

San Francisco Unified School District Personalized Learning Environments Pilot: A Report on Formative Research in the 2018-2019 Academic Year

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I. Executive Summary

This report summarizes findings from formative research and design activities with San Francisco Unified School District's Personalized Learning Environments (PLE) Pilot program developed over the course of the 2018-2019 academic year. Our team at Stanford Graduate School of Education led by Amber Levinson and supported by Brigid Barron have carried out through a partnership between SFUSD and the TELOS Initiative (Technology for Equity in Learning Opportunities) at Stanford.

Our research activities in the course of the year had two foci: 1) collecting and analyzing data for the purpose of providing formative input to the pilot team, and 2) understanding the trajectories of teachers in the pilot and how the pilot experience shaped their teaching practice, if at all.

The PLE Pilot Program (see Pilot Background) has enrolled 40 teachers from 12 K-5 elementary schools (3-4 teachers from each participating school) who engage in professional development, redesign their classrooms, and adopt 1:1 technology infrastructure with the goal of *creating models for technology-enabled, personalized learning environments that transform student learning across SFUSD*.

In interviews, teachers described several ways in which the pilot shaped their instruction. With regard to technology use, teachers described:

- Greater confidence in their ability to integrate technology
- More frequent technology integration as a result of 1:1 devices, software subscriptions, and preparation from PD days;
- Shifts in thinking about the purposes technology can serve and which uses are most meaningful, all of which impacted their practice in concrete ways.
- Increased comfort and skill with technology among students and in some cases students helping lead or support tech activities.

With regard to flexible classroom design and routines, teachers reported that:

- They implemented more flexible classroom routines;
- The Learning Spaces workshop was helpful in supporting teachers' shift toward flexible classrooms;
- Students showed more ownership and responsibility overall for their actions in the classroom;
- Students engaged in more collaboration and interaction;

- In some cases students whose behavior had been problematic before showed much better participation and engagement;
- Flexible routines allowed teachers to reflect more on what is permissible in the classroom and be more inclusive of students with different preferences.
- Some challenges with student behavior arose but teachers felt the change was positive overall.

Teachers also reported that they changed at least some of their lessons and projects to provide students choice in product that allowed them to produce work in different modalities to suit their preferences and interests.

Some factors seemed to be particularly conducive to pilot teachers' feelings of success and productive participation in the pilot. These included:

- Participating in the pilot along with grade level colleagues;
- Concurrently participating professional development specific to equity and supporting students from non-dominant backgrounds. Teachers in the Culturally Responsive Teaching PLC reflected that it was a valuable companion to the PLE pilot, especially in serving historically underserved populations.

Although there were some exceptions, the majority of teachers had positive reflections overall about the impacts of the pilot resources and the new practices they were encouraged to implement.

Teachers' feedback helped identify opportunities for the program to iterate and improve. These included:

- *Provide concrete examples of practice.* Teachers desire specific examples of practice that could help model for them what personalized learning lessons at their grade level could look like.
- *Continue to consider time commitment challenges.* The time commitment required is challenging and difficult to reconcile with their work schedules and demands, particularly finding additional time to "be designers" and redesign lesson plans and curricula to align more with pilot goals. Some logistical challenges (known to the pilot team) such as the furniture selection and acquisition process further aggravated some teachers' sense of overburdening.
- *Help ensure equity of participation across schools.* There some equity related challenges given that some schools serving predominantly lower income students had more difficulty securing reliable substitute teachers for PD days and had more barriers to participation.
- *Explore how to broaden impact at pilot sites beyond pilot teachers.* In some schools pilot teachers were spreading ideas, tools, and practices to other teachers at their sites. Creating avenues and processes for this kind of sharing could help broaden the impact of the pilot work.
- *Provide more specific tools and strategies for promoting equity/supporting students from historically underserved backgrounds.* Given the goals of the pilot it would strengthen the

program to provide teachers to better understand how PL practices can support their “focal” students including African-American students, Latinx students, English learners and SPED students.

II. Pilot Background

The Personalized Learning Environments (PLE) pilot program is an intervention within San Francisco Unified School District, led by the district's Department of Technology.

As part of SFUSD's Vision 2025, the district identified ten "Big Shifts" to realize over the next decade in order to equip students with the 21st century skills, knowledge, and dispositions outlined in the SFUSD Graduate Profile. As one aspect of these efforts, SFUSD leaders have hypothesized that *personalized learning* can provide student-centered learning opportunities that are scaffolded, student-paced, adaptive, engaging, and flexible so that all students meet rigorous academic standards and effectively communicate, collaborate, create, and think critically as global citizens in preparation for college and career. Additionally, leaders have hypothesized that these methods will be particularly potent for supporting and providing equitable learning opportunities for African-American students, English learners, special needs learners, and other historically underserved groups.

The mission of the PLE Pilot is to "create models for technology-enabled, personalized learning environments that transform student learning across SFUSD with an initial focus on designing learning environments that will benefit our African American/focal students and can eventually be scaled districtwide so that each and every SFUSD student can achieve the competencies of the Graduate Profile."

The Personalized Learning Pilot began in fall 2018, involving over 40 teachers across 11 school sites. As part of the pilot, teachers participate in four professional development sessions per year, receive 1:1 technology sets for their classrooms, and redesign their classroom layout using flexibly configurable furniture provided through the program. School administrators also participated in professional development of their own at points throughout the year. Schools, who opted in to the program voluntarily, are Cesar Chávez, Visitacion Valley, Gordon J. Lau, Commodore Sloat, George Washington Carver, Sheridan, Clarendon, Frank McCoppin, Tenderloin Community, Edwin and Anita Lee Newcomer School, and José Ortega.

During the 2018-2019 academic year, pilot teachers participated in four professional development release days, the first held at SFUSD, and the last three at Google and Twitter offices. Release day agendas focused on the [four "mindsets"](#) and the ["guiding principles"](#) of the pilot (see Appendix A), as well as specific technology tools and ways of integrating these into instruction. Also included was a "learning spaces" workshop led by Rebecca Hare focused on flexible classroom methods. Teachers completed e-portfolios of their pilot related work, posted examples on a linked Google Plus site, and completed assignments over the course of the school year, which included interviewing "focal students" (students from historically underserved groups) and creating a tech-enabled personalized learning lesson. At the final session teachers also had time to work with grade level colleagues on final lesson plans that were assigned in the pilot.

