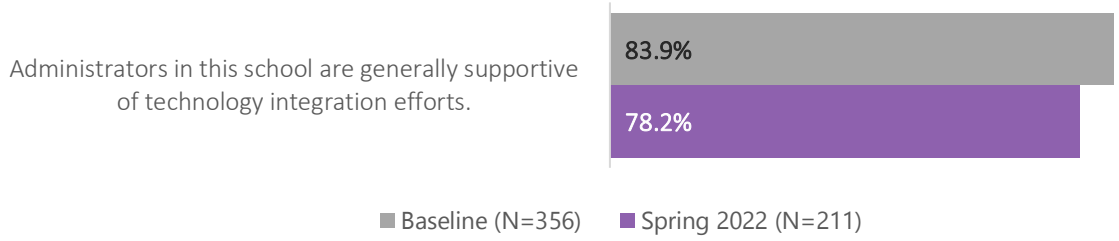

Figure 40. PPS Teachers' perceptions of a culture of support for technology integration (% Agree/Strongly Agree)

Teachers felt that the district was invested in technology but noted that there was room for more cohesion and long-term planning. For example, one teacher observed that – across the course of their career – there had been frequent platform and device changes. They said an outcome of this was that, collectively, **teachers were not able to develop or build good technology habits with students to build on each other year-over year**. Teachers also shared that students were expected to know how to operate devices but do not believe the district prioritizes developing these skills.

> *Especially with them being a generation that texts and uses tablets, it would be wonderful if we offered a keyboarding program or helped them develop some efficient habits. Similarly, students need support using word processing software. I think the writing in Portland public schools, even with our new adoptions continues to be an afterthought in our literacy standards.*

It was also noted that **the availability of TechSmart coaches and professional development (PD) had waned**. One commented that they felt like the responsibility was now on them, the teachers, to determine

what their resource needs were. Another shared that it was likely harder for new teachers to know who to contact for assistance, when needed, and suggested distributing a contact list.

> *It's a systemic problem with Portland Public Schools. If they get something new going and the sustainability's not there... We used to have the coach more, but she got divided across five schools. It's almost impossible to be able to meet everyone's needs when you're split amongst five schools and get them a little bit of time once a week, not even half a day.*

Two principals reflected on district-level support, reiterating many of the sentiments expressed by teachers. They appreciated TechSmart coaches and found them to be proactive in providing support, but also noted that their availability was stretched thin across the district. **Principals also affirmed that there appeared to be fewer PD opportunities and fewer options for people to collaborate across the district.** One principal noted the impact this had on teachers, particularly as they struggled to balance a return to in-person instruction and learning new digital tools; "That showed me that there was really a lack of capacity around using technology beyond document camera. It was very difficult for the teachers to learn and to transition from one platform."

DATA-DRIVEN IMPROVEMENT

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

KEY FINDINGS	How are schools using data to improve instruction, professional development, and student performance?
	Teachers not only frequently used technology to differentiate, but they were also confident in their ability to do so; about 85% of survey respondents reported confidence in differentiating instruction by Spring of 2022.
	Over two-thirds of teachers used formative assessment to identify effective instructional practices.
	More than 80% of surveyed teachers reported they were comfortable integrating technology into their instructional practices and almost 75% had found effective means for doing so.

Teachers reflected on technology usage in the classroom, shown in Figure 41. **Compared to Spring 2021, when distanced learning was in full effect, teachers reported less frequent usage of technology for a range of functions**. However, about two-thirds of teachers reported using technology for evidence-based instruction and to differentiate instruction A Great Deal or A Moderate Amount in Spring of 2022.

Seventy-four percent of teachers use technology to differentiate instruction. Teachers were less likely to report frequent use of technology for evidence-based instruction or to analyze student data.

