PACIFIC
Research & Evaluation, LLC

TechSmart Initiative for Student Success

SY 16-17 Evaluation Report

PREPARED FOR

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Introduction

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

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

The MHCRC works closely with each school district as a planning and funding partner to develop a grant project plan tailored to each individual district's priorities. The MHCRC has two overarching goals for the TechSmart Initiative:

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

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

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

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

- **Teaching Effectiveness:** District supports regular, inclusive and shared professional development among teachers.
- **Digital Age Learning Culture:** District embraces cultural shift and views technology as positive.
- **Visible Leadership:** District leaders are actively involved and working with key communities to accomplish change.
- **Data Driven Improvement:** Current, relevant and high quality data from multiple sources are used to improve schools, instruction, professional development and other systems.

- **Funding & Budget:** District's budget repurposes resources and seeks outside funding to focus on promising practices and technology supports.
- **Strategic Planning:** District strategic plan reflects shared commitment to improving outcomes for students.
- **Engaged Communities & Partners:** Parents, stakeholders, community groups and others are actively and systemically involved in helping students develop, learn and achieve.

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

Table 1. Grantee Funding Date and Focus Area

District	Year Funded	Grade	Focus Area
David Douglas	2014	K-3	Kindergarten Readiness; 3rd Grade Reading; ELL
Parkrose	2014	9-12	9th Grade Credit Attainment; High School Graduation; ELL
Reynolds	2015	7-9	8th Grade Math; ELL
Portland Public Schools	2015	K-3	3rd Grade Reading; ELL
Gresham-Barlow	2016	K-3	3rd Grade Reading; ELL
Centennial	TBD	TBD	TBD

Table 2 is a timeline for the TechSmart grant investments for each district. David Douglas and Parkrose were the first grantees in 2014–15 (SY 14-15). David Douglas wrapped up its initial grant in the 2016-17 school year (SY 15-16) and Parkrose received a one year grant extension and will operate through the 2017-18 school year (SY 17-18). Reynolds School District received its grant in SY 15-16 and began implementation immediately. Portland Public Schools received a five-year grant in 2015 and used the SY 15-16 as a planning year, with implementation starting in SY 16-17. Gresham-Barlow School District began implementation in SY 16-17 and Centennial School District is currently in the final stages of grant development.

Table 2. Grant Timelines

District	SY 14-15	SY 15-16	SY 16-17	SY 17-18	SY 18-19	SY 19-20
David Douglas						
Parkrose						
Reynolds						
Portland Public		Planning				
Gresham-Barlow						
Centennial	**To be decided**					

This report describes evaluation results for the five districts that were implementing their grants by the beginning of the SY 16-17. Project descriptions for each of these school districts are included below followed by the data collection methods used for the evaluation in each district during SY 16-17, results specific to each district, and a summary of results across all grants. Each district's section of this report is organized by the Framework factors with corresponding evaluation questions and outcomes; each section includes a project summary as an introduction to the evaluation results.

Project Descriptions

David Douglas School District

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

Parkrose School District

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

Reynolds School District

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

Portland Public Schools

Portland Public School District (PPS) received their five year TechSmart grant in SY 15-16 and after one year of planning began implementation in SY 16-17. The TechSmart grant is supporting the K-5 Equity-Based Balanced Literacy (EBBL) framework adoption at PPS. By the end of the grant, 20 schools across the district will have the opportunity to receive professional development and pilot the technological

infrastructure provided by the funding. PPS's goal for these efforts is to improve 3rd grade reading outcomes and English language learners progress.

Gresham-Barlow School District

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

Methods

Teacher Technology Surveys

Each district completed a teacher survey at one or two time points during the SY 16-17 depending on the district's preexisting teacher surveys. The teacher survey asked questions about PD activities, technology skill level, frequency and level of technology integration, most commonly used digital resources, and the culture of support for technology integration in the district (see Appendix B).

Teacher Interviews

PRE conducted teacher interviews with a sample of teachers from each district during SY 16-17. Teacher interview questions focused on examples of enhanced instructional strategies, the usefulness of the PD activities, the culture of support for technology integration, the impact of the grant on student subgroups, and effects on student engagement and academic outcomes. See Appendix C for the complete interview protocol.

District Leader Interviews

PRE facilitated district leader interviews or focus groups in spring 2017 with school principals, administrators, and technology coaches in each TechSmart district. Leaders discussed perceptions of teacher progress and student achievement outcomes related to the project, the district's strategic plan for technology including funding decisions, and how they were working to engage communities in their efforts. See Appendix D for the complete interview protocol.

Student Surveys

For TechSmart projects targeting middle and high school students, a student survey was administered to answer questions on how technology in the classroom has affected student engagement and learning, and whether student opinions about the use of technology have changed as a result of the enhanced integration. Students provided examples of technologies that they would like to see more of in the classroom. The survey is in Appendix E.

Observation Tools

Leadership Rubric

One of the elements of the TechSmart grant is to examine how technology is supporting effective instructional practices across the TechSmart grantees. In order to learn about this key outcome, PRE partnered with the TechSmart grantees and the MHCRC to develop a rubric that can be used to rate the use of technology to support instruction. The items were created using elements of the Danielson Framework[1] as described below. Teachers were asked to self-assess using the rubric on the year-end survey and leaders (coaches and principals) were asked to complete the rubric "thinking about their TechSmart teachers a whole" following their leadership interview in the spring. Each element of the

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

rubric is described below and raters were asked to evaluate the extent to which technology supports each aspect of instruction (See Appendix F).

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

Table 5 below details the leaders in each district who completed the leadership rubric. A goal for the SY 17-18 will be to have at least three leaders in each school completing the rubric.

Table 5. Leadership Rubric Participants

District	n	Role within District
David Douglas School District	1	Principal
Parkrose School District	1	IT Director
Reynolds School District	3	Three Principals
Gresham-Barlow School District	3	Two Principals; One Coach
Portland Public School District	4	Two Principals; Two Coaches

Gresham-Barlow Classroom Observations

Gresham-Barlow School District conducted individual level observations of TechSmart teachers using the Danielson Framework[1] as described above. Forty individual classroom observations were completed by GBSD as a pilot for the grant. Twenty-eight teachers were observed at one time point and 12 of them were observed at a second time point. (See Appendix G)

Reynolds Walk Through Tool

RSD developed a district specific walk-through tool for the evaluation of their TechSmart grant and shared this data with PRE for inclusion in the Year 3 evaluation report. District administrators completed 26 observations for cohort 1 teachers and 47 observations for cohort 2 teachers. A copy of this tool can be found in Appendix H.

Project Status Reports

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

Student Achievement Data

PRE is receiving student-level data from the Oregon Department of Education (ODE) and directly from the school districts, in order to analyze the relationship between TechSmart investments and key student outcomes. The key outcomes to be examined for students are included in Table 1. The 3rd grade reading and 8th grade math outcomes will be evaluated using data from the Smarter Balanced Assessment which is referenced many times throughout this report and described below. There is a one-year time lag in ODE data, and as a result, the student data provided in this report are for the David Douglas School District and Parkrose School District whose grants started in the 2014-15 school year and Reynolds School District whose grant started in the 2015-16 school year.

Smarter Balanced Assessment

Oregon is part of a team of states working together voluntarily to develop K-12 assessments in English language arts/literacy and mathematics aligned to Oregon's Common Core State Standards. These tests are called Smarter Balanced assessments. Delivered online, these tests include questions that adapt to each individual's performance and feature new "Performance Tasks" that mimic real world application of students' knowledge and skills.

ELPA Assessment

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

Beginning in 2015-16, the state of Oregon began implementation of the ELPA21 assessment. The goal of ELPA21 is to provide online assessments that are aligned with the ELP standards adopted by the Oregon State Board of Education in 2013 and that best measure English Learner's mastery of the communication demands of the Common Core State Standards and the Next Generation Science Standards. As required by federal law, ELPA21 will continue to measure English proficiency in the four language domains of reading, writing, speaking, and listening. Additionally, ELPA21 consist of more interactive item types, especially for speaking and listening, compared with Oregon's former ELPA. ELPA21 scoring is quite different from Oregon's previous ELPA. There is not a single, more traditional composite score provided for ELPA21 results. Students receive an "Overall Proficiency Determination" which is a label and not a

numerical score. Students are labeled as either, “Emerging”, “Progressing”, or “Proficient”. Students receive 4 domain level results that are on different scales. Domain results include both a numeric score and a proficiency label. The overall proficiency descriptors for ELPA21 are included in Table 6 below. Starting with data from SY 15-16, PRE will be examining test scores for the ELPA21 assessment. Since ELPA21 is scored differently, we will not be able to make comparisons to historical Cohorts.

Table 6. Official ELPA21 Proficiency Descriptions

	Proficiency Level Description
Emerging	Students are Emerging when they have not yet attained a level of English language skill necessary to produce, interpret, and collaborate on grade-level content-related academic tasks in English. This is indicated on ELPA21 by attaining a profile of Levels 1 and 2 in all four domains. Students scoring Emerging on ELPA21 are eligible for ongoing program support.
Progressing	Students are Progressing when, with support, they approach a level of English language skill necessary to produce, interpret, and collaborate, on grade-level content-related academic tasks in English. This is indicated on ELPA21 by attaining a profile with one or more domain scores above Level 2 that does not meet the requirements to be Proficient. Students scoring Progressing on ELPA21 are eligible for ongoing program support.
Proficient	Students are Proficient when they attain a level of English language skill necessary to independently produce, interpret, collaborate on, and succeed in grade-level content-related academic tasks in English. This is indicated on ELPA21 by attaining a profile of Level 4 or higher in all domains. Once Proficient on ELPA21, students can be considered for reclassification.

Project Summary

David Douglas School District (DDSD) began implementation of its MHCRC TechSmart grant during the 2014–15 school year (SY 14-15) with PreK-3rd grade classes at Earl Boyles Elementary School. The grant assisted in the creation of a technology-supported early learning program at Earl Boyles in two ways: First, the grant allowed for the purchase of equipment including iPads, Chromebooks, Smart Boards, translation headsets, and other hardware for students and teachers, along with the appropriate educational software needed to support learning. Second, the grant provided extensive professional development (PD) to support teachers and staff members in transitioning to and understanding effective uses of online digital content and resources that utilize technology to create engaging and supportive learning environments for all students. The PD has included formal workshops and informal support from an onsite technology integration coach. DDSD's grant has focused on academic outcomes of kindergarten readiness, 3rd grade reading, and English language learners' progress. During the 2016-17 school year (SY 16-17), DDSD scaled up its technology integration efforts to include 4th and 5th grade classrooms at Earl Boyles. DDSD completed its third and final year of implementation in SY 16-17 and has accomplished many of the MHCRC TechSmart Initiative short-term outcomes included in the initiative logic model (see Appendix A). DDSD's evaluation results from the final year of implementation are presented below in terms of the seven essential factors for effective transformation to a technology-rich teaching and learning environment.

Methods

A general description of the methods included in the TechSmart evaluation is provided in the introduction to the full report. Data collection efforts for the SY 16-17 evaluation at Earl Boyles are summarized below.

Teacher Survey

The district administered a year-end teacher technology survey as part of its internal TechSmart project evaluation. PRE worked with the technology integration coach to add questions to this survey and received access to the resulting data. Due to the fact that teachers had very high rates of agreement on the spring 2016 survey, PRE decided to administer the teacher survey at one final time point in the spring of 2017 which coincides with the end of the grant. A total of sixteen teachers (10 veteran teachers and 6 new) completed the year-end survey.

Teacher Interviews

PRE conducted phone interviews with five teachers during the spring of 2017. The evaluation team utilized the teacher survey data and assistance from the Earl Boyles technology integration coach to select teachers with varying levels of technology integration.

District Leader Interviews

In spring 2017 PRE conducted interviews with the director of curriculum and instruction, the director of technology and assessment, the Earl Boyles principal, and the technology integration coach.

Leadership Rubric

The leadership rubric was completed by the principal at Earl Boyles elementary school.

Student Achievement Data

The impact of the TechSmart grant investment at Earl Boyles is being examined through a concurrent comparison group of students. For this concurrent cohort analysis, the treatment groups include students who were kindergarteners in SY 14-15 (Cohort 1) and SY 15-16 (Cohort 2) at Earl Boyles during Year 1 and Year 2 of the TechSmart funding, and the concurrent comparison group is a matched cohort of students created from all the SY 14-15 kindergarteners in DDSD outside of Earl Boyles. Students were matched to the Cohort 1 students using case control matching on the following at-risk indicators: Limited English Proficiency (LEP) status, special education status, free and reduced lunch status, and ethnicity. This resulted in 67 treatment students and 67 comparison students. These two groups will be followed throughout the grant implementation to assess the impact of the grant investment on student achievement outcomes. As data become available, we will add Treatment Cohorts and continue to compare to the SY 14-15 concurrent comparison group. For SY 15-16, outcomes include ELPA, EasyCBM, and DIBELS scores for kindergarten students.