III. Research Methodology

Our Stanford research team began a partnership with the PLE Pilot program in September 2018, as the program was already launching in pilot schools. The pilot program was designed to unfold in an emergent process, beginning with teacher professional development sessions for which the pilot team developed its curriculum as the program progressed. 1:1 technology and classroom redesign was implemented part way through the school year. Given this nature of the program, our research team proposed that the first year of research focus on design partnership and formative feedback, to support iterating on and strengthening the program with the intention to conduct more in-depth research on student outcomes in the 2019-2020 school year. Data was collected primarily through 1) Teacher interviews in December and May, and 2) Observation of pilot activities.

1. *Teacher Interviews.* The primary source of data for this research is teacher interviews and focus groups conducted in December 2018 (end of first semester) and May 2019 (end of school year). This report draws primarily from the May 2019 interviews which capture teachers' experiences adopting the new technology and classroom equipment, which they received during the second half of the school year and were not yet in classrooms during December interviews. Among the 12 pilot schools, two focal schools were identified (Tenderloin Community School and George Washington Carver Elementary) and the three teachers at each of those sites participated in individual interviews of approximately 45 minutes each. At the remaining schools, teachers participated in focus groups with their colleagues at the same school, lasting about one hour. Both individual interviews and focus groups were semi-structured and used the same interview protocols, which included questions about teachers' professional trajectories, their use of technology for instruction, lessons learned at the pilot PD sessions, and strengths and weaknesses of the pilot program from their perspective. As such, findings in this report are based on teachers' impressions and perceptions (self report data). Teachers from eight schools participated in the teacher interviews (McCoppin, Carver, Chávez, Clarendon, Sloat, Tenderloin Community, Sheridan, and Lau). Participation in interviews was voluntary. Teachers from three schools opted not participate in the interviews: Chavez, Visitacion Valley, and Lee Newcomer School. One school, José Ortega, joined the pilot later in the school year and was not part of the interview process. Teachers varied widely in their years of teaching experience, from early career to 20 or more years of practice.
2. *Observation of Pilot Activities.* In addition to the teacher interviews, Dr. Levinson attended each of the 4 day-long teacher professional development days to observe and gather contextual data about what material was presented to teachers and follow groups of teachers as they attended. Memos summarizing PD days and researcher observations were submitted to the pilot team after each session as one source of input for the design of subsequent sessions and assignments. We also attended admin PD sessions and attended pilot team meetings to provide input.

Interviews were transcribed, and then transcripts were coded in Dedoose software to identify emergent themes based on our central question of teachers' experiences in the program and specifically how teaching practice is shaped as part of the pilot.

This report lays out selected salient themes that emerged and that are relevant to the goals of the pilot, illustrated by examples from teacher interviews. Our analyses at this stage do not include code frequency; the scope of our analysis is not exhaustive and is limited to identifying examples that illustrate interview themes.

IV. Findings

Interviews revealed a rich set of findings. We summarize major points here relevant to pilot goals and opportunities for growth, and illustrate with teacher quotes.

An overall finding from the teacher interviews was that participating in the PLE pilot led to changes in teachers' instruction. In the end-of-year interviews, teachers reported a variety of shifts in their instructional practices as a result of participating in the pilot—specifically the combination of professional development and the new classroom infrastructure provided through the pilot. These shifts included integrating technology, implementing flexible classroom practices, and providing choice in product. For each of these, details about what these changes looked like and outcomes teachers observed with students are included. Student outcomes are reported from teachers' point of view and describe what teachers perceived in their classrooms.

A. Integrating Technology

The quality of children and families' access to high quality technology-supported learning continues to pose equity problems—while 94 percent of lower- and middle-income families access the internet in some way, access to a computer with robust internet connection and high quality educational content necessary for the most meaningful learning activities is still unevenly distributed (Rideout & Katz, 2016). In school settings, providing technology infrastructure alone is not enough to improve learning or equity—professional development that supports teachers in learning about and integrating technology is a crucial component. Education research has highlighted the potential for technology-enabled practices centered around student agency, creativity, and inquiry to support underserved students' learning (Zielezinski & Darling-Hammond, 2016). Research in the learning sciences has also highlighted the powerful role of student interest as a driver of learning and how networked technologies can help connect learning across settings (Barron, 2006).

The majority of pilot teachers reported that they were using technology more and in different ways as a result of their participation in the PLE pilot. While receiving 1:1 technology and software subscriptions for their classrooms facilitated more regular technology use, teachers also expressed that the professional development they engaged in at release days supported them in thinking more purposefully about *how* they used technology with students.

1. Teachers felt they were more comfortable integrating technology as a result of the pilot. Teachers in the pilot had a wide range of experience using technology for instruction. Some teachers were enthusiastic users and acted as resources for their fellow teachers, others felt anxious about integrating technology, and many fell in between. Several of the teachers who were not already comfortable expressed that the combination of PD experience and using their classroom technology sets helped increase their comfort integrating technology and trying out new practices with it.

"I feel like I definitely have a change in how well I know how to use technology. I was scared of it, I was scared when they came in and were like, "You're going to do Seesaw," and I was like, "Oh okay." So learning that and kind of just having time to figure it out has made me feel more successful with technology and even like how to teach the kids. And the kids have taught me things, like I didn't even realize ... I think it was with the Chromebooks, I didn't realize they were ... Or we had borrowed the Chromebooks from the cart at first, but the kids were like, "Look you can touch the screen," and I was like, "Oh my gosh, you can touch the screen." And so yeah, I feel like I am more knowledgeable now than I was before as far as the technology goes."

There were exceptions - one kindergarten teacher said in the year-end focus group that she had not really used the devices much, if at all, with students and was fearful about it.

"I mean, I have kindergarten ... I don't know what they're going to do with the iPads. We talked about digital citizenship and stuff, but I'm scared to give them my iPads, because I would have to help them each log on to Seesaw and teach them to do this, that ... I don't know, just a little too overwhelming for me, it turns out. "Here's a classroom iPad, it's great, and now use it." But, I feel like there's no support into, "oh, I need help with more adults in the classroom, teaching the kids how to use it," and all of that."

Although Digital Learning Partners (teachers on special assignment with expertise in technology integration) were available to coach and support pilot teachers and reached out to offer help, not all teachers realized that they could call on them, and it seemed some did not find time to arrange meetings with them. Many schools had some degree of on-site technology support, and that local support was easier to access informally and/or spontaneously.

Other teachers who were anxious about using technology in instruction felt that the pilot helped them overcome some trepidation about trying new practices with technology and learning from them. For some teachers the pilot experience seemed to help build toward an overall increased openness to trying new practices, allowing space for failure and iteration.