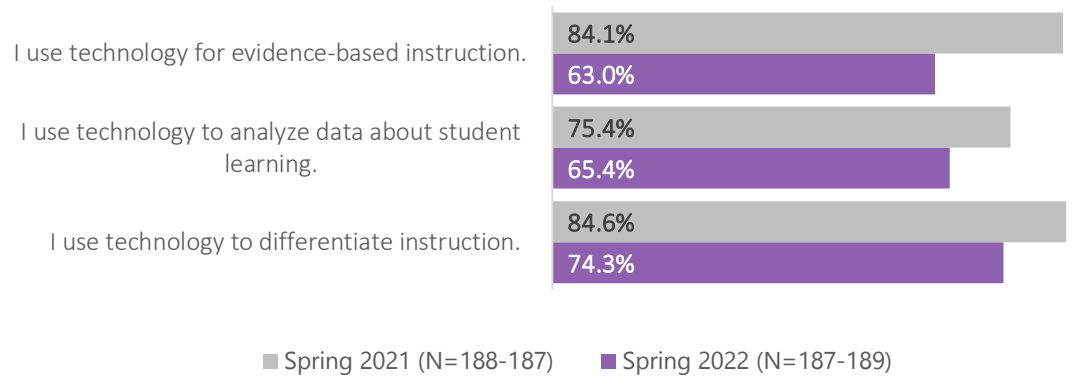

Figure 41. PPS teachers' instructional technology usage (% A Moderate Amount/A Great Deal)

Again, compared to Spring 2021, teachers reported slightly increased confidence in their ability to use data to support students (Figure 42).

More than 85% of teachers reported they were confident in their ability to differentiate and assess students' progress.

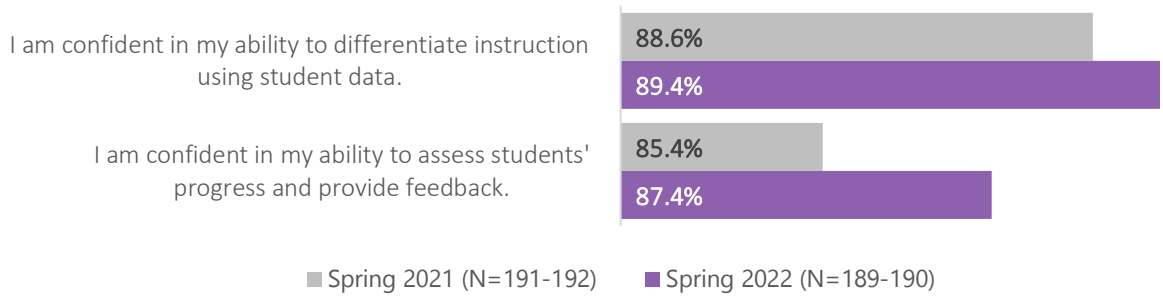

Figure 42. PPS teachers' ability to differentiate instruction and assess student progress (% Agree/Strongly Agree)

Teachers reported a decrease in the extent to which they use formative assessments to inform practice from the preceding year (Figure 43, next page).

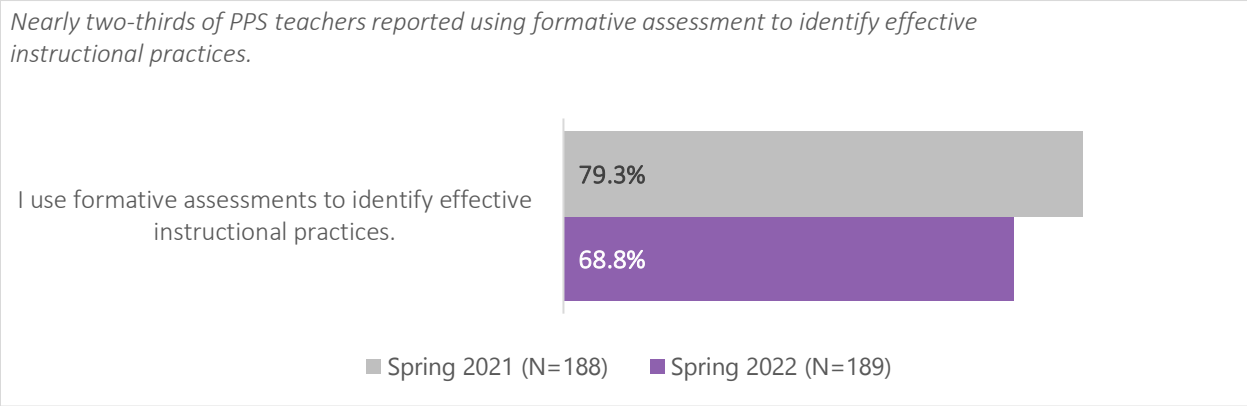

Figure 43. PPS teachers' formative assessments usage (% Agree/Strongly Agree)