One of the longer-term outcomes of the TechSmart Initiative is to reduce the achievement gap by improving academic outcomes for LEP learners, Special Education students, and students of color. These are referred to as "student subgroups." The TechSmart Initiative Logic Model uses "Common Criteria" for identifying promising and effective instructional strategies and practices. The criteria include, among others:

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

In order to assess progress toward reducing the achievement gap, student outcomes for each subgroup will be examined over time for Treatment and Comparison Groups. Figure 1 shows the student subgroups for the treatment and concurrent comparison groups for SY 14-15 (Cohort 1) and SY 15-16 (Cohort 2) DDSD kindergarteners. Table 1 below details the number of students in each Treatment Cohort and the Comparison Group by year.

Table 1. Treatment and Historical Comparison Group Sample Size

Cohort 1		Cohort 2		Concurrent Comparison Group	
Year	**N**	**Year**	**N**	**Year**	**N**
2014-15 (K)	67	2015-16 (K)	84	2014-15 (K)	67
2015-16 (1st)	63			2015-16 (1st)	66

Figure 1 below presents each cohort broken down by at-risk subgroup. Students were placed into subgroups based on their subgroup affiliation in Kindergarten.

Figure 1. David Douglas At-Risk Subgroups SY 15-16

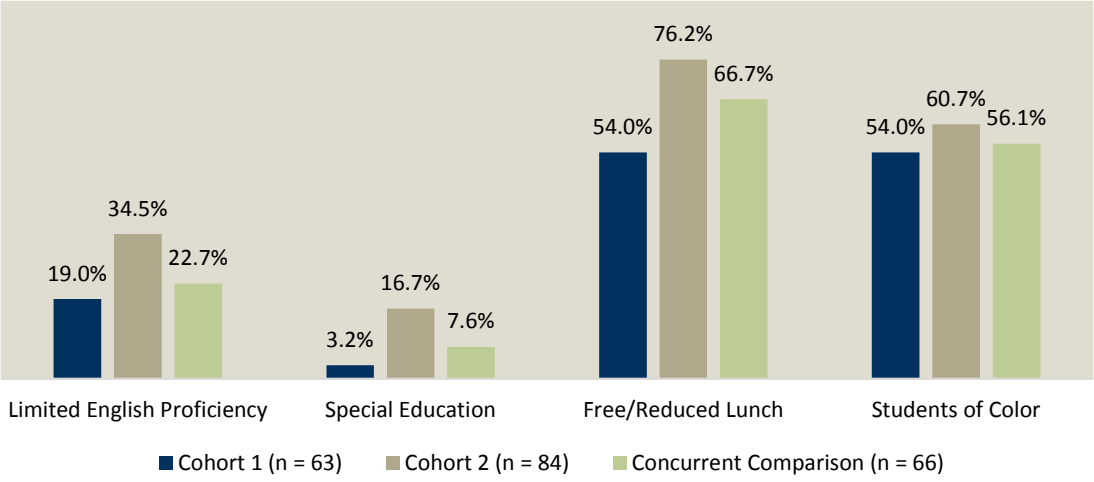
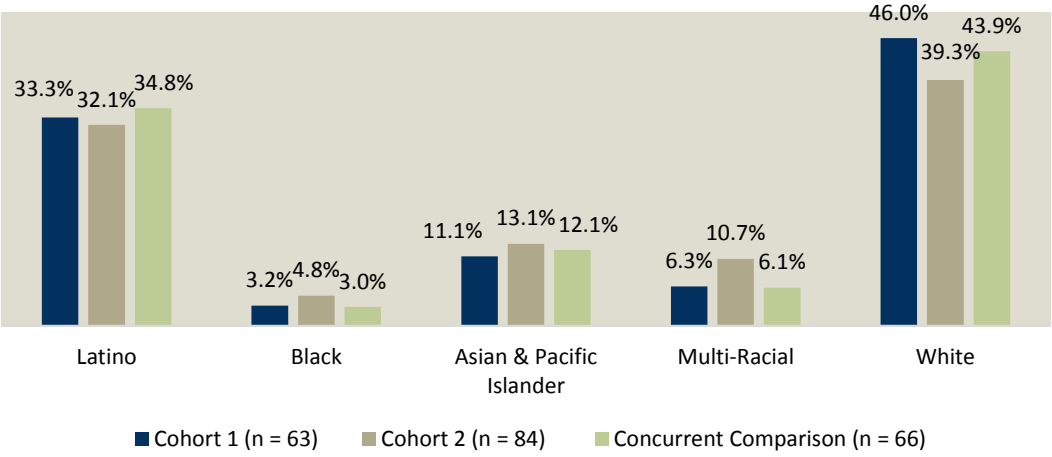


Figure 2 presents the race ethnicity of each cohort in SY 15-16. Cohort 2 is showing a slightly higher percentage of students of color than Cohort 1 and the concurrent Comparison Group.

Figure 2. David Douglas Race/Ethnicity SY 15-16



Findings

The evaluation findings from the SY 16-17 evaluation at Earl Boyles are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

Teaching Effectiveness

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

The PD provided through the TechSmart grant was a mix of formal and informal opportunities. During Year 3 of the grant, the technology integration coach offered two formal PD sessions in the summer of 2016. One session was geared towards returning teachers and one session was geared towards new hires as well as 4th and 5th grade teachers who were part of the efforts to scale up the technology at Earl Boyles. The session for returning teachers was one day and included 12 teachers, the Student Achievement Specialist, ERC, and the Title 1 teacher. This training focused on more advanced tools in Smart Notebook based on the feedback from the previous year-end technology survey. One teacher described this formal training as a springboard for the informal coaching received throughout the year: "In the last few years, we received formal professional learning with our technology integration coach. We meet in the summer months and he walks us through different technology we can use in the classroom with Smart Board and Chromebooks. The formal part is like a springboard for what our coach does throughout the year. From there we can work with him and it is really helpful to have."

The formal PD session for new staff was two days and included two new hires (one 3rd grade and one PreK teacher), three 4th grade teachers, and two 5th grade teachers. The technology integration coach modeled this session after the training done with the first cohort of teachers during the beginning of the project. The goal was to go over the basics of using their new technology (Smart Board, Chromebooks, and activities) and focus more on the surface level integration (substitution and augmentation level on the SAMR model of technology integration). The first day of training focused on the Smart Board and Receive and the second day focused on the Chromebooks and Google applications. One teacher commented on the usefulness of this two day training:

> *"Our technology integration coach did a PD for us at the beginning of the school year. We worked on both Smart Boards and Google which was great because I was unfamiliar. I had used it sporadically in the past, but he got into the details. My use has been severely impacted by this training and it is nice to be all together in one place. We now use the Smart Board and Chromebooks every day."*

Consistent with the first two years of the grant, informal PD took the form of an onsite technology integration coach offering support throughout the year. During SY 16-17, the technology integration coach was onsite at Earl Boyles half time and supporting other schools within the district half time. Through this informal coaching at Earl Boyles, teachers received pedagogical development as they learned news ways of teaching using technology. Teachers continued to emphasize the importance of the

technology integration coach as noted by one teacher who was implementing for the first time this school year, "I think the crash course at the beginning of the year was great to become aware of the full range of things, but more important was the coaching. I had a lot of great ideas but if I forgot one aspect, I was glad to be able to say 'show me one thing'". Another new teacher echoed the value of the combination of formal and informal support at Earl Boyles:

"There is no use in having the technology if there is not a coach or professional development with it. I've known a lot of teachers who received technology but never use it because they didn't get training or coaching with it."

When rating the usefulness of the group PD versus the individualized PD, 86.7% of teachers rated the individualized PD as extremely useful, compared to 43.8% who rated the group PD as extremely useful. These are both slightly lower than in previous years and may be due to the fact that the technology integration coach was no longer on site full time and did not offer as many training sessions. One teacher mentioned the coach's part-time status: "I think it is hard because when he was here full time we were able to get more from him. It is hit and miss now. He is troubleshooting one-on-one and providing PD through email, not sitting down with the team."

Regardless of his part-time status, teachers continued to comment on how beneficial the support of the technology integration coach has been and said that he has been integral to the adoption of new instructional strategies. For example, one teacher in her third year of implementation described how they still utilize the technology integration coach: "I use him all the time whether it is texting him or he will come and see me in a pinch. He has been introducing new ideas to us and new information in Epic. Instead of logging in everyday, there is an updated code. It is much easier."

How is the professional development impacting teacher instruction?

The year-end survey asked teachers how effective the professional development model has been in impacting teacher instruction. Teachers consistently provided positive feedback about the effectiveness of the PD model. Table 2 below includes a selection of quotes from teachers in response to this question and highlights the importance of the technology integration coach and the digital tools.

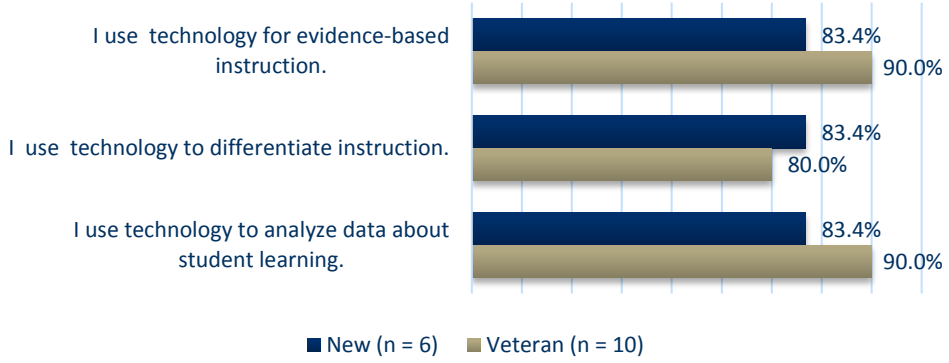
Table 2. Effectiveness of the PD Model at Earl Boyles ES

"My Tech Coach has been invaluable. I began my career with a good understanding of technology and how to incorporate it into classroom instruction to enrich my students' learning experience. However, he was able to provide me with new ideas that took my practice to a new level. My students used Google Classroom for a lot of instruction this year and I hope to integrate Smart Board lessons into every unit vs. sporadic use."
"Having support from a technology integration coach who has the time and expertise to take our technology instruction to the next level is essential. Having PD on the latest technology in education is an asset to our teaching and kids' learning."

"It's been extremely effective. Had we been given technology without a coach, technology wouldn't have been used. Having a coach and training is key for our success!"
"I use my technology every day. I write almost all of my lessons on Notebook so I can use my Smart Board. I also use an app called Seesaw on my student iPads and it is great for parent engagement as well as student engagement."
"Very effective. The only thing I could think of is having beginning of the year procedures written down step by step. At the beginning of the year, out tech is very busy troubleshooting."

On the year-end survey, teachers described the extent to which the PD increased their use of technology for evidence-based instruction, differentiating instruction, and analyzing and using data about student learning. Figure 3 presents these data separately for teachers who were new to the grant this year and those "veteran" teachers who have been implementing for three years total. Results show that by the end of the grant, all but one new teacher reported using technology in each of these ways. Slightly fewer veteran teachers reported that they use technology to differentiate instruction "a moderate amount or a great deal".

Figure 3. Earl Boyles Instructional Technology Use (% responding "A moderate amount/A great deal")



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

Level 1: I get someone else to do technology-based tasks for me.

Level 2: I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.

Level 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.

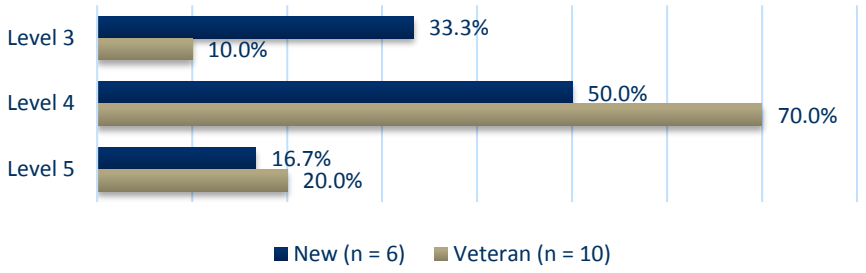
Level 4: I use a variety of technology tools and I use them efficiently for all aspects of my job.

Level 5: I use technology efficiently, effectively, and in creative ways to accomplish my job.

As illustrated in Figure 4, by the end of their first year of implementation, 66.7% of new teachers rated themselves at a Level 4 or 5 and 90.0% of veteran teachers rated themselves at a Level 4 or 5. The

previous year's evaluation data showed 92.3% of teachers at a Level 4 or 5 so veteran teacher skill level is relatively stable. No teachers in either group rated themselves at a Level 1 or 2.