"Not to get as panicked as I was. Because quite honestly, the first few sessions, I just pick one thing and tried it at least three times so I'd know one thing from it. I think for people that are younger teachers that have been used to having more PDs in that way as they go through school, I didn't have that. For me it was a double challenge and I just figured if I'm going to do something I'll learn one thing and not bother with the second thing they offer. No thank you. Because it was too much for me to absorb all at once. I feel like not as panicky to like just try things and not like what's going to break early. Hopefully nothing much. Just being less scared of the process."

2. Teachers reported a shift in their strategy with technology: beyond substitution and "plug and play" activities to more transformative and creative uses.

Many teachers expressed that a major lesson they learned in pilot professional development sessions was how to think more purposefully around how to integrate technology, specifically how to harness the potential of technology to support new and enhanced learning opportunities. In the first professional development session, teachers learned about the [SAMR model](#) (Substitution Augmentation Modification Redefinition), and some reflected that the ways they

had used technology in the classroom were usually “substitutions”– digital versions of activities that could have been done similarly without technology. They had students type assignments and also used tools such as MyOn or DreamBox to facilitate practice with reading and math, but had less experience engaging students in collaborative or creative technology activities. In a December interview, after participating in the first two PD sessions, several teachers expressed how they were beginning to think about technology integration differently:

“The way technology has been used, and honestly, the way I’ve used it is for mostly word processing as opposed to actually having the kids create something that they wouldn’t otherwise be able to do without the technology. ... [The SAMR framework] That was a huge, “Okay, now I’m going to think about this a little bit differently, and I’m excited to think about it differently.” So that one pretty much spoke to me.” (December interview)

In May interviews, teachers described new practices with technology that moved beyond substitution to actually transform assignments and inquiry for students. While teachers still assigned some of the previous “substitution” activities and practice activities, they were also providing students with multiple means to show and reflect on their learning using SeeSaw, engaging in inquiry and leveled reading using Newsela, having students code and create using Scratch, and a variety of other digital activities where technology provides different and/or expanded learning opportunities. Sloat teachers reflected that they had shifted to a mentality of supporting students as creators with technology, rather than consumers:

*Teacher 1: I was fortunate where I was already a one to one classroom, so I already had Chromebooks, but **my mentality has changed. My mentality now with the technology is to not make my students consumers.** I want them to be makers. I want them to actually figure out what’s going on in a program or in their video game. My whole thinking has shifted, where they’re not just being consumers but them being makers.*

T2: Yeah, I agree. That’s technology wise what’s changed for me.

T1: I’ve moved beyond spreadsheets, and I hate to say Google drive, but like, I’m having my students use Scratch to do a character development, to actually understand what’s going on. Or the other one is to use like BrainPoP to make mini movies. It’s like not just having them play something, but to then replicate it on their own and understand what’s really going on here.

Teachers at Tenderloin were using Newsela regularly and used it as the core tool for the lesson they designed as their final pilot assignment. They reflected on ways that Newsela opened up access to new content that is relevant to students’ lives and interests.

Oh my gosh, they really love all the different options [in Newsela], they love exploring the different articles, just because I feel like a lot of our students don’t get access to rich online content. I think a lot of times when they’re engaging with technology, it’s games or social media and that’s fun, but we have a lot of students who are super interested in NASA and we’re doing animal research clubs, and they really are really into researching different animals right now. So I think because I haven’t explicitly taught how to research these things online, having this platform works, it’s so easily accessible and they all have a login. It’s super safe. They really enjoy that aspect, just this whole world of information they can access. They also get really get really excited about quizzes.

They're like, "[Teacher], I got five out of five today!", they're really motivated by that. We've been doing a lot of, prior to starting the SBAC, we were trying to get them used to doing that, answering questions online and doing a little short response. And I think before we had Newsela, where they had engaging articles to read, it was just kind of dry for our students. We'd print out articles and be like, okay now you have to write a paragraph. It's essentially the same work but it's just the engagement has gone up too because I think the content is relevant. We have new articles every day that the kids are really interested about. Beyonce or things that they are into."
[...]

This same teacher pointed out how through Newsela her class was able to access material that was culturally relevant as well.

I think, I talked about Newsela, typically when we've done the animal research group, or any sort of research or non fiction text-based projects, we just kind of, we have a nice library and my books and everything, but that's kind of it. And there's just so much out there that's more relevant to our students' every day lives. We were able to read a bunch of articles on Ramadan this week and we have a huge Yemeni population at our school. I had a couple of kids who were fasting, so it was really cool and you could see the kids light up because they're like, "Oh my gosh, this is an article about Ramadan", and that's been really special. Just having more access to resources outside of our classroom that the students can connect with, that's been really great.

New practices using technology that teachers mentioned included creating animations in Scratch, using Google slides for stories or presentations, having students record explanations of their work, hosting family portfolio night where students displayed their work using SeeSaw, using quizlet for collaborative classroom quizzes, using Newsela for inquiry and reading assignments, among others.

3. 1:1 technology infrastructure facilitated more technology use

In May interviews, when most classrooms had their technology for three to four months, teachers reported that having dedicated 1:1 devices for their classrooms made it easier to integrate it into instruction at any time, and that they were doing so much more often.

Prior to receiving their classroom set of Chromebooks or iPads many teachers were less likely to use technology, because they usually had to coordinate with others to borrow a technology cart and negotiate for time with it, which was a deterrent and/or a barrier. More difficult access meant teachers introduced it less and students were less accustomed to using it. Sometimes shared carts were left uncharged or had other maintenance challenges. When teachers received their own classroom sets, it eliminated extra steps and administration. Technology could be integrated at any time and according to teachers this access facilitated much more frequent use.

T1: For me it was, there's immediate access. I don't have to go out into the pod and see if the other teacher's using the cart or, if I think of something on the fly that I could do with them, with the technology, it's there, it's immediate, which is nice.

[...]

T2: Yeah. It's a huge help, and it really has made things much easier than I thought.

T1: Yeah. Me too. I didn't think it was such a big drain, but when the cart is just always here, it's like, "Wow." I was surprised.

T2: It's made it easier for kids too that, like if I have sometimes staff that comes in, they could grab an iPad and go do the reading aids or different programs that help them with their literacy.