As seen in Figure 44, **more than 80% of surveyed teachers reported they were comfortable integrating technology** into their instructional practices, which is relatively consistent with the preceding year. Approximately three quarters of teachers reported having effective means for doing so, which is a slight decrease from Spring 2021.

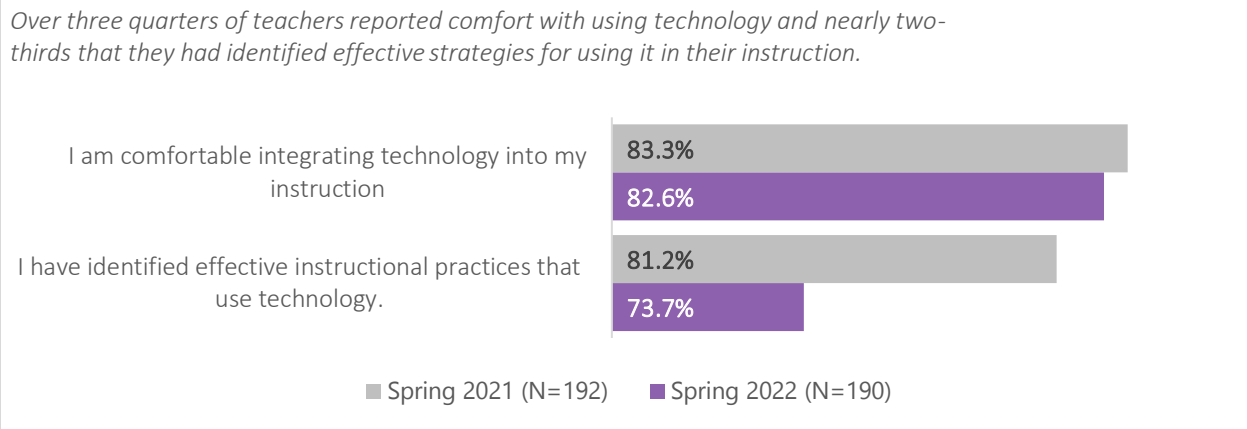

Figure 44. PPS teachers' comfort level and competence with technology (% Agree/Strongly Agree)

FUNDING & BUDGET

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

KEY FINDINGS	Have districts identified at least one opportunity for repurposing resources to support technology integration?
	As the number of TechSmart coaches decreases, individuals reported feeling stretched thin as they seek to support a greater volume of schools.

TechSmart coaches shared some concern for the sustainability of their role and the support they were able to provide teachers while reflecting on how their component of the grant was initially more robust. They noted that the number of staff in this position was decreasing and that their function over the life of the grant had also changed. They had to help support transitioning curriculum, scaling to meet distanced learning needs, and now supporting teachers as they transitioned back into the classroom – with one coach commenting that they were being spread thin. They sought to support teachers by focusing coaching efforts on uplifting students, hoping that it had a lasting impact on teachers no matter what level of support they were able to provide.

> *Racial equity is going to be lasting, this is the stance we impart to teachers. That is how change happens. It is supported by networking, and tech offers great opportunities for teachers to connect and learn from each other. Community is developed; sustainability is community.*

Coaches felt that some of their resource issues were due to a lack of understanding from district leaders. They want to be consulted on decisions being made about their work, or at least given an opportunity to advocate for the value of their job and expertise. Some felt that this disconnect was due to how large the school district is, making it difficult for leaders to have detailed insights on needs across all schools.