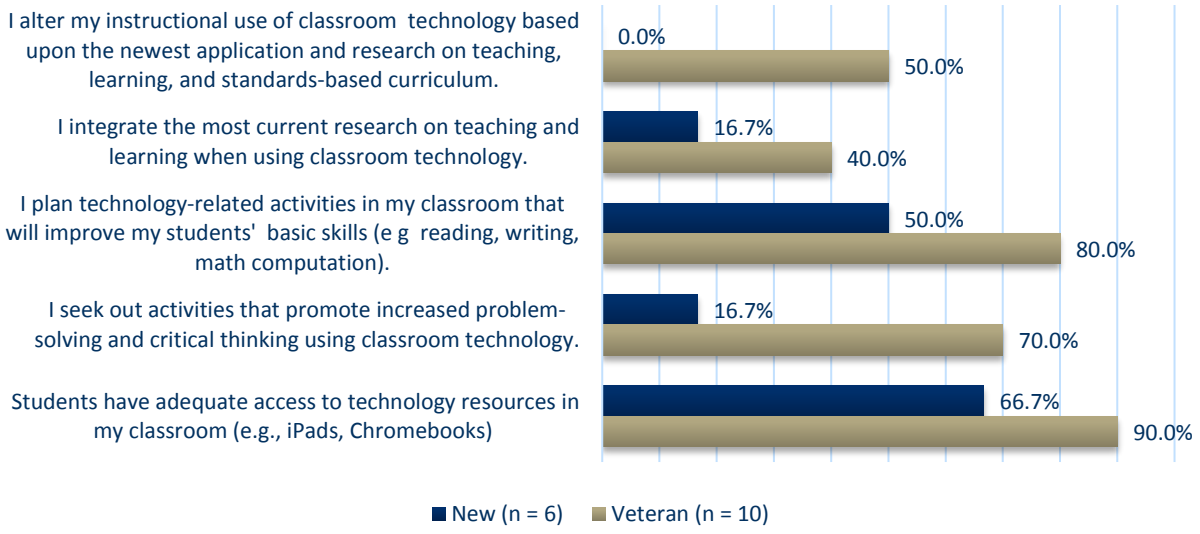
Figure 4. Earl Boyles ES Teacher Technology Skill Levels



Similarly, teachers were asked to respond to a second question rating their technology skill level on a different scale (1-10). For this question, the mean rating for new teachers was a 6.5 and the mean rating for veteran teachers was an 8.1. This difference highlights the importance of providing time for change in instruction to occur. With regard to teacher skill level, the technology integration coach stressed the importance of having the coach on site with teachers. When discussing a reduction in the number of coaching hours for next year the technology integration coach said, "There is a wide range of skills in teachers. I'm so concerned for those lower skilled teachers. I'm afraid they aren't going to use their Chromebooks effectively."

Figure 5 below presents teacher self-ratings of technology integration for new and veteran technology integrators. A higher percentage of veteran teachers indicated that these statements were "true or very true of them" corresponding to higher levels of integration. Areas for improvement with the new teachers include altering instructional use of technology based on the newest applications and research and seeking out activities that promote increased problem solving and critical thinking using classroom technology.

Figure 5. Earl Boyles ES Teaching Instruction (% responding "True of me/Very true of me")



Summary: How is Professional Development impacting teacher instruction?

This evaluation question includes the following outcomes: 1) PD has helped teachers increase the use of technology for evidence-based instructional practices, 2) PD has helped teachers use technology to analyze and use data about student learning, and 3) PD has helped teachers use technology to differentiate instruction. The section above provides data to support that over 80% of new and veteran teachers are achieving these outcomes. The self-reported technology skill level of teachers provides support for the impact of the PD and qualitative feedback from teachers emphasizes the positive impact of the PD model on their instruction. The technology integration coach was reported to have the most impact on instruction.

What new instructional strategies are teachers reporting?

Teachers provided examples of instructional strategies that have been particularly effective in their classrooms and rated them on a scale of one to five. Teachers responded to this question by listing the technology supports that they were using to alter instruction. The most common tools reported are listed in Table 3, along with the average effectiveness rating.

Table 3. Earl Boyles ES New Technology Used for Instruction

Technology Supports	Effectiveness Rating
Google Classroom	4.8 (n = 10)
Apps such as Reflex: Math Fact Fluency and Recap	4.7 (n = 8)
Smart Board	4.4 (n = 7)
Online Resources such as Xtra Math, IXL, RAZ-Kids	4.0 (n = 4)

The supports listed by teachers were consistent with those listed the previous year with Google Classroom being the most commonly mentioned and the most highly rated in terms of effectiveness. The technology integration coach commented on the effectiveness of Google Forms in his mid-year status report:

"The teachers use Google Forms and Kahoot to give formative assessments to their students in order to identify which students need more support. A second grade teacher at Earl Boyles taught a lesson on comparing numbers and gave his students a formative assessment after the lesson to gather data and identify students who need extra support in small groups. Google Forms has the capability to grade quizzes and for teachers to write feedback based on how the student answers. The teacher wrote helpful feedback and students were able to see their scores after they completed the quiz."

Table 4 below presents results from the rubric designed to rate the use of technology to support instruction. Aggregate teacher self-ratings for the rubric as well as the Earl Boyles' principal ratings of the teachers as a whole are presented. The principal rated the teachers higher on all aspects of using technology to support instruction with the exception of managing classroom procedures. Teacher self-ratings showed opportunities for improvement in using technology to support the organization of physical space and using technology to support questioning and discussion techniques.

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

	Teacher Survey (n = 16)	Leadership Rubric Survey (n = 1)
Planning and Preparation	3.44	4.00
Managing Classroom Procedures	3.19	3.00
Organizing Physical Space	2.88	4.00
Communicating with Students	3.13	3.00
Using Questioning and Discussion Techniques	2.94	4.00
Engaging Students in Learning	3.50	4.00
Using Assessment in Instruction	3.25	4.00
Demonstrating Flexibility and Responsiveness	3.06	4.00

The rubric also asked teachers and leaders to "Provide examples of how teachers used technology to support instruction for at-risk sub-groups (students of color, ELD (LEP), SPED, low SES) in the areas defined above." Teachers provided several examples that are consistent with other examples provided in this report. Teachers mentioned using technology to differentiate for student subgroups as noted by one teacher, "I was able to differentiate reading levels in the RAZ Kids app for my at risk students". Another teacher commented on RAZ Kids for differentiation along with other digital tools: "Leveled reading programs such as RAZ-Kids, IXL for math differentiation and monitoring, Reflex for multiplication and division facts, and Google Classroom for written papers." As highlighted below, it is common for teachers to have many students who fall into the "at-risk" category so it is part of daily instruction to be focusing on differentiation through the use of the technology:

"We use technology to support instruction for these groups in many ways, one of which is a text to speech tool for students who have difficulty writing or typing, audio books for readers with a learning disability or dyslexia, differentiating lessons, filling math gaps or reading gaps with programs that can meet them where they are and fill those gaps. The majority of our class falls into this category so just having regular use of technology is incredibly important for them so that they can keep up with other kids in the competitive world."

Summary: What new instructional strategies are teachers reporting?

Before we can answer the evaluation questions related to how instructional strategies are impacting student engagement and learning outcomes, it is important to identify what new instructional strategies teachers are reporting. After three years of implementation, teachers are reporting the use of several devices and applications to support instruction and most commonly report using technology to support classroom planning and preparation and to engage students. Although some new instructional strategies are emerging in Earl Boyles, teachers are still more focused on the devices and applications and less on how they are using them to alter instruction. One instructional strategy that has emerged at Earl Boyles is the use of technology to differentiate instruction for all students, particularly at-risk subgroups.

How are the new instructional strategies impacting student engagement?

Teachers provided several examples of how the new technology has impacted student engagement. One of the new teachers described how they are using the Smart Board in their classroom: "The Smart Board makes things that would be fairly boring more interactive, particularly with the pre-academic stuff. Earl Boyles has a slightly more academic PreK program than I have taught in before. I have found by using the Smart Board and making it really interactive, I don't feel as weird about introducing those academic concepts. There are actions the kids can choose, they touch the action and select the number of times they want to do it, throw things at the board, etc. They love that." A couple of other teachers noted the impact of online applications on student engagement. One teacher commented on Moby Max which is an online application that finds and fixes missing math skills that are essential for math comprehension. She said, "Students are far more engaged with Moby Max especially. It is really filling holes. And they are getting into Moby Max at home which is something they would not traditionally do. Moby Max makes it more exciting for them. It brings the education to life. A lot less paper and pencil and a lot more deep thinking, working together." Another teacher commented on the general use of technology to engage her students:

> *"Whether you are a new teacher or a seasoned teacher, it is a matter of being open-minded and willing to try new things. Kids are hard to contain and the engagement is through the roof when we do things with technology in the classroom, especially with subjects that are challenging. When I make games online through smart exchange or use one that has already been made, the engagement goes up and I feel like I am being more productive. Nothing is ever the same, but when you have these routines with technology, it makes a big difference."*

On the year-end status report, the technology integration coach provided several examples of how teachers at different grade levels are impacting student engagement. Examples include the use of Reflex for Math, Recap, WriteReader, Kahoot, and Classroom Dojo. One second grade teacher described the impact of WriteReader which is a tool for K-5 classrooms that is currently accessible through web browsers and is designed to help improve reading skills by allowing students to write and publish their own digital books: "Reluctant students, who may have gotten zero stories written before, are highly motivated, and excited! They still have to go through the writing process, before they can publish their stories in Write Reader. In the short time I've used it, I've seen reluctant writers get three and four stories written! I also use the edit tool to help the non-writers. They dictate to me, I type the story in the adult owl section, then they have to type it in the little owl section. That way they feel successful too! They love it!"

Summary: How are the new instructional strategies impacting student engagement?

Results from the SY 16-17 evaluation provide evidence that the use of technology has increased teachers' ability to engage students in classroom instruction. Consistent with the second year of implementation, teachers provided several examples of how the use of technology to support instruction has led to positive changes in student engagement and both teachers and leaders rated the use of technology to support instruction high in the self-assessment and leadership rubric.

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

Teachers were asked to comment on whether their new instructional strategies are showing promise for improving student outcomes. One teacher who has been implementing since the beginning of the grant indicated that they have seen growth in reading outcomes for their students this year: "One of my goals this year is reading and I have some data from the beginning of the school year that shows where they have made growth and how far they have come. DIBELS data shows that the majority of my kids are on track for benchmark." Another teacher commented on how the technology is helping to close some gaps: "Yeah, it is more closing some of the gaps, especially in math and somewhat in reading too. We had some major reading issues and the specific phonics instruction my students received through the tech has been more engaging. They are still getting the small group, but the technology is more independent."

Students are taking more ownership of their own learning. Other teachers commented on evidence that shows promise for improving student outcomes such as the visual improvements in student communication as a result of using Recap: "The big one for me is Recap. I shared that with parents and they were really impressed with how the kids are able to show what they know and with the communication between me and them." Finally, teachers recognized that it is difficult to know whether the technology is improving student outcomes but they can definitely say that it is changing their instruction:

> *"It is hard to say that kids are changing because of the Smart Board. I don't think technology does that. But technology has changed my teaching and my kids are achieving. It makes whole group instruction more engaging, it streamlines materials, and I get to save all my lessons for next year. That makes it more efficient but I wouldn't be able to say it was a causal relationship"*

The leadership within DDSD also commented on the impact of the technology integration on student achievement. The principal at Earl Boyles explained that students are becoming more proficient through their access to technology and that technology allows students to think outside of the box and "outside of the worksheet". She also noted that they are more comfortable with the technology when it comes to state assessments and the Smarter Balance Assessment. The Director of Technology and Assessment echoed this sentiment: "The instructional change is showing promise for improving student outcomes especially with the common core. Students are asked to do more than just rote memory and move on up Bloom's taxonomy if you will. The use of technology affords them the ability to create projects and do things that wouldn't be possible without technology." Finally, the technology integration coached shared an example of how students are able to explain their process for solving problems: "A big thing that's smart about Technology is that you don't have kids just find the answer but also describe their process and their thinking. With the technology, especially with Recap they can orally explain their process of thinking and tell the teachers how they solved a problem."

Student Achievement Data

As described in the methods section of this report, at this point in the evaluation PRE can present data for two Earl Boyles' cohorts and a Comparison Group. Table 5 below presents the data we have available at this time for each group.

Table 5. DDSD Student Achievement Data

	Kindergarten	1st Grade	2nd Grade
Earl Boyles Cohort 1 (Kindergarten in SY 14-15)	Kindergarten Readiness Easy CBM ELPA	DIBELS ELPA	DIBELS
Earl Boyles Cohort 2 (Kindergarten in SY 15-16)	Kindergarten Readiness DIBELS ELPA	DIBELS ELPA	
Comparison Group (Kindergarten in SY 14-15)	Kindergarten Readiness Easy CBM ELPA	DIBELS ELPA	DIBELS

Kindergarten Readiness

In order to provide context for Cohort 1 and Cohort 2 academic outcomes at baseline for the comparative analyses, PRE examined Kindergarten Readiness Assessment results for Cohort 1, Cohort 2 and the Comparison Group. The Kindergarten Readiness Assessment is administered in the first six weeks of kindergarten and is designed to measure what students know upon entering kindergarten. The components of the Kindergarten Readiness Assessment include Early Literacy, Early Math, and Approaches to Learning.

The SY 15-16 evaluation report presented Kindergarten Readiness data for Cohort 1 and results from this Assessment showed that Earl Boyles' Cohort 1 students entered into kindergarten slightly more "ready" in terms of Early Literacy, Early Math, and Approaches to Learning than the comparison group students. Specifically, there were significant differences on the average English letter sounds correct, average early numeracy items correct, and interpersonal skills. This placed the Cohort 1 treatment group students at a slight advantage in terms of achieving academic outcomes.