I've definitely doubled my usage of laptops after getting my own cart, and I felt like it was easier to pick up projects because I know they're always available and my kids just started doing a fairytale book on their iPad and they're creating their own book using this app. After every lesson, the early finishers, I can send them to read some more fairytales or work on your fairytale and that's easy for me so that my kids aren't just standing around like "What do I do? I'm done. What do I do? I'm done." I can send them on the laptop. And it's been nice because those projects, they take so long that I can get it done without taking too much time out of my regular routine to help them with that. They're pretty independent when it comes to that, I think. I can just say "Log in, read some fairytales," Or "Log in and work on your book." And I think it's been nice for me.

Having technology on hand in combination with PD content catalyzed experimentation and integration for some teachers. With access to both of these resources teachers were able to try more practices, which generated questions that they then had the support to work through at PD sessions.

I think the PDs were helpful once we got the technology because even though [colleagues in the pilot] have come in and let us use their iPads one time to teach the class how to use Seesaw, I didn't experiment with it as much, but then now I have the one on one Chromebooks and so when Seesaw came in, it was much easier to ask them questions. We had issues with logging in and having two accounts, and just questions about how do I share certain things, more difficult ones. Even switching from class mode 'cause you're sharing the iPads, versus one on one now and how do you make it all work. And then having the PD where Seesaw was there was very helpful.

Teachers felt that students grew more accustomed to and fluent with the technology when using it more often (see below), and this in turn made integrating technology much easier when they did it, as compared to when technology was less available and thus less frequently used in the classroom.

4. Teachers perceived changes in students' comfort and skills with technology

In May interviews when teachers had been using their classroom technology sets with students for a few months, teachers reported students were becoming more fluent with technology (as a result of using it more frequently) and taking more ownership of the devices as compared to when they used shared carts. Teachers also reported that students were gaining more comfort and fluency with technology, as well as greater responsibility using it, due to their greater access.

They're pretty good with that, logging in. I have a few students who still do not have their information memorized, like their Google stuff. But everybody else, they know exactly how to get to Google docs or slides. They know they have to log in. So that has made everything so much

easier. Just any program that we do, they know how to get in there, find the assignment, and then yeah. They've been really good. There's been a couple students who always try to go to YouTube, but for the most part, when I walk around and check their screens, they're all on task, which is awesome.

Teachers of primarily lower income students felt that the access to computers in school helped give students technology access they did not have at home, and at Tenderloin Community School teachers felt that students had developed more comfort with computers that eased their experience with computer-based standardized tests.

I think a big one that comes to mind is that typically when SBAC testing happens at our school, and we're in third grade so it's the first year they get it, it's just, there's so much anxiety because the students haven't had opportunities to engage with the Chromebooks and technology in that way where they're actually doing more than just typing.com or DreamBox or myON. We just haven't had access to it at our school. And having all three third grade classes have Chromebooks, every day where students could go on Newsela and practice answering questions and getting comfortable with typing has definitely helped a lot. Last week we did the English Language Arts portion of the test. In previous years I feel like by the end of it, kids are just exhausted from typing, navigating the screen, it's just so hard. But I feel like now there's a level of comfort, so there's not that anxiety. I feel like, not that they'll perform better but I just feel like the students just have a comfort level that I haven't seen because they've had more access to technology in the classroom.

In both Sloat and Key focus groups, teachers observed that their students were taking on leadership with classroom technology activities, and were helping each other in ways that shifted dynamics from teacher-driven to a more collaborative and peer-to-peer support dynamic.

T1: I think it's mentality for me in my classroom, because even though I am the teacher on record ... We actually had the conversation in my class. It doesn't mean that I am the know it all of the classroom. They have started to just really help each other and gel. If one person doesn't know how to do something, then another person, like for instance going on Newsela looking for a certain article or whatever, then instead of first person to go to is me. They've learned to like ask for help and have ... You're talking about communication. Like they're not just interacting with the device, but they're also learning more like to-

T2: Resourcefulness, using other people.

T1: Use each other. Yeah. Like I actually did a lesson of, hey, if I go to you and say, "Hey, help me." Dude, you're not going to help me, I'm just rude to you. If you just say, "Hey ____, can you help me for a minute here?" It's like, it opened up really dialogue amongst my class and just really realizing that they're like ... For instance, one of my students, Zachary, he's the one who goes after Karen knows about using Scratch, that you can always go to Zachary for help. [...] Then like there's the people in a classroom who we have a wealth of knowledge, just to take advantage of it and not just go to the teacher because supposedly the teacher knows everything."

T3: That's true too. We ask the six or seven year old. Like I love students in my class that they know five different ways to do something. It's like, "Hey Mrs ____, you could've done it that way."

I noticed my kids are more collaborative, like while they're working on their book creator, when they figure something new out like a feature or something, like a new font, they'll want to share with everyone. So as soon as I notice, like oh, this person has figured out something, I'll make it a point to the class that if you need help, you might want to ask this person. And that student will take pride in that and the other students will turn to them as like a mentor, which I think has been really nice.

Some teachers also described ways that English learners were learning to look up words using the devices.

The images, being able to pool out the iPads and actually look up something that they don't know, like what is a ... what was the other one ... someone asked the other ... what's a wheelbarrow? And I'm like, "you could look it up, that's an option for you". So that's something as well, I think it gave them a voice when we're doing games on the computers, so it's not just one iPad and seven kids, and that English language learner, the really quiet kid who is just sitting there, because they don't want to answer it. If everyone has their devices, it's like, they have the chance to actually answer it, and put it up there as well. So I think it's been a lot, a lot of positive things, you know?

B. Implementing flexible classroom practices

Teachers reported they implemented more student choice in seating and many said they overcame anxiety about losing control. Implementing flexible classroom practices—providing choice in seating, which classmates to sit with, in what type of seats—was a topic that some teachers expressed anxiety about in December interviews, before new furniture arrived. While some teachers were already using or experimenting with flexible seating with the classes in preparation, many others waited for the new classroom setup to be installed and then introduced the new routines. They were not sure how the students would react to being allowed choice in seating and whether classroom management would become a problem as they ceded some of their control. In all interviews and focus groups, teachers expressed that they had changed classroom routines in some way to provide choices for students—some changing drastically from prior routines and others making subtler shifts. Several teachers were surprised at how well students responded and took responsibility for their choices:

Well I would say that there were several things about how it all worked out that I was really surprised with. Like how, especially with, because I kind of jumped into the there are no assigned seats ever! Every time we switch subject areas you choose a seat. And I was really, I had a lot of trepidation about that. It's really different from the way I've taught in my 20 years of teaching. So it was, I was surprised at how well it worked and how easy it was for students to, like even the students who had been in my class with their table groups, their very regimented table groups all year long were, really adapted well to it. And it worked really well for them in terms of ... And I did, I feel like, I mean I know I was looking for it, but I feel like I saw a lot more collaboration and a lot more, even kids willing to work with students that they hadn't worked with before. Things like that, that I was kind of surprised with.