One principal shared their thoughts on funding, budget, and sustainability. They felt that, without funding, the TechSmart TOSA role would likely be eliminated. They anticipate the duties would be redistributed to a single person at the central office or reassigned to principals to delegate down to teachers. The principal indicated this would likely be a confusing process that would stall overarching efforts.

STRATEGIC PLANNING

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

KEY FINDINGS	Does the district's strategic plan reflect shared commitment to improving outcomes for students?
	One principal provided feedback, speaking about the central role technology had in their ability to effectively do their work.

When asked about PPS' strategic plan, one principal spoke about the added advantages of having access to virtual meeting and communications platforms for their school. They viewed technology as central to their ability to gather and share information, providing quick access to teachers, peers, and others. They also valued the ways web-based trainings made participating in professional development (PD) more accessible for people. They described technology as "a part of our world" and expressed that they "couldn't imagine someone not understanding or knowing how to access or navigate technology."

EVALUATION INSIGHTS

The SY 21-22 evaluation at PPS produced the following insights:

- **Teachers benefited from professional development (PD) opportunities**. Most teachers reported receiving at least some technology-related PD in both Group or Individualized formats. The vast majority of teachers who received technology-related PD rated it as moderately to extremely useful, with a higher proportion of teachers rating Individualized PD as useful (85.4%) compared to Group PD (72.5%). Between a quarter and a third of teachers participated in TechSmart Labs that were new this year. Feedback from teachers on TechSmart Labs was highly positive, with teachers describing the experience as "fun," "great," and "helpful."

- **Teacher confidence and efficiency in their use of technology to enhance instruction has increased.** Teachers felt confident in their abilities to differentiate instruction using student data, and in their abilities to assess student progress and provide feedback, showing marked increase on both of these measures over baseline by Spring 2022. Teachers improved problem-solving and critical thinking activities and reported integrating the most current research on teaching and learning when using classroom technology. Although integration of some technology declined, three-quarters (74.6%) of surveyed teachers felt they used technology efficiently according to the post-survey, an increase from 52.7% who felt they efficiently used technology at baseline.

- **Student achievement results show promise for the impact of TechSmart on PPS students impacted by the opportunity gap.** Although most Treatment cohorts as well as Comparison Groups experienced declines in DIBELS benchmark achievement following the COVID-19 pandemic, all cohorts were once again on an upward trajectory according to most recent available data. DIBELS data from LEP students, SPED students, and students of color showed promising results. For all at-risk groups, the percentage of students at benchmark on the DIBELS increased from Fall 2021 to Spring 2022 in the TechSmart cohorts. Additionally, students of color in TechSmart Cohort 3 did not experience the decline in DIBELS benchmark achievement experienced by most other groups following the start of COVID-19. More research is needed to understand if TechSmart may have been a protective factor buffering students in at-risk groups during the pandemic. SPED students had a lower percentage of students at benchmark on the DIBELS assessment at all time points, but promisingly, the percentage increased by nearly 21% from Winter 2021 to Spring 2022. For non-SPED students, the percentage at benchmark increased only 17.24%. Additionally, educators revealed in interviews that they have anecdotally noted students utilizing technology in ways that facilitate positive student outcomes for at-risk groups, such as speech-to-text support for students who have challenges or barriers associated with physically writing. Teachers also shared that at-risk students were successful at completing projects by utilizing technology such as Book Creator.

- **Teachers used technology to promote positive student outcomes during distance learning as well as in classrooms**. During distance learning, teachers used technology in a variety of ways to support instruction for students impacted by the opportunity gap. Of the 138 teachers who

provided open-ended input, about one third (30%) used technology to differentiate learning for their students with tools such as Seesaw or Jamboard. Additionally, teachers leveraged small group instruction and one-on-one instruction via breakout rooms to student subgroups. Around 10% of teachers offered audio aids, such as recorded instructions for assignments, and visual aids, such as slides or screen sharing, to support LEP students with learning vocabulary. Teachers offered voice-to-text options, which proved to be particularly effective for SPED students, and built in culturally responsive content. Teachers also found technology helpful when it came to connecting with families, particularly parents/guardians who do not have email access.