Kindergarten Readiness Scores for Cohort 2 and the Comparison Group are summarized below and presented in detail in Appendix X. These results show that Cohort 2 students entered into kindergarten slightly more "ready" in the area of Early Literacy, Early math, and Approaches to Learning than the comparison group students. Overall, results from this Kindergarten Readiness Assessment showed that Cohort 2 and the Comparison Group were comparable in terms of their readiness for Kindergarten. Cohort 2 Earl Boyles' students had slightly higher scores on Early Literacy, Early Math, and Approaches to Learning than the comparison group students but the only significant difference was in the self-regulation subdomain of Approaches to Learning.

EasyCBM

The SY 15-16 evaluation also examined EasyCBM scores for Cohort 1 and the Comparison Group during SY 14-15. The EasyCBM is a standardized test that Oregon students complete at three time points throughout the school year: fall, winter, and spring. The results of a Kindergarteners' reading subject test from the first year of the grant at Earl Boyles showed that by the spring of 2015, 88.1% of Cohort 1

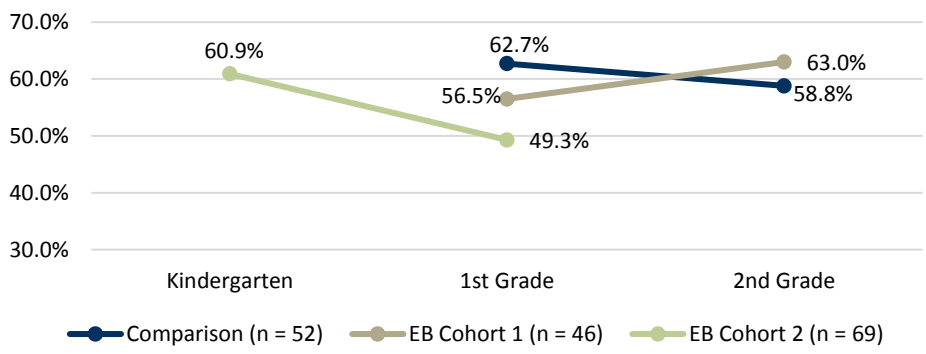
students were considered to be at benchmark and 70% of comparison group students (69.7%) were at benchmark. A chi-square test of independence was conducted and showed that the relationship between these variables was significant, X^2 (2, N = 133) = 9.60, p <.01.

DIBELS

In SY 15-16, David Douglas School District started using the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment for K-3 students rather than the Easy CBM assessment. DIBELS are a set of procedures and measures for assessing the acquisition of early literacy skills from Kindergarten through sixth grade. As a result of this change, we are not able to make growth comparisons from Kindergarten to first grade for the Cohort 1 students or for the Comparison Group students. DIBELS data were available from the district through SY 16-17 and these results are presented in Figure 6 for Cohort 1, Cohort 2, and the Comparison Group.

For Cohort 1 Earl Boyle's students, DIBELS results showed that the percentage of students meeting benchmark increased from 56.5% in spring of 1st grade to 63.0% in the spring of 2nd grade. A higher percentage of comparison group students were at benchmark in the spring of 1st grade (62.7%) and this decreased to 58.8% by spring of 2nd grade. A chi-square test of independence was conducted and showed that the relationship between Cohort 1 and the Comparison Group was not significant at the spring time point in either year. For Cohort 2 Earl Boyle's students, 60.9% of students were at DIBELS benchmark by the end of Kindergarten and this decreased to 49.3% by the spring of their 1st grade year.

Figure 6. Percentage of Students at Benchmark in the Spring on DIBELS Assessment



*DIBELS data not available for Cohort 1 or Comparison Group during their Kindergarten year (SY 14-15) as DDSD was using EasyCBM assessment.

Summary: Are the new instructional practices showing promise for improving academic outcomes?

The results of this analysis show that in general, Cohort 1 students tend to improve between 1st and 2nd grade, Cohort 2 students tend to decline between Kindergarten and 1st grade and the comparison group tends to decline between 1st and 2nd grade. Thus, there is not strong quantitative evidence at this point in time that the new instructional practices are improving academic outcomes for Treatment Cohorts over and above the instruction received by the comparison group.

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

Teachers and leaders provided several examples of how technology is being used to support instruction for student subgroups. Teachers highlighted the use of technology to differentiate for student subgroups and also commented on how the technology provides them with access to more books and resources that can be used with subgroups. One fourth grade teacher commented on the use of technology to support students with an IEP: "I have a handful of students with IEP and specifically I have two students who are autistic and are at a 2nd or 1st grade level. They were nonverbal at the beginning of the school year and I have differentiated through Chromebooks and seen massive growth in both students."

The use of technology to provide access to resources that support student subgroups was highlighted by a 3rd grade teacher: "I am giving them more access to things. There is more availability, more variety, and they are engaging books that students enjoy. We don't have all those books in our library and we don't have the money to support the library but we are able to get all the latest books online. The books that are available online are amazing and they are reading more. Some of these students do not read a lot at home and this has bumped up their reading level. It is part of the solution to closing that gap."

Two teachers specifically commented on their use of the Smart Board to deliver instruction to student subgroups. One highlighted its use with ELD (LEP) students: "I have used Smart Board lessons to teach sentence frames and language functions to ELD (LEP) students during designated language instruction blocks." Another teacher commented on differentiating lessons using the Smart Board: "All of my students are either of color, ELD (LEP), SPED or low SES. I have used technology to support their instruction by developing Smart Board whole group and individualized lessons aligned with our standards and curriculum."

The year-end status report provided a specific example of how Recap has been a powerful tool for reaching student subgroups:

> *"Recap has been a powerful tool for ELD, SPED, and students of color (and ALL other students). Recap gives students the platform to share what they know in a safe environment where there aren't thirty other pairs of eyes look upon them. Teachers have used Recap heavily in their language blocks where students respond by using a sentence frame. Another advantage of Recap is that it is framed very similarly to the ELPA, which is a test for ELD students. The students were more prepared for those sections of ELPA because they have already done a similar activity in Recap."*

Student Achievement Data

Easy CBM

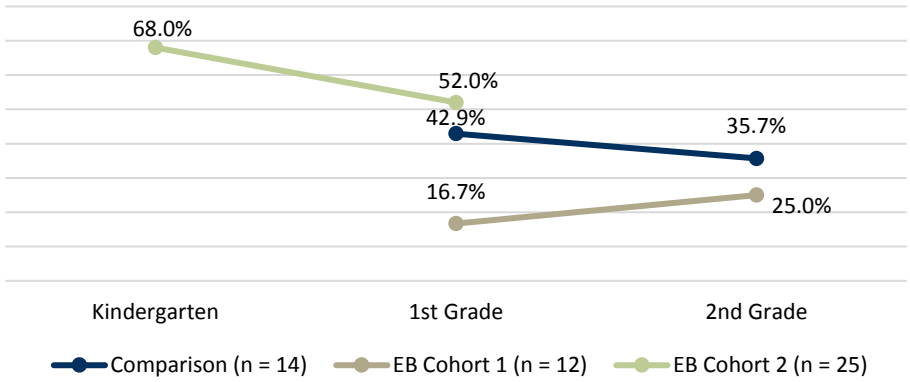
During the SY 15-16 evaluation, EasyCBM scores were examined for at-risk subgroups within Cohort 1 and the comparison group. In order to gain insight into whether instructional practices are showing promise for improving academic outcomes with at-risk student subgroups, EasyCBM scores were examined by subgroup for treatment and comparison group students. Examination of EasyCBM scores for these four subgroups showed that there was not strong evidence at that point in time that the new instructional practices are improving academic outcomes for treatment group students over and above the instruction received by the comparison group of students.

DIBELS

For the SY 16-17 evaluation, DIBELS scores were examined for at-risk subgroups within Cohort 1, Cohort 2, and the Comparison Group and these results are presented below.

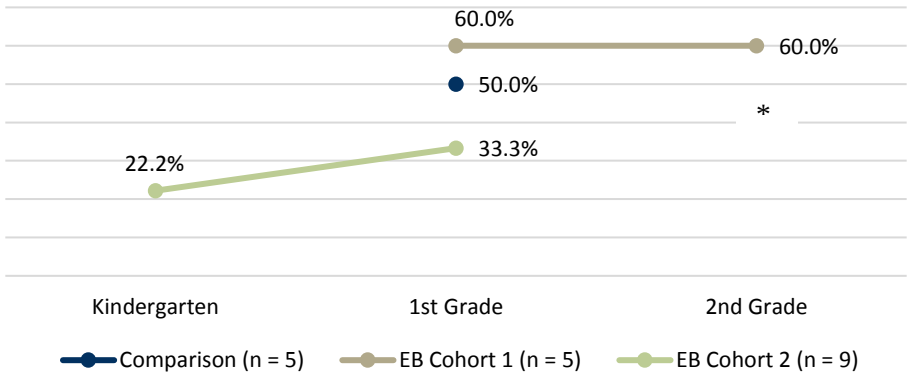
For LEP students, Cohort 1 had 16.7% of students at benchmark in the spring of 1st grade and 25.0% at benchmark by spring of 2nd grade. Cohort 2 students had 68.0% at benchmark by the end of Kindergarten which decreased to 52.0% by spring of 1st grade. Cohort 2 students were performing above the comparison group in 1st grade and Cohort 1 students were performing below the comparison group at both time points (see Figure 7).

Figure 7. Percentage of Treatment and Comparison LEP Students at Benchmark in Spring on DIBELS



For SPED students, Cohort 1 students had 60.0% of students at benchmark in the spring of 1st grade and this remained constant to spring of 2nd grade. Cohort 2 students had 22.2% at benchmark by the end of Kindergarten which increased to 33.3% by spring of 1st grade. The comparison group did not have enough student data to be included in the 2nd grade analysis. Cohort 1 students were performing above the comparison group in 1st grade and Cohort 2 students were performing below the comparison group in 1st grade (see Figure 8).

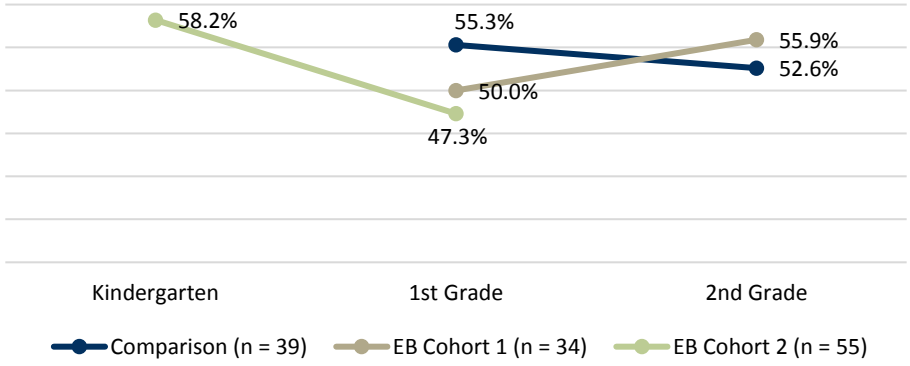
Figure 8. Percentage of Treatment and Comparison SPED Students at Benchmark in Spring on DIBELS



*2nd grade DIBELS data were only available for 2 students in this cohort

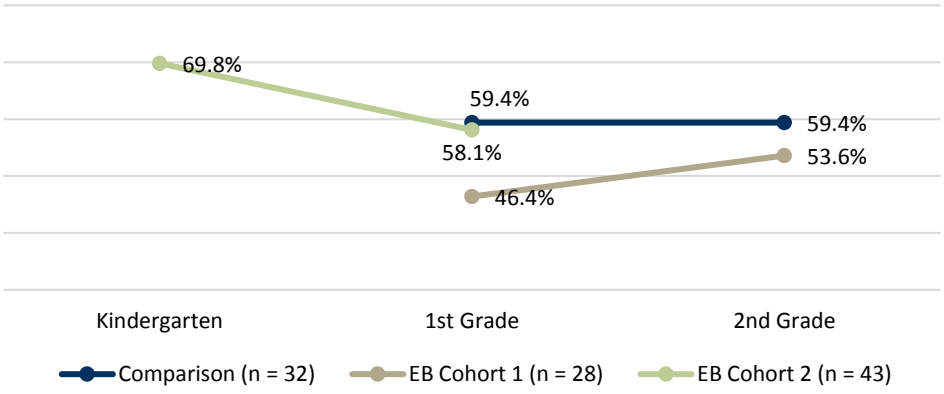
For students on free/reduced lunch, 50.0% of Cohort 1 students were at benchmark in the spring of 1st grade and 55.9% were at benchmark by spring of 2nd grade. Cohort 2 students had 58.2% at benchmark by the end of Kindergarten which decreased to 47.3% by spring of 1st grade. Cohort 1 students were performing above the comparison group by 2nd grade and Cohort 2 students were performing below the comparison group at 1st grade (see Figure 9).

Figure 9. Percentage of Treatment and Comparison Free/Reduced Lunch Students at Benchmark in Spring on DIBELS



For students of color, 46.4% of Cohort 1 students were at benchmark in the spring of 1st grade and 53.6% were at benchmark by spring of 2nd grade. Cohort 2 students had 69.8% at benchmark by the end of Kindergarten which decreased to 58.1% by spring of 1st grade. Cohort 1 students of color were performing below the comparison group at both time points and Cohort 2 students of color were performing below the comparison group at 1st grade (see Figure 10).