—Deirdre, Tenderloin teacher

Just the whole flexible seating too, it's helped me understand how to build independence more and help them be more self-effective of, what do I need right now. That's not something that I feel like I would have taught if I didn't have flexible seating. This means you're focused and maybe sometimes that's your best friend, but you know you get distracted with him at writing time and it's not always the best choice. Teaching them those things explicitly has really helped. That's something I probably wouldn't even have thought about really.

—Dina, Carver teacher

Teachers found the Learning Spaces workshop in PD 3 helped support them in implementing flexible classroom practices.

Teachers cited the workshop with Rebecca Hare as important preparation for implementing flexible classroom routines. The suggestions in the Learning Spaces Workshop such as creating a “My Job, Your Job” poster collaboratively with students, and concrete examples of how to configure classroom spaces were mentioned as major takeaways from PD sessions and were implemented by teachers. Several were on display when we visited school sites in May. A suggestion teachers offered was that the Learning Spaces workshop could have been offered prior to teachers ordering their furniture, so they would have a better idea of how they might use the furniture and order accordingly, as captured in an exchange with the Sheridan teachers:

T1: ... And I feel like [Rebecca Hare's workshop] was a really cool PD that one, and just like what are some things to think about when I'm setting up my classroom with all this different furniture and so that was useful.

Amber: Cool, like ways to take advantage of the flexibility.

T1: Yeah, mm-hmm (affirmative), and like what are the different types of postures that the kids are going to be needing to use. That was helpful to think about.

T2: Yeah I remember learning about the postures and stuff, although now as I'm thinking about it, I'm like, thinking that maybe that couch is the only thing where they can just kind of sit back, relax and read. So I maybe didn't apply everything I had learned while we actually chose our furniture.

T1: I think we chose our furniture before that PD.

Amber: It was before.

T2: Oh ...

T1: Yeah.

Teachers reported increased collaboration, ownership, and interaction among students.

A few months after implementing their new flexible classroom designs, teachers observed higher levels of collaboration among their students, which they attributed to the new classroom routines.

I think just generally, my kids are a lot more collaborative now because I had their assigned table seats, so at snack time and stuff, they still have to sit at their assigned spot. And they would talk to their friends, but it was very different. Like now, no matter what we're doing, even if it's snack time, there'll be like six kids gathered around here and just talking and eating. And then if we're doing writer's workshop, it'll be three or four kids all around and they're talking, but they're talking about what they're writing and I hear them helping each sound things out.

It was not only the “stuff” that contributed to these changes; teachers also reported they implemented strategies introduced in PDs to support productive forms of interaction among students.

I would say there's a lot more student talk happening, I didn't know that was possible. But I think just providing different spaces. We have this little conference area where kids are excited to be in that space, and they know when you're in that space, the purpose is that you're supposed to look at each other and listen to each other and talk. So providing that space and naming what that space's purpose is has increased the level of student talk.

I've also been trying to incorporate more of the feedback circles that we talked about in one of our release days, so we've come by using the spaces and incorporating more feedback, having the kids the practice that in those spaces has increased our talk, and the kids are still needing support in terms of me providing sentence frames and modeling for them what does it look like to give really specific feedback.

But we've gotten more practice with it and I feel like the students are more comfortable. And when I'm having them do the feedback circles, they're on task a lot more than they used to be. I've noticed that as a difference. I've noticed some of my students definitely taking more ownership of their own independent learning time. So having options to sit by the window or sit on one of the stools that's not at their table. They know, I need to pick a smart spot for myself and I get these choices but I know I have to take care of myself, or the choice is taken away from you. I'm like, here are your expectations, you need to move if it's not moving.

Teachers discussed ways in which they were “micro managing” students less, and allowing them more choices which in turn led to more ownership and a sense of a shared space. Whereas previously they would not tolerate certain behaviors in the classroom such as fidgeting, they began to reflect more on why they restricted students’ posture or movements in the classroom and that rethinking how students could be allowed to comport themselves could allow some students to participate while still meeting their need to sit or move in different ways.

"I can see them like 10, 15 years from now having thoughtful conversations with somebody and in ways that I don't think I saw or thought of, because I was like micromanaging everything for them. I was like, we're at this carpet, so at this carpet you sit this way, doing this thing. And it's like, you know what? He doesn't like sitting like that or he needs this fidget to be a part of the conversation and there's nothing wrong with that. He's saying great stuff. He's contributing to the class. It made me take a step back and see what do I really want my students to accomplish? They see or do I want them to be in line and ready to go or do I want them to have an interest in something and build connections and grow? I think this year taught me a lot about just letting them have space to do their own thing and then they'll come back. It may take a little bit longer sometimes, but they always come back and do the learning and are really engaged in it."

In some classrooms, students were making decisions or contributing to conversations about configuring the space. Several teachers expressed a sense of pride and enjoyment in the new classroom designs.

Teacher: "No, like this back table actually, my kids create this whole meeting table of their own. Being able to put things together with each other helps I think a better sense of community. I think that's the piece too.

Amber: You have them move the furniture.

Teacher: They just did it, I didn't say anything. During breakfast time they were like, "'Let's have a meeting table'", and I was like, "'What are you meeting about?'". And they were like, "'I don't know'", but they put all these together. And they were so excited about it. And they either have breakfast all together here or they have it all together here. And then I'm like, "'Aren't you guys a little crowded?'", and they were like, "'No'".

Amber: They're like 11 kids?

Teacher: Yeah, but they love it and I think it provides for a sense of community for sure."

Sloat teachers described a similar environment, where students recognized the freedom given to them and used it to maximize their own learning time.

T1: They enjoy it. We actually talked about that last week, like they were talking about how they feel like there's more freedom and more respect that is given to them, because they don't have an assigned seating. Then at the same time, they have to make the choice of who can I sit next to where I can get my work done. Things like that. Or allowing them to go someplace in the classroom where they need to read, giving them that choice.

T2: Going back to the learning styles, I think that for myself it's also validating them as a different learner, like different learning styles. Like today during math time, one of my students literally wheeled herself away from her table, and I just asked her. "The boys were talking and helping each other. I just needed a little quiet.'" So she just moved her table. It was just like letting her do that. Before, like I was like, "'No, you guys stay at your table, you got to do ..." But now it's a shift of going, "You do what you need to do. If you need to move your table a little, go ahead." You're taking care of yourself is what I say to my class.