Figure 10. Percentage of Treatment and Comparison Students of Color at Benchmark in Spring on DIBELS



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

The results of the subgroup analyses are largely consistent with the trends seen for the full group analysis presented in Figure 9. In general, Cohort 1 students tend to improve between 1st and 2nd grade, Cohort 2 students tend to decline between Kindergarten and 1st grade and the comparison group tends to decline between 1st and 2nd grade. Thus, there is not strong quantitative evidence at this point in time that the new instructional practices are improving academic outcomes for treatment sub-groups over and above the instruction received by the comparison sub-groups.

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

PRE examined DIBELS data to assess how student progress may differ for at-risk subgroups as compared to non-at-risk subgroups within Earl Boyles. Results are presented below for Cohort 1 and Cohort 2 Earl Boyles students.

For Cohort 1, there was a 9.1 percentage point gain in Earl Boyles LEP students at benchmark from 1st grade to 2nd grade. For Cohort 2, the percentage of LEP students at benchmark was higher than non-LEP students but decreased 16.0% from Kindergarten to 1st grade.

Figure 11. Cohort 1 LEP vs. Non-LEP DIBELS Spring Benchmark

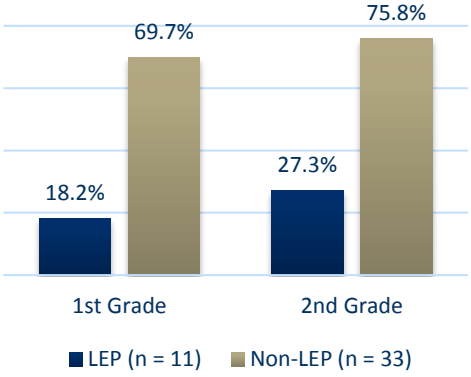
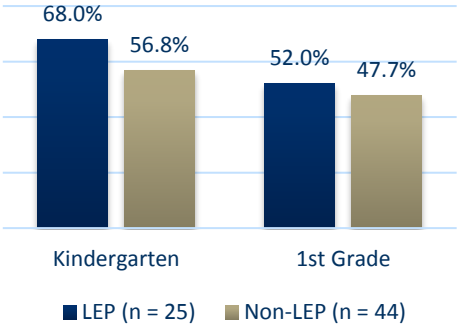


Figure 12. Cohort 2 LEP vs. Non-LEP DIBELS Spring Benchmark



For Cohort 1 SPED students, there was no change in the percentage of students at benchmark from 1st grade to 2nd grade and non-SPED Cohort 1 students increased 7.7 percentage points. For Cohort 2, the percentage of SPED students at benchmark increased 11.1% from Kindergarten to 1st grade and actually decreased 15 percentage points for non-SPED Cohort 2 students from Kindergarten to 1st grade.

Figure 13. Cohort 1 SPED vs. Non-SPED DIBELS Spring Benchmark

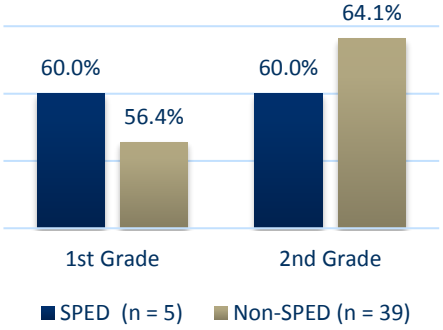
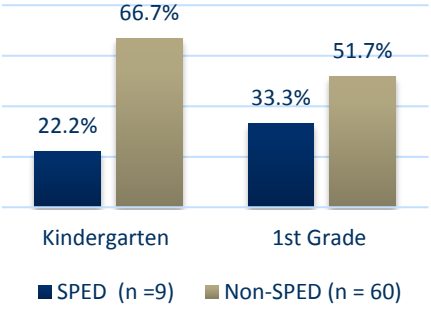


Figure 14. Cohort 2 SPED vs. Non-SPED DIBELS Spring Benchmark



For Cohort 1 students on free and reduced lunch, there was a 6.3 percentage point gain in students at benchmark from 1st grade to 2nd grade and an 8.3 percentage point gain for non-free and reduced lunch Cohort 1 students. For Cohort 2, the percentage of free and reduced lunch students at benchmark decreased for all students from Kindergarten to 1st grade regardless of subgroup.

Figure 15. Cohort 1 F/R Lunch vs. Non- F/R Lunch DIBELS Spring Benchmark

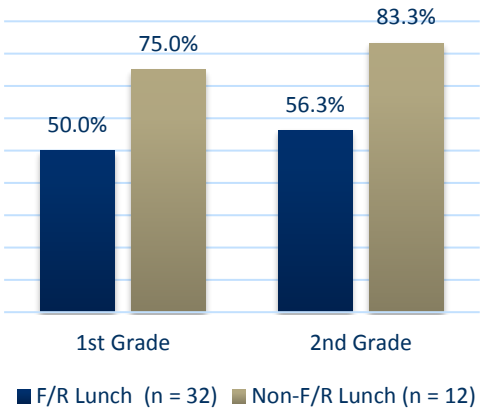
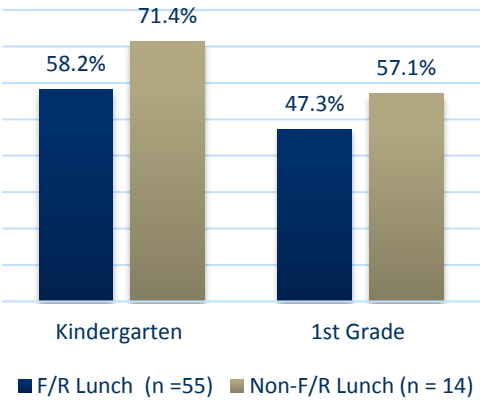


Figure 16. Cohort 2 F/R Lunch vs. Non- F/R Lunch DIBELS Spring Benchmark



Cohort 1 students of color at Earl Boyles showed similar gains as non-minority students on the DIBELS assessment from 1st to 2nd grade. For Cohort 2, the percentage of minority students at benchmark decreased for all students from Kindergarten to 1st grade regardless of subgroup but minority student were performing better at both time points.

Figure 17. Cohort 1 Minority vs. Non-Minority DIBELS Spring Benchmark

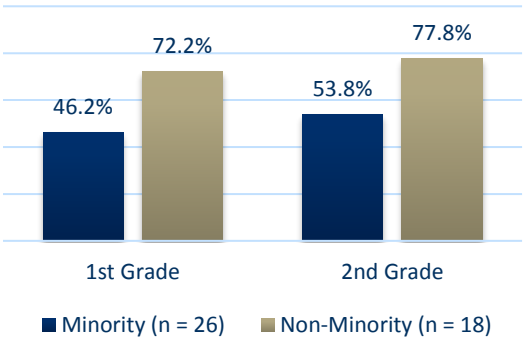
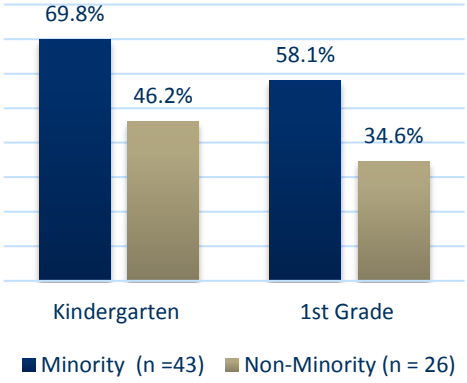


Figure 18. Cohort 2 Minority vs. Non-Minority DIBELS Spring Benchmark



Again, the results of the subgroup analyses are largely consistent with the trends seen for the full group DIBELS analysis. Noteworthy findings from this analysis include the high percentage of Cohort 2 LEP students and students of color performing at benchmark in Kindergarten and 1st grade.

ELPA Test Scores

As presented in the SY 15-16 evaluation report, PRE was able to examine ELPA test scores for Cohort 1 and the Comparison Group in Kindergarten utilizing results from the previous version of Oregon's ELPA assessment. ELPA test scores were examined for those students in Cohort 1 and the comparison group

who took the ELPA assessment in kindergarten and the results are presented in Table 6 by ELPA levels of proficiency. No students in either group scored above a Level 3 at either time point.

Table 6. ELPA Test Scores by Level of Proficiency

	Cohort 1 Kindergarten (n = 14)	Comparison Group Kindergarten (n = 14)
Level 1 (Beginning)	42.9% (6)	14.3% (2)
Level 2 (Early Intermediate)	42.9% (6)	57.1% (8)
Level 3 (Intermediate)	14.3% (2)	28.6% (4)
Level 4 (Early Advanced)	--	--
Level 5 (Advanced)	--	--

Starting in SY 15-16, PRE will be examining ELPA test scores for the ELPA21 assessment. Since ELPA21 is scored differently, we will not be able to make comparisons to Cohort 1 and the Comparison Group's Kindergarten scores. Table 7 below presents the ELPA21 results for Cohort 1 and the Comparison Group in 1st grade and Cohort 2 students in Kindergarten. In future years of the evaluation, we will be able to examine changes in ELPA21 proficiency levels across years in order to detect growth within the Treatment Cohorts. The scores presented in Table 7 are only descriptive in nature and do not assist in answering the evaluation question regarding whether new instructional practices are showing promise for improving student academic outcomes with at-risk student subgroups. Appendix I contains descriptions of the three ELPA21 proficiency levels.

Table 7. ELPA21 Results (SY 15-16)

Proficiency Determination	Cohort 1 1st Grade (n = 13)	Comparison Group 1st Grade (n = 15)	Cohort 2 Kindergarten (n = 29)
Emerging	--	13.3% (2)	13.8% (4)
Progressing	100.0% (13)	80.0% (12)	82.8% (24)
Proficient	--	6.7% (1)	3.4% (1)

Summary: 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, special education (or those with an IEP) and those not on track to meet academic standards).

The results of the subgroup analyses are largely consistent with the trends seen for the full group DIBELS analysis. Noteworthy findings from this analysis include the high percentage of Cohort 2 LEP students and students of color performing at benchmark in Kindergarten and 1st grade. This provides preliminary evidence that student growth, as measured by the DIBELS assessment, is greater for Cohort 2 LEP and minority student subgroups within Earl Boyles.

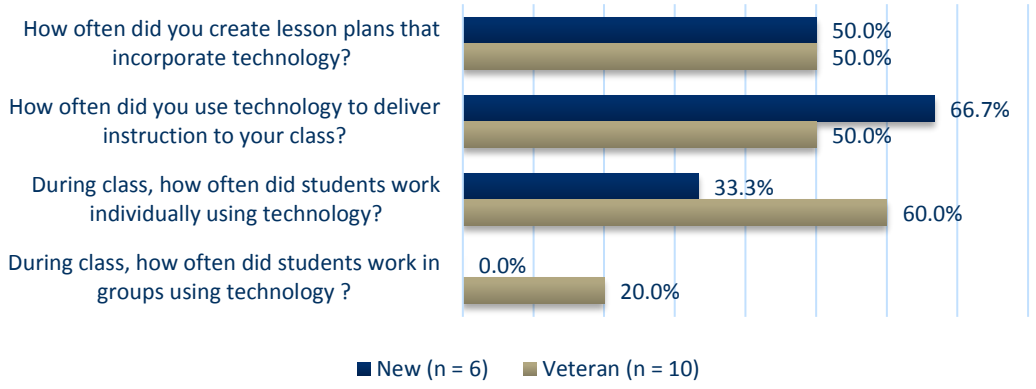
Digital Age Learning Culture

Districts embrace a cultural shift and views technology as positive.

Has the use of technology to support instructional practices increased?

As noted in the previous section on teaching effectiveness, teachers provided several examples of how they have increased their use of technology to support instructional practices in SY 16-17 of the grant. Teachers who were new to the grant often mentioned the Smart Board and teachers who were in their third year of implementation repeatedly mentioned the use of Google Classroom and applications such as Reflex, Recap, RAZ kids, See-Saw, and many others. Figure 19 presents self-reported frequency of technology integration for new and veteran teachers from the year-end teacher survey. Fifty percent (50.0%) of both new and veteran teachers indicated that they create lessons plans that incorporate technology which decreased from 61.5% on the SY 15-16 teacher survey. This is also the case with the 50.0% of veteran teachers who indicated that they use technology to deliver instruction "A great deal" as compared to 76.9% at the end of SY 15-16. The percentage of veteran teachers that reported they have students work individually using technology "A great deal" increased from 38.5% at the end of SY 15-16 to 60.0% by the end of SY 16-17. This was also the case with students working in groups using technology which increased from 7.7% in SY 15-16 to 20.0% in SY 16-17 for veteran teachers.

Figure 19. Frequency of Technology Integration Among Earl Boyles ES Teachers (% responding "A great deal")



Summary: Has the use of technology to support instructional practices increased?

Results from the self-assessment and leadership rubric presented in the previous section on teaching effectiveness, provide evidence that teachers are using technology to support instructional practices in Year 3 of the grant. This outcome showed a drop from SY 15-16 of implementation for veteran teachers. Specifically, the percentage of veteran teachers who reported incorporating technology into their lesson plans and using technology to deliver instruction in class decreased by over 10 percentage points.