Some teachers described marked differences with students who had particular challenges with behavior or focus before the classroom redesign. With a greater choice in seating options and postures, and more openness toward different forms of physical participation in the classroom, teachers believe students who had previously chafed with their classroom management styles were now able to participate more fully.

I have a... one of the focal students I wrote about, [...] So he does... Rebecca mentioned she had a student like this who... he was a percussionist, right? He dances in class, and he started off the year was totally fine. Everybody knew that, but it got increasingly difficult for him to focus on the new furniture came in. He... different story. I mean, he had so many more options, he felt, to work the way he needed to work with the way his body moves that I've seen a completely different kid, he doesn't do the dances anymore at all. And I had a lot of trouble getting him to focus or stay in his seat at times when I needed him to stay in the seat. I haven't asked him to do anything. I haven't redirected him since I've gotten the new furniture and now instead of standing, which is one of his preferred ways of working, he said... I mean, he decided to sit during testing, which I totally didn't expect from him.

And another kid of mine, who was similar in that way, he would never finish his work on time.

Come Friday, he was still where he should have been on Monday. And now that he can sprawl out on the couch, and no one's ever complained, Hey, he's taken up the whole couch. They get that's what he needs. They don't need it. So they don't need to complain about it. He's finished

his work on time, every week since. Yeah, so those are major changes. And some of the kids that had like more behavioral challenges with the traditional classroom.

That one is like my student, he wasn't a focal student, He wasn't a very good speller and he was not focused and he would just get into a lot of trouble. But after getting the new seating, and he could lock, the behavior problems were reduced. And then now when he's doing a spelling test, [...] it actually looks like the word. Whereas before it didn't look anything like the word we were spending, so a lot more focus. And then the quiz that really helps him too because he really wants to learn and be part of it. And so that really motivates him to try his best.

Some student behavior issues still arose with new furniture.

The new classroom furniture included wobbly seats, couches, and other options that teachers sometimes struggled to get students to use safely. Some teachers continued to struggle with these kinds of behavior issues in their classrooms, although they still preferred the flexible routines overall.

Teacher: "I mean, I will say I'm speaking generally. There's definitely a few students that it's very difficult and there's unsafe behaviors. So then, that's a challenge with it, being frank. That they're just pretty consistently being unsafe with it. And, even if you give them a different seat, or you're like, ""Okay, well now, I need to assign you a seat because this is happening."" So, I would say there are some challenges. But, overall-

Amber: It's overall, you-

Teacher: Overall.

Amber: ... prefer it to before.

Teacher: Yeah."

Although teachers did appear to find more value in the new classroom design than in the previous one, some expressed that giving agency to students was still challenging and they had often not been able to find their best spot for learning, or avoid distractions when they needed to be working. It seemed to be particularly challenging to implement new routines mid way through the school year.

I feel like all in all it's been a positive experience. I agree with [colleague] that it was really tricky to start this new way of managing my classroom mid-year when we've already set up certain routines. I'm excited for next year when I ... Sort of having sort of this trial run, I know some of the pitfalls and how I'm going to do it differently next year when I set things up with my classroom. For me, I find the same as [other colleague] that I do have that leverage. I tell them "[Choice in seating] is a privilege, not a right, and if you don't do right I'm going to take that privilege away," Basically. But it has been more challenging for me because I think some of my students just don't get what is best for them, they don't understand their learning. So that's me next year wanting to front load more around what's your learning style? How do you learn best? Maybe focusing some more energy on that before we start with the flex seating, because I finally had to go to ... My class recently lost their right, I said for the rest of the year we're going to assigned seats. And one student, I looked at him and I said "Look how much better you're doing now that I've made you sit here." And he goes, "Unfortunately it's true."

C. Providing choice in product

Choice in product is one of the guiding principles of personalized learning as defined in the pilot program—students have multiple options for how they can show and communicate their learning. In interviews, some teachers expressed that they were integrating choice in product into their instruction, allowing students to show work visually, through audio narration, in writing, or in other modalities. When asked to define personalized learning, many of the teachers identified one of the core pieces as allowing students various ways to show learning.

I guess for me it's that concept of choice again. Because ... even though before, it felt like I was making a lot of the choices for the kids, and with personalized learning it was more, my kids discovering their own strengths and what they needed to feel successful, and to accomplish a task that was given to them, in different ways. And the concept of ownership too, for them. When they ... definitely compared to the beginning of the year, it was more like, as a teacher, "this is the task, and you're doing it, because that's what's expected of you". But with personalized learning, it's more like, "here's the why we're going to do it, but you can do it in many different ways that you feel is going to represent your learning abilities." So I think that's really cool, for sure. And that's what we try to do.

Seesaw is a key tool that teachers used to allow students different output options, though not all teachers used it regularly.

"I already knew and I think every teacher knows like every child learns in all these different ways, but personalized learning like the pilot really made me see ways of how to give students choice on that, like is a student going to present their work through Seesaw, or a worksheet, or just drawing something, and so how will they show what they know and giving that choice, and personalizing it towards the best way they can, is something that I think I took away a lot this year."

"We do high frequency word practice on there about twice a week where you find lists, and they can just read and then record themselves. We've used it for book reviews, which is amazing to hear the kids get so animated over it, where they're very shy to talk in front of the class, but then recording it, they're just fine, and I ask if I can share it to the class, and they're okay with it, so the class then can see."

Other teachers led projects with students to create animations in Scratch or ebooks in Book Creator based on their stories, or gave students the option to draw, create a 3D visual, presentation or paper. In some cases, teachers set a particular format (such as Scratch animation), in other cases, particularly with older students, teachers gave a choice of different formats. Others assigned a particular format, but intentionally gave students other choices in how they completed the assignment.

I think for myself, it's being open to what the end product needs to be. Like allowing my students to ... Like for instance right now, with their character studies analysis that they're doing on Scratch, it's really open reign to them. It's really like, it's allowing them to be creative, and I told them that. And so, some kids are drawing up their own characters, some kids are adding

animation to it, whatever. It's kind of like allowing them to do something that they normally may not be able to do, or they don't know how to do. But in a way it kind of allows them to be creative. Like I have a couple of girls who really like to draw, now they're able to draw out what they want instead of just using a pre-made clip art, they're able to draw out their sprite.

Another teacher gave an example of how 1:1 technology supported projects done in the school's maker space:

I've used the iPads in our Maker Space, which you wouldn't think, "why would you need iPads in a Maker Space where the kids are creating things?" You know? But we take them down, and they get inspiration from looking pictures up, or finding different things they can do, like stem research and stuff like that. And we're making these masks for our musical theater production, and so the kids were looking up traditional African masks, and I would not be able to do that before. So instruction-wise, it was really cool, instead of me just pulling out my cellphone, and being like, "oh you want to see a traditional African mask? Let me show you," you know? And so, I think they're in control of it now, and instruction-wise it allows me to guide them, but them to take over and lead their own research and what they want to explore in a way, yeah. So I think that's really nice.

Overall, teachers felt that PD content in conjunction with technology tools had enabled them to begin offering more choices in product to students and value a wider range of products as valid ways to show learning.

D. Potential factors supporting success

Teacher interviews suggest there may be some factors that support teachers in feeling successful in the pilot program. The Tenderloin team seemed to benefit in particular from these factors—collaboration with grade level colleagues and access to learning about culturally relevant pedagogy and equity outside of the PLE pilot.

1. Participating with grade level colleagues. In interviews with the Tenderloin teachers, it was clear that participating in a pilot as a grade level team (all three third grade teachers at the school participated in the pilot together) was very valuable to them. When meeting as a team to plan, the teachers were able to draw upon material and mindsets from the pilot program. They regularly discussed the mindsets that were taught in pilot PD sessions, and how to infuse them into instruction. They were able to plan their final lesson together and support each other with pilot related work. Although other teachers also collaborated, having all pilot teachers on the same grade level meant that collaboration time was built in to teachers' schedules.

Another really great thing about doing this as a grade level team [...] whenever we have our grade level meetings and we're like, thinking about the next couple of lessons we're going to plan, or the next unit, it comes up. Like push versus pull, addition by subtraction, all this stuff. "

At Sheridan, two kindergarten teachers and one first grade teacher participated in the pilot, and also had increased opportunities for collaboration. Bonnie, a kindergarten teacher who has an interest and technology and does a lot of independent research on how to integrate it, acted as a technology mentor for her grade level partner and first grade colleague.

2. Professional development around equity and supporting underserved students. Another support that two teachers raised in interviews was participation in another program with synergistic goals. Two PLE pilot teachers were also participating in the Culturally Responsive Pedagogy professional learning community (PLC) at the same time. Through this program teachers were learning about ways to achieve equity for students from non-dominant backgrounds and specific instructional strategies that are known to support historically underserved students. While the PLE pilot program has a goal of promoting equity, the pilot content focuses more on ways to personalize instruction and provide agency and choice to students, rather than educating teachers on the needs or cultures of students that might help teachers understand more about how to meet students' needs. The two teachers participating in the Culturally Responsive Pedagogy PLC felt that that program's content better equipped them to do their work in the PLE pilot.

"...I feel like doing the culturally responsive teaching, reading about it and thinking about that and then also combining that with how are we going to incorporate flexible learning spaces to support our students to be more independent, that's helped a lot. And I really like being in both at the same time. And I think at one of our release days, we had one of our breakout sessions be about the Zaretta Hammond culturally responsive teaching, I think. But I would like to see more of that. If I were to do this pilot again or to plan it, I think I would try to incorporate a little bit more about that, and of that book and just the practical things, teach moves that teachers could be doing, because I'm still more interested in what are the actual things I can be doing in class."

Clearly many other factors were important to teachers' feelings of success and fruitful work in the program, including support from administrators and resources at school sites such as technology integration staff. The two factors outlined above are examples that may inspire further development of the pilot program.

C. Needs and Opportunities

In interviews teachers raised some needs they would like to see addressed, and opportunities to develop and improve the pilot which can help inform future iteration.

1. Time for planning

Nearly universal in teacher feedback was that pilot participation consumed a greater amount of time than teachers expected and that the time commitment was challenging, even though many found the time investment worthwhile. This feedback was relayed to the pilot team after December interviews, and the leadership team slowed the pace of assignments to allow teachers more time to complete them and catch up on late assignments. In May interviews, and informally during PD sessions, teachers expressed that they appreciated the pilot team's timely response to feedback and sensitivity to teachers' needs. One aspect of the time commitment was attending PD days, another was completing assignments and going through the process of choosing devices and furniture. An additional responsibility was also for teachers to integrate the mindsets and practices they learned about in the pilot into their instruction.

While a goal of the pilot was to empower teachers as designers, it was clear in interviews that teachers' schedules do not currently allow for in-depth design work. Teachers deeply appreciated the time allotted in the 4th PD session to work on their final lesson plans. Ways of building in these opportunities to design are likely to support teachers in being able to focus on that aspect of the work. Teachers also appreciated the flexibility given to them and the support offered by the pilot team.

I also like the understanding from the program. Basically, although we've always had deadlines for certain things, I've never really felt really pressured ... I mean minus the furniture, but never really felt pressured into being like, "this is an assignment, it's due on this day, you missed it." Or, "you're kicked out of the program," or something like that. I think it was very supportive in that way, where it was like, "hey, we understand you guys are really busy as teachers, just wanted to let you know these are the due dates, we would really want you to reach out if you need support, how can we support you to make ..." That was nice, definitely.

2. Examples of practice

In interviews teachers expressed a desire for examples of practice, whether from pilot colleagues or from other districts implementing Personalized Learning practices that could help model for teachers what successful PL practice looks like. In December interviews, teachers were asked about key takeaways from PD sessions, and a number of teachers cited their learning about the TAG feedback protocol. The TAG method was exemplified in "Austin's Butterfly," a video example that was shared with the group, and then through a lesson that the pilot team led, with teachers as the "students." Afterwards, many of the teachers implemented TAG feedback with their students.

When asked what resources they would like going forward, teachers echoed one another in their desire for more concrete examples of lessons, ideally for their specific grade levels, that embody personalized learning.

I think [I'd like] more examples of how people are using the technology specific to each grade level would be helpful. It's better now because I have a better sense of what third graders are capable of with the technology. But I still would like just more ideas and lessons for each grade.
Minika: I think more management for ... I think more lessons on managing this flexible seating. And managing projects, those personalized projects would be helpful too.
Michelle: I say the same as Alison. Just seeing other teachers in your grade level do little snip bits are very helpful and photos. Like I don't like sharing any of that, but I love looking at other people's things. I know that there is a place for it, like Lindsey says, "Put a photo on there."