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

Although DDSD does not have a formal learning management system, Earl Boyles is using Google Classroom for this purpose. The school has adopted Google Classroom, which was noted by many teachers as a useful tool for instruction, communication with students and families, and grading. Similar to the SY 15-16 evaluation results, many of the teachers rated Google Classroom as one of their most effective instructional tools, and several teachers and district leaders highlighted its use in the classroom. On the mid-year status report, the technology integration coach explained how Google Classroom could be used across multiple classrooms through the Google Ninja program which is the extension of the work that was being done at Earl Boyles to other schools within the district:

> *"All the Google Ninja teams have their classes in Google Classroom. One really big benefit of Google Classroom is that you can have co-teachers in your class who can see what you have assigned and can use assignments, questions, or post announcements. I get an alert on my iPhone whenever one of the teachers assigns anything in their Google Classroom. I then use that to guide my coaching support with the teams by being able to question them about work they are assigning digitally to their students. For example, I noticed that several teachers on the same team were assigning the same assignment to their students. The next time I was there, I showed them how one teacher can assign an assignment to the WHOLE grade level."*

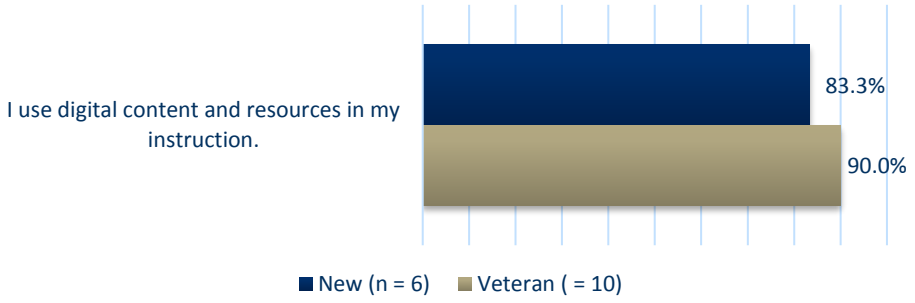
Summary: Is the learning management system useful for identifying effective instructional practices (more efficient, easier, data driven)?

Earl Boyles has not formally adopted a learning management system and instead relies on the use of Google Classroom to aide in the identification and development of effective instructional practices. Evaluation results show that teachers are using Google Classroom to provide opportunities for differentiation and increased communication with students and parents.

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

As emphasized in previous sections of this report, the TechSmart grant funding has provided teachers with increased access to a variety of digital content and resources that they have been using to enhance their instruction. By the end of SY 16-17, 90.0% of veteran teachers and 83.3% of new teachers were using digital content and resources in their instruction (see Figure 20).

Figure 20. David Douglas Instructional Technology Use (% responding "A moderate amount/A great deal")



In terms of the digital content and resources being used by teachers, teachers continued to comment about the Smart Board as well as several online resources and applications. The most commonly mentioned resources are included in Table 8 below with a sample quote regarding the application. It is worth noting that the most commonly reported tools during Year 3 of the grant were more in reference to online applications such as Reflect, Recap, Kahoot, IXL and less in reference to the hardware such as Chromebooks or iPads as in the SY 15-16 evaluation findings.

Table 8. Earl Boyles ES Teachers' Use of Technology

Technology	Teachers' Application of the Technology
Smart Board	"For students with an IEP, I set up different programs through the Smart Board. We do whole group activities to start off the lesson, but I call those kids back who need that extra support, they are able to access that program and practice that skill."
Reflex	"Reflex Math is rewarding for the students and provides clear and concise feedback –they are able to see what facts they have mastered and what facts they have to work on. We have also seen dramatic leaps in their Math Inventory score from the fall to the spring. We have been so impressed with our students' growth and fact fluency! We truly hope we will be able to use Reflex Math next year!"
Recap	"Recap has had an impact in my class this year. The engagement from the students with their assignments and assessments has been ongoing since introducing Recap to them. I use Recap for daily Math, Writing and Reading assignments as well as assessments of their subject areas. By having the questions written out in a Recap assignment or assessment, it allows the students to verbally show understanding of the content in the classroom. For example, it has helped my struggling writers verbally state their answers with confidence and assurance."
Other applications	"Leveled reading programs such as RAZ-Kids, IXL for math differentiation and monitoring, Reflex for multiplication and division facts, Google Classroom for written papers."

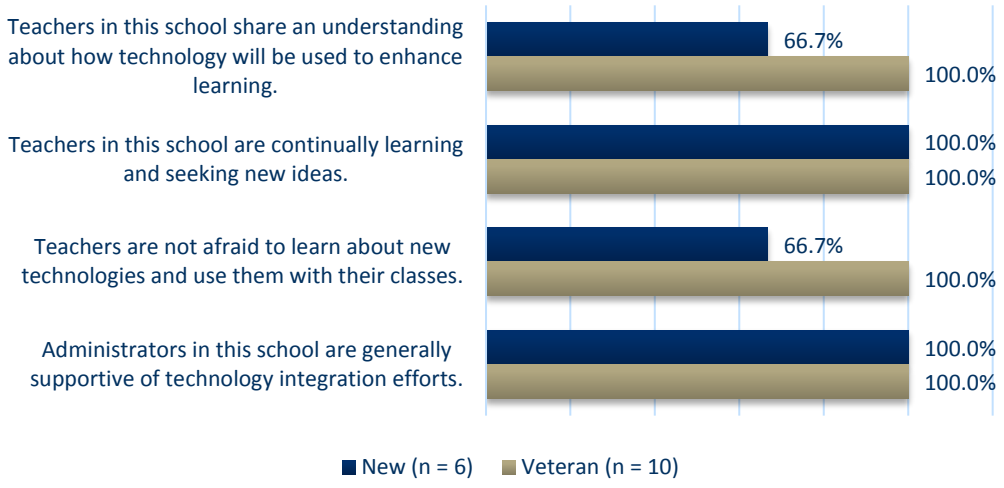
Summary: Do teachers have increased access to and use digital content and resources?

This report provides a significant amount of evidence that teachers have increased access to digital content and resources. Over 80% of new teachers and 90% of veteran teachers indicate they are using technology in their instruction. A promising finding shows that after three years of implementation, teachers are starting to look beyond the actual tools and focus more on the applications to support instruction. Teachers most commonly describe using the applications to differentiate instruction. This transition supports the effectiveness of the PD model and the impact of the grant as a whole.

Is there evidence of districtwide support for technology integration?

Teachers reported a strong technology culture by the end of SY 16-17. Specifically, 100% of veteran teachers and 66.7% of new teachers who completed the survey reported a shared understanding among teachers about how technology is used to enhance learning (see Figure 21). All teachers in both groups reported that administrators are supportive of technology integration efforts and that there is a culture of continuous learning. One teacher described how teachers have been supporting each other during SY 16-17: "We are all about our technology at Earl Boyles. There are people who are designated experts for specific pieces of technology. For example, we have someone who is good at the Smart Board who we can go to with questions because even though we have the training, if you don't use it you lose it. This teacher created a Smart Board tutorial with pictures that is shared. The aspect of Google with sharing schoolwide has been fantastic."

Figure 21. David Douglas Teachers Perceptions of a Culture of Support for Technology Integration (% Agree/Strongly Agree)



Summary: Is there evidence of districtwide support for technology integration?

Survey and interview data from the SY 16-17 evaluation show strong evidence of support for technology integration at Earl Boyles. Teachers reported that support for technology integration is high at Earl Boyles and administrators and the technology integration coach emphasized the districtwide support through the roll out of the Google Ninja program; however, the preliminary discussion among administrators to cut the technology integration coach moving forward detracts from the evidence of ongoing support after the grant.

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

Teachers described how they are engaging parents utilizing the technology and the most commonly mentioned tools for doing so include the classroom blog and Classroom Dojo for parents. The technology integration coach described how teachers are using Classroom Dojo and Seesaw to post students' work and that parents can then access their child's work from home and write comments that the teacher and students can see: "Our kindergarten classes use Seesaw, which is basically a platform that lets kids share what they're learning. If the parents subscribe, they can also see what their students are doing in class." One teacher elaborated on the use of Classroom Dojo in her classroom:

"I correspond with parents through Classroom Dojo. I even had to set up barriers because parents are very excited about it. Nearly 100% of my parents are on Classroom Dojo."

One PreK teacher provided an example of how they are engaging parents through student led conferences: "We have done student led conferences where the kids show the parents what they do in the classroom. They show them how they trace letters and write on the Smart Board. Many parents have been in the classroom but seeing their child interact with it one-on-one and be proficient using that kind of technology is really eye opening. It was great." Finally, teachers are engaging parents through text messages as well as social media.

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

There is some evidence that parents are receiving opportunities to increase their understanding of the districts' technology assets. Parents are being engaged through student led conferences and online applications, via text messages, and through social media.

Visible Leadership

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

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

In terms of sharing results with other districts, the DDSD echoed the SY 15-16 evaluation findings as they commented on their close relationship between the east county districts and said that they meet monthly to informally discuss their project-related activities. DDSD has continued to offer support to other east county districts involved in the TechSmart Initiative. For example, the technology integration coach described how he has informally shared learnings with a principal in Centennial and has given her tips on what was done at Earl Boyles to make it work. The principal at Earl Boyles also described how the school has been a demonstration site for other districts: "It has been exciting because we do quite a bit of site visits. Every time there is a site visit I have the opportunity to talk about instructional practices with technology. We talk about the developmental preschool, what we are doing for our young friends, and as we move on through the grades, what it looks like for the kids. We have had the opportunity to share that with other districts."

David Douglas leadership described how they are sharing learnings from the grant internally across the district. For example, the technology integration coach presented at a district wide principals' meeting around Google Classroom. He focused on how to set it up, how to use Google docs more efficiently as a principal, and how to utilize it for learning walks. The Earl Boyles principal noted, "We've shared a lot of these lessons learned with other principals in our district."

Another example of shared learnings within the district is through the Google Ninja program that was developed as an offshoot of the TechSmart grant. A summary of this program was described in the SY15-16 evaluation report: "Teams apply from every elementary school for the program, and as part of this program they will receive Chromebooks, commit to two days of training sessions, receive coaching, and try the new techniques throughout the year." Internally, DDSD has capitalized on the grant funded work to inform this district wide Google Ninja program. The technology integration coach described how the Google Ninja program was successful during Year 3 of the grant: "Google Ninja program has been tremendous! We were able to add sixteen additional Chromebook carts to nearly thirty classrooms this past year and I was able to coach those teachers in integrating the Chromebooks into their classroom instruction."

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

Similar to the SY15-16 evaluation findings, the district has continued to disseminate information internally throughout the district through the Google Ninja program and also across the east county districts.

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

At the time of the evaluation, district leaders were providing support for technology integration at various levels. On the year-end teacher survey, 100% of new and veteran teachers indicated that administrators were generally supportive of technology integration efforts. Similar to the SY 15-16 evaluation findings, teachers continued to comment on the support received from the technology integration coach: "I definitely feel supported by the district. We have had Luan as our coach for the last couple years and that has shifted the culture of the whole school." Although teachers continue to feel supported by the technology integration coach, his part-time status was mentioned as a barrier: "I think it is hard because when he was there full time we were able to get more PD from him and now it is hit or miss. He is going around to different classrooms and troubleshooting and he is giving us new information now via email rather than through small group or individualized instruction. If we need more assistance we can schedule one-on-one time through the Google spreadsheet." The year-end status report emphasized the importance of the technology integration coach in technology integration projects: "A technology integration coach is CRITICAL to the implementation and integration success of technology. I cannot even fathom the possibility of not having coaching support when the district rolls out technology." When the principal at Earl Boyles was asked to give advice to future TechSmart grantees, she also commented on the importance of the technology integration coach:

"I definitely would not do fewer than three years with a technology integration coach. Would it be nice to have the technology integration coach for troubleshooting for one more year? Absolutely. Right now, we are trying to build the capacity within grade levels where everyone has a 'go to' person. It would be great to have three years full coaching support because you have the operational side of things which really takes about three years. After that third year what comes is, 'Okay I'm applying it but I'm bumping into a couple of things and I need someone who can answer that question for me.'"

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

As presented previously, 100% of new and veteran teachers indicated that administrators were generally supportive of technology integration efforts. Similar to the SY 15-16 evaluation findings, teachers continued to comment on the support received from the technology integration coach as evidence of support from district leaders. With teachers unsure of the type of support they will receive from the technology integration coach moving forward, there is no evidence that these perceptions of support will be sustained after the grant funding ends. This is an area for continued focus at Earl Boyles.

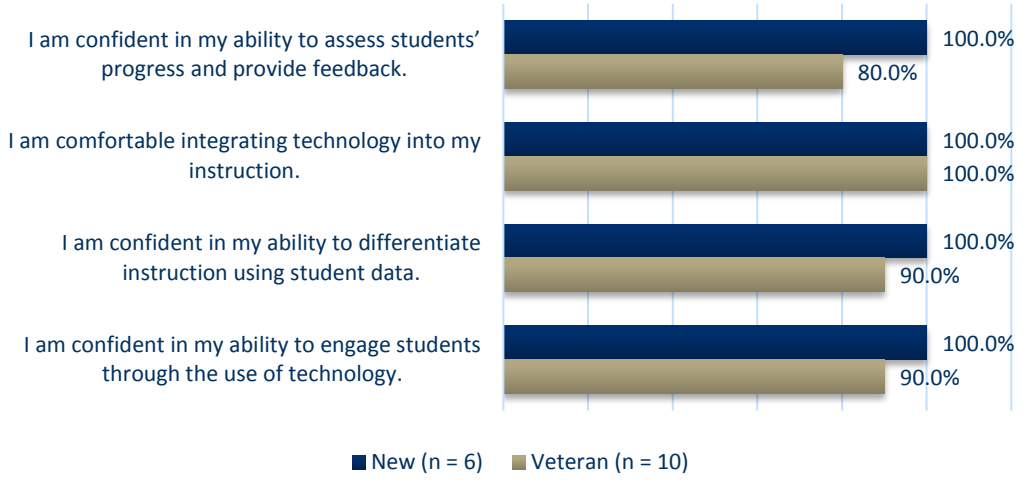
Data Driven Improvement

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

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

As highlighted in the previous section on teaching effectiveness, teachers have been increasing their use of data-driven instructional strategies. As Figure 1 in the teaching effectiveness section shows, by the end of the year, 81.3% of teachers participating in the survey use technology to differentiate instruction, and 87.5% use technology to analyze data about student learning. Figure 22 displays more information about data-driven improvement efforts at the school; the following subsections elaborate on these efforts.

Figure 22. David Douglas Data Driven Improvement (% responding "Agree/Strongly agree")



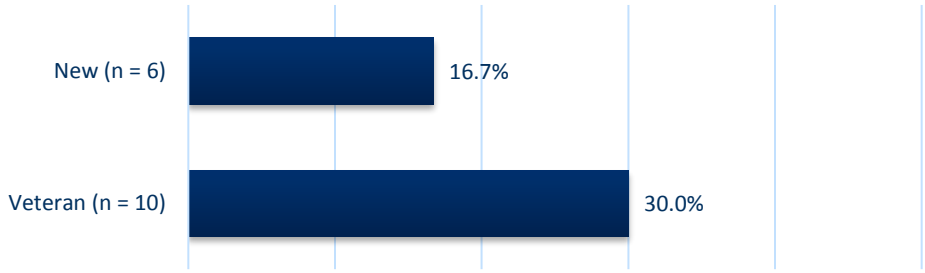
As shown in Figure 22, 100% of teachers who were new to the technology this year, indicated they are confident in their ability to assess students' progress and provide feedback, and are confident in their ability to differentiate instruction using student data. This was slightly lower for the veteran teachers as 1-2 teachers were expressing neutral levels of confidence. One preschool teacher described how she is using the Smart Board to collect data:

> *"In my preschool class, one of the greatest challenges is collecting meaningful data on children's progress in an authentic way. Having a Smart Board for the first time has allowed me to collect data during a whole-group activity without disrupting the flow of the lesson. Instead of sitting down with each of my 15 students 1:1, I projected the lined "writing paper" on the board and called students up one at a time. At the end of the lesson, I had a record of each child's writing sample that I could simply save to my computer."*

Another teacher described how they are using data to drive instruction: "I am now more conscious of how I use technology. Before it was for centers and I would use it more for student engagement. Now I dig deep in the data and I understand how to collect data using technology."

When asked how frequently they adapt an activity to students' individual needs using technology, 30.0% of veteran teachers and 16.7% of new teacher responded "a great deal" by the end of the year (see Figure 23). It is worth nothing that the percentage of veteran teachers responding "a moderate amount" increased from 38.5% at the end of SY 15-16 to 50.0% at the end of SY 16-17 and no teachers responded "rarely" to this question. Consistent with the SY 15-16 evaluation results, although there is evidence of a higher level of differentiated instruction, there is room for growth in this area of instruction.

Figure 23. Earl Boyles ES Teacher Adaptation of Activities for Students' Needs Using Technology (% responding "A great deal")



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

Although there is preliminary evidence that teachers are engaged in data driven instruction, an increased focus on formative assessments in the SY 17-18 evaluation will more accurately assess this outcome. Earl Boyles excels at using data to improve professional development as the technology integration coach described how he has used data from internal PD surveys to make changes to his formal PD.

Funding & Budget

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

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

David Douglas leadership provided examples of how the district has repurposed resources to support technology integration through the use of Title I dollars. The Director of Curriculum and Instruction discussed how the district has used Title I dollars to help get more devices and scale up the efforts from the TechSmart grant through the Google Ninja program: "The grant was just at one elementary school, which was really great for them, but we have eight other schools that we couldn't ignore. They still don't have as much as Earl Boyles but they are able to get a lot more resources and be part of the Google Ninja program." The principal at Earl Boyles also commented on the use of Title I funds to provide other DDSD schools with access to the Swivel which is a technology device for conducting teacher observations by recording teacher and student interactions: "I am thinking about the Swivel. I think it was Title I who funded them but other schools received them to be used by their instructional coaches. It is a way to think more efficiently about how we can use technology to impact instruction."

Finally, the Director of Technology and Assessment discussed how the role of a lab assistant has evolved over the course of the grant as the district's view of technology has become more robust. They described how lab assistants now deliver lectures using technology and receive training from the technology integration coach on using Google docs and Google tools so that they can share that knowledge with teachers.

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

The SY 16-17 evaluation provides evidence that DDSD is beginning to reframe the way they think about resources to support technology integration. Title I funds are being used in different ways than they have historically and administrators are beginning to define roles differently.

Strategic Planning

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

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

Similar to the SY 15-16 evaluation, the leadership at DDSD identified the district's STEAM initiative (Science, Technology, Engineering, Arts, and Math) as a part of the district's strategic plan and explained how technology is interwoven into the four main components of the strategic plan: "In our overall student achievement and growth goals, there are four main supports or initiatives and one is STEAM. Technology fits under STEAM and it is called out in our initiative posters."

The Director of Technology and Assessment highlighted that technology is a big part of the strategic equity work that the district is implementing but that budget cuts have impacted them in this area: "We have made an investment in K-12 online curriculum and online instruction which definitely fits with the equity work that we're doing. Unfortunately, we're looking at budget cuts. Through Title I and through various resources we have the funds for the technology devices, but we are not able to fund a coach. He will go back to teaching position."

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

The DDSD strategic plan identified technology as one component of their STEAM initiative to impact student achievement. This provides evidence that the district is committed to the use of technology to improve student outcomes.

Engaged Communities & Partners

Parents, stakeholders, community groups and others are actively and systemically involved in helping students develop, learn, and achieve.

Do district leaders demonstrate increased communication with and among outside stakeholders regarding technology integration?

DDSD is primarily taking steps toward engaging communities and partners by engaging parents in technology integration efforts. As described in a previous section of this report, teachers are engaging parents through classroom blogs, student led conferences, and the use of applications like Seesaw and Classroom Dojo where parents can view and comment on student work. One teacher commented on the use of a classroom Facebook page to engage with parents. Finally, teachers acknowledge that they are more in touch with parents than ever before because of technology including the use of text messaging.

Summary: Do district leaders demonstrate increased communication with and among outside stakeholders regarding technology integration?

Aside from parents, the district does not appear to be increasing communication with outside stakeholders regarding technology integration.

Evaluation Insights at David Douglas School District

The SY 16-17 evaluation at Earl Boyles ES produced the following insights:

- The informal training from the onsite technology integration coach continued to be a key driver of technology integration with instructional practices. The part-time status of the technology integration coach was mentioned by both teachers and administrators and survey results showed that the teachers could have used more onsite support, particularly those in their 1st year of implementation. As noted by the principal at Earl Boyles, having a full time technology integration coach on site for three years would have been the best case scenario and these results are important to consider in the design of future technology integration grants.

- The idea of sustaining the technology culture at Earl Boyles by building teacher capacity was discussed positively by both teachers and administrators. Teachers are becoming experts on the various pieces of technology so that they can support one another moving forward. This provides strong evidence that Earl Boyles has created a school-wide culture of technology that shows promise of being sustained moving forward.

- The SY 16-17 evaluation revealed a shift from teacher's discussion about technology devices to support instruction to the use of different resources, applications, and strategies. Teachers in the SY 15-16 evaluation commented mostly on the use of Chromebooks, iPads, and the Smart Board when asked about new instructional strategies. In SY 16-17, this discussion shifted more towards the use of online applications and resources to differentiate instruction with student subgroups, use data to inform instruction, and engage parents in student work.

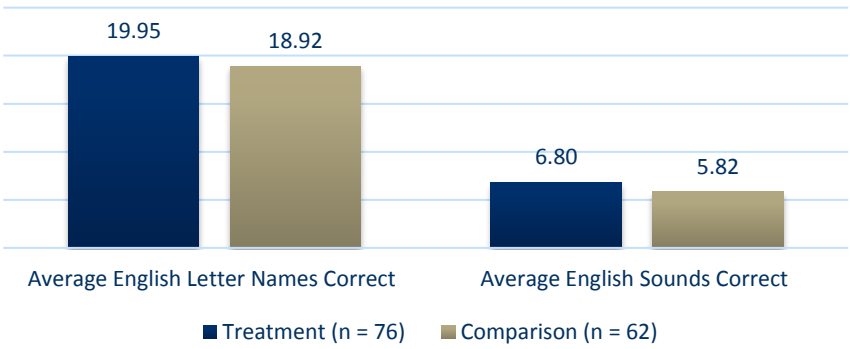
- There is evidence in the strategic plan that administrators are supportive of the shift towards technology but they are unable to financially sustain the position of the technology integration coach long term. This shows a disconnect between valuing effective professional development around integration and taking action to support this model moving forward.

- Although the student achievement data are not showing strong quantitative evidence at this point in time that the new instructional practices are improving academic outcomes for Earl Boyles' students over and above the Comparison Group, there are a few noteworthy findings. Overall achievement for Cohort 1 is trending up and another year of data will allow us to know whether this trend is sustained. Although Cohort 2 students appear to be declining in achievement, the percentage of LEP and minority subgroups students performing at benchmark on the DIBELS assessment were higher than the non-LEP and non-minority subgroups in Kindergarten and 1st grade.

Supplemental Data: Kindergarten Readiness Outcomes for Cohort 2

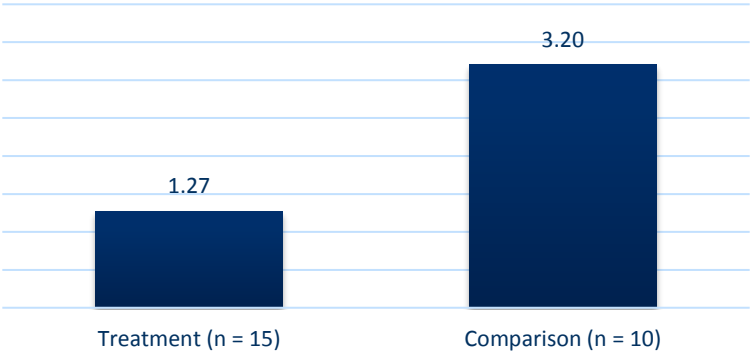
The Kindergarten Readiness Assessment measures Early Literacy in two ways: the number of correctly named letters, and the number of letter sounds correctly identified. Figure 24 shows that students in Cohort 2 scored higher on these assessments on average than students in the comparison group. An independent-samples t-test revealed these differences were not significant for letter names correct, t (136) = -.362, p >.05, or for English sounds correct, t (136) = -.693, p > .05.

Figure 24. Average Early Literacy Scores



LEP Students whose home language is Spanish are given the opportunity to identify Spanish letter sounds, rather than English. Figure 25 shows that comparison group students identified more Spanish letter sounds than those in Cohort 2 at Earl Boyles. An independent-samples t-test revealed this difference was not significant, t (23) = .988, p > .05.

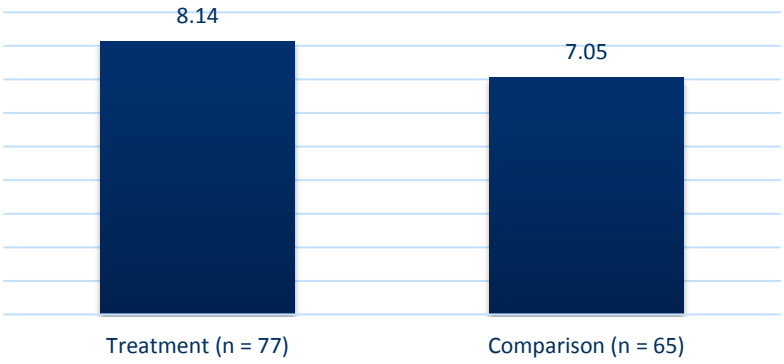
Figure 25. Average Spanish Letter Sounds Correct



The Early Numeracy section of the Assessment involves a test with 16 multiple-choice items related to number concepts and operations (counting the number of items, for example). As shown in Figure 26, Cohort 2 students answered an average of 8.14 questions correctly, and comparison group students

answered an average of 7.05 questions correctly. An independent-samples t-test revealed this difference was not significant, t (140) = -2.25, p > .05.

Figure 26. Average Early Numeracy Items Correct

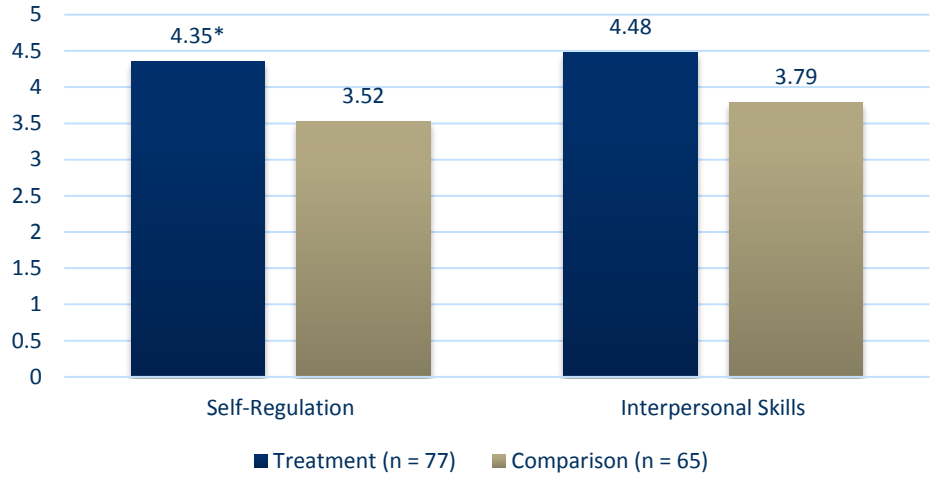


The Approaches to Learning section of the Assessment is completed by teachers for each student through observations. This section measures self-regulation and interpersonal skills. There are ten self-regulation items and five interpersonal skill items that are rated on the following scale:

1.	The child never exhibits the behavior described by the item.
2.	The child rarely exhibits the behavior described by the item.
3.	The child sometimes exhibits the behavior described by the item.
4.	The child frequently or usually exhibits the behavior described by the item.
5.	The child always exhibits the behavior described by the item.

Figure 27 presents average teacher ratings of students on self-regulation and interpersonal skills items. As shown, Cohort 2 scored higher than the comparison group on average for self-regulation, and an independent-samples t-test revealed this difference was significant, t (140) = -6.15, p <.05. In addition, students in the treatment group scored higher on interpersonal skills than students in the comparison group. An independent-samples t-test revealed this difference was not significant, t (140) = -4.64, p >.05.

Figure 27. Approaches to Learning Average Scores



*Indicates a significant difference between groups

Project Summary

Parkrose School District's (PSD) MHCRC TechSmart grant provides technology infrastructure and teacher professional development (PD) to support one-to-one student devices at Parkrose High School. The grant funded the creation of a reliable wireless network at Parkrose High School to support the implementation of all students using iPad Minis, which commenced in fall 2014, and to seamlessly access content throughout the school. The TechSmart grant also funds PD to support high school teachers in transitioning to the use of online digital content and resources to create effective learning environments for students. The district is working towards a Bring Your Own Device (BYOD) model where students will be expected to show up to a class with some kind of internet capable device of their own. PSD's goal for these efforts is to improve the district's performance on the student success indicators of 9th grade credit attainment, English Language Learners' (ELL) progress, and high school graduation.

Methods

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Data collection efforts for the SY 16-17 evaluation at Parkrose are summarized below.

Teacher Survey

In April 2017 the Director of Technology distributed an online survey via email to all Parkrose High School teachers involved in the TechSmart grant. Twenty-one out of the 40 teachers at Parkrose High School completed the year-end survey for a response rate of 52.5%. This was slightly lower than the teacher response rate of 56.2% in the SY 15-16 evaluation.

Teacher Interviews

PRE conducted face to face interviews on March 8, 2017 with six teachers who were involved in TechSmart grant implementation at Parkrose High School.

District Leader Interviews

In spring 2017 PRE conducted interviews with two district leaders from Parkrose High School; which included the Director of Technology and the School Improvement Director.

Student Surveys

The online student survey was distributed in April 2017 to all students and 68 students completed it. The number of students in each grade who completed the survey is shown in Table . Four students did not report their grade level.

Table 1. Parkrose HS Student Survey Responses

Grade	n	% of total responses
9th	17	26.6%
10th	4	6.3%
11th	19	29.7%
12th	24	37.5%

Leadership Rubric

The leadership rubric was completed by the Parkrose Director of Technology.

Student Achievement Data

In order to examine the impact of the TechSmart grant investment in Parkrose HS, comparative analyses were conducted using a historical Comparison Group. A concurrent Comparison Group was not created for Parkrose since the grant targets high school students and PSD has only one high school. Table 2 below presents the number of students in the Treatment and historical Comparison Groups by year. The results presented in this report compare two cohorts of students at Parkrose HS (9th graders in 2014-15 and 9th graders in 2015-16) to 9th grade students starting in the 2010-11 school year. Each Treatment Cohort will be tracked throughout grant implementation in order to understand the grant investment impact on student achievement. The All Hands Raised outcomes of 9th grade credit attainment and ELPA test scores for the Treatment and historical Comparison Groups are examined in later sections of this report.

Table 2. Treatment and Historical Comparison Group Sample Size

Cohort 1		Cohort 2		Historical Comparison Group	
Year	N	Year	N	Year	N
2014-15 (9th)	247	2015-16 (9th)	288	2010-11 (9th)	182
2015-16 (10th)	212			2011-12 (10th)	182
				2012-13 (11th)	177
				2013-14 (12th)	179

Figure 1 below presents the at-risk indicators for the Rreatment and historical Comparison Groups of students at Parkrose HS. Overall, there were a higher percentage of Cohort 1 and Cohort 2 students identified as students of color, in Special Education, and qualifying for free and reduced lunch as compared to the historical Comparison Group. There were fewer LEP students in Cohorts 1 and 2 compared to the historical Comparison Group.

Figure 1. Parkrose At-Risk Indicators

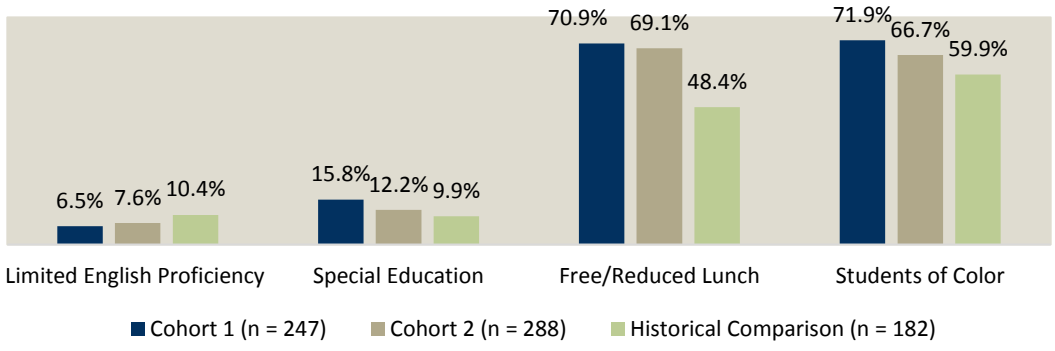
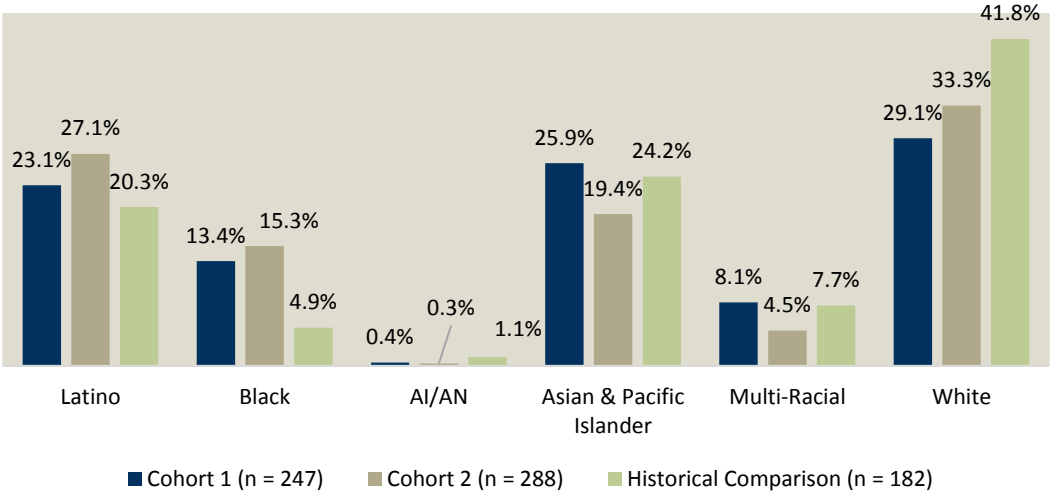


Figure 2 below provides a summary of the breakdown for students of color in the Treatment and historical Comparison Groups and shows a higher proportion of white students in the historical Comparison Group relative to the Treatment Cohorts.

Figure 2. Parkrose Race/Ethnicity



Findings

The evaluation findings from the SY 16-17 evaluation at Parkrose are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

Teaching Effectiveness

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

Similar to Year 2 of the grant (SY 2015-16), the professional development offered at Parkrose HS in SY 16-17 was structured in formal, large and small group sessions, as well as informal individualized sessions. Teachers at Parkrose HS described the professional development they received during Year 3 of the TechSmart grant (SY 16-17) as formal training that was focused on integrating technology into the classroom via the use of iPads. One teacher noted, "We've had a lot of training on the use of iPads and apps to use in lessons." Another teacher said, "I have learned a lot about how to utilize the technology".

The year-end status report described the formal training as a district-wide, 3-hour workshop held in November 2016. The training was attended by 36 teachers and focused on how to apply technology via iPads, apps, and websites to the AVID WICOR strategies that teachers use in their classrooms. AVID is a program that trains educators to use proven practices in order to prepare students for success in high school, college, and a career, especially students traditionally underrepresented in higher education. AVID's learning support structure for middle and high school is known as WICOR, which incorporates teaching/learning methodologies in the following critical areas: Writing, Inquiry, Collaboration, Organization, and Reading to Learn. WICOR provides a learning model that faculty can use to guide students to comprehend materials and concepts, and articulate ideas, at increasingly complex levels (scaffolding) within developmental, general education and discipline-based curricula in their major.

The mid-year status report described how the district has been emphasizing individualized "push-in" training offered to teachers in their classrooms: "We have moved much more to pushing ourselves into classes and co-teaching the students instead of having afterschool sessions for teachers to come to." Not all teachers are taking advantage of the optional push-in training as noted by one teacher, "I haven't used the option to have someone come into the classroom. The challenge is to know when and where to use technology. And most teachers want to be a front person with students rather than to have someone else come in." Another teacher discussed how they were not utilizing push-ins due to students not bringing iPads to class which has been an ongoing problem throughout the grant:

> *"Teachers are less inclined to do push-ins because kids don't bring their iPads. It's a catch 22 because teachers don't teach with iPads, sometimes because kids don't all have them, but kids don't bring them because they are not being used by teachers."*

Although there were obstacles to participation in push-in training sessions, the sentiment among teachers who took the survey was that, while the large group PD training was valuable, the individualized or small

group PD training was preferable (See Figure 3). In the teacher interviews, one teacher commented, "I think that in the larger staff meetings, certain technology strategies can be used across disciplines, but smaller groups are better because you have the opportunity to ask questions and customize content." Another teacher added, "For me, the one-on-one, tailored help is best; however, I like having the option to go to bigger trainings if I'm struggling with something general like Google Slides." One teacher provided suggestions for increasing teacher participation in the individualized push-in training:

> *"I think the push-in model can work here. It needs to be more advertised and the options more tailored toward the high school. Maybe it needs to start in the PLCs, and then go into the classroom because people are afraid to mess up. I think teachers need to observe a class in which technology is working well, and see the excitement of the kids and what the capacity is for using technology. It would get teachers excited to see actual evidence of it working."*

A few teachers discussed how they led trainings for other teachers. One commented, "I presented my lesson plan with apps at the e-WICOR training." Another teacher led a training on using the Google Suite more effectively and using applications for improving writing. Teachers also noted that they have received informal support from librarians and IT staff: "The IT staff has been very helpful and responsive. They come in and troubleshoot."

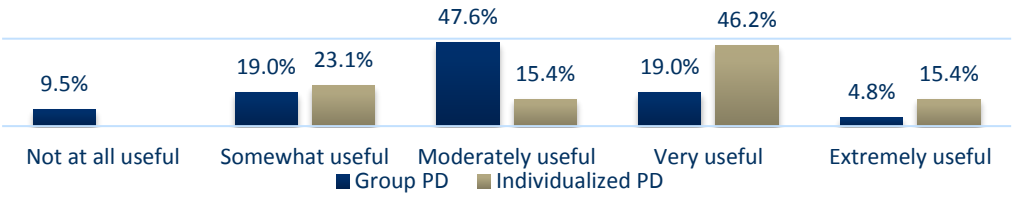
On the year-end survey, Parkrose HS teachers reported the amount of group and individual PD that they received over the past school year. Table 