Teachers were also interested in specific lessons they could try that matched their grade levels and/or specific standards they needed to meet.

"I think for me, it would have been nice to have ... yes, specifics. Specific examples, or specific materials, lessons or things like that, that does incorporate the technology. Like for Seesaw, it's like, "here's this really cool program." But almost like, "here's a lesson you could try with your class, that aligns with the 13 Colonies," or something like that, as like the standard, or something. "Here's an example of this, and you could do it in your class, you could try this out," instead of like, "here's this really cool program, design something from scratch and figure it out on your own how you want to incorporate this in your classroom."

[...]

"Our school, we're really used to designing the wheel, because in our previous, when we first did literacy, Readers' and Writers' Workshop, our previous literacy coach was like, "here's the standards, here's the spiral. Design the lessons." From scratch. But now we're adapting like Lucy Calkins, for readers and writers, where basically, it's very clear with the lessons of what we're supposed to be kind of teaching. And we don't follow it exactly, but it's kind of a guide if we need it. Of like, "oh, my students are struggling with inferencing, let me see what she says about inferencing." If there was something for this program, that would be great. Like, "hey, I would really like to teach history in a non-boring way. What can I do that ... I need to teach the American Revolution. Oh, this is really cool, they can actually make this video with the American Revolution ..." That would be cool to see, and have as a resource. Instead of me basically being like, "okay, I need to teach that. How do I teach that? What resources should I use? They taught us this, and now I have to design it from scratch and figure it out."

While teachers did engage in the assignments to design new lessons using the principles and technologies they learned, they would appreciate more guidance and examples, and that would enable them to do more personalized learning activities with their students. Over time, pilot teachers themselves may be able to contribute many of these examples. However currently the teachers feel they would benefit greatly from more models, particularly ones that speak to the specific domains and grade levels they work with.

3. Equity in participation

Schools participating in the pilot vary from one another in the populations they serve and the unique challenges they face. For example, when asked to describe surprising aspects they learned about students' home lives, teachers from schools whose populations were historically underserved described students' struggles with homelessness, long commutes, or having to care for siblings. Teachers from other schools serving more affluent students described kids' dedication to hobbies or trips they had taken.

It was challenging for the pilot team to ensure equity in participation among teachers from these different schools due to the fact that teachers in schools with predominantly lower-income students of color, which are the schools the pilot hopes to benefit most, have more difficulty leaving their classrooms for a day of PD and in many cases have more demands on their time than do teachers serving more privileged populations. While teachers appreciated the pilot team's efforts to "make up" PD sessions by visiting their school sites and reviewing what had been covered in the missed PD day, teachers missed the valuable exchanges with colleagues from other schools, and recognized that make up sessions were a condensed version of what was done at the actual session. Supports that could be put in place to ensure that all teachers have equal freedom to attend activities would help to increase equity across schools and secure the participation of teachers from the schools that the pilot especially aims to reach.

4. Impact Beyond Pilot Classrooms

In interviews teachers discussed what potential impacts their participation in the PLE pilot program may have had for other staff or students at the school. In some schools such as Tenderloin, pilot teachers presented to their school colleagues about their experience in the pilot and core mindsets. Some teachers reported that other teachers in the school were using tools or strategies that they had learned about in the pilot.

"A couple of teachers have asked how they can be a part of it or the theory behind it. A lot of asking [colleague] and myself how we felt about it. Do we think that it was worth it almost? I know that both me and [colleague], we definitely appreciate the experience and we've seen our kids kind of change, not in this super dramatic way, but they're growing and they're asking questions and I feel like it's all tied to being empowered in their classroom and being empowered in their space for how they like to learn. I feel like that does a lot for kids to know that what they feel and the actions that they make matter to how they learn. ... I've been seeing other adults and teachers in the class, in the school, just try to ask more questions about the theory behind that and how it can be implemented in their classroom. Maybe if they don't have the material there, if they don't have the technology ready available. A couple of teachers who usually don't sit in my classroom have come and just like, can I just sit and just see what this is like."

Some teachers cited specific technologies that colleagues were adopting because of what they had heard about through the pilot teachers, although they did not know the extent of what colleagues may be doing:

"I know one of the first grade teachers, he's using Seesaw now way more because we got a whole school subscription to Seesaw. So, I know for certain he is. I don't know overall how many more. And, we're sharing out some of our learning with our staff and so it's hard to say exactly. It's really hard to know what's going on in other classrooms, honestly. But, I know that we're

communicating some of our learning to our whole staff. So, we hope that some of it's getting absorbed in some way. We've been sharing the mindsets and what it's looked like and I think we're going to continue doing that next year."

Teachers expressed willingness and interest to work with their colleagues outside of the pilot.

Yeah, I think us having these types of rooms might help people be more open to something different in the way their learning environment can look like because they're going to feel the same stuff that some of us felt in the beginning. About what's wrong with what we have right now? It's what we do.

V. Recommendations

It is our understanding that in the 2019-2020 academic year the pilot team intends to continue the program with the currently enrolled schools. Given these plans, we have developed the following recommendations based on teachers' reflections in interviews.

1. *Continue to provide professional development around technology integration to help teachers continue to move toward more transformative uses.* Teachers varied widely in their comfort and self-efficacy with integrating technology. Although they were progressing from their starting points it was clear that continued support would help ensure that this progress continues.
2. *Provide concrete examples of practice.* Teachers desire specific examples of practice that could help model for them what personalized learning lessons at their grade level could look like. These could include units or lessons, video examples, or other formats.
3. *Provide more specific tools and strategies for promoting equity/supporting students from historically underserved backgrounds.* Given the goals of the pilot it would strengthen the program to provide teachers to better understand how PL practices can support their "focal" students including African-American students, Latinx students, English learners and SPED students.
4. *Continue to consider time commitment challenges.* The time commitment required is challenging and difficult to reconcile with their work schedules and demands, particularly finding additional time to "be designers" and redesign lesson plans and curricula to align more with pilot goals. Time built in to release days was largely appreciated among teachers.
5. *Help ensure equity of participation across schools.* There some equity related challenges given that some schools serving predominantly lower income students had more difficulty securing reliable substitute teachers for PD days and had more barriers to participation.
6. *Explore how to broaden impact at pilot sites beyond pilot teachers.* In some schools pilot teachers were spreading ideas, tools, and practices to other teachers at their sites. Creating avenues and processes for this kind of sharing could help broaden the impact of the pilot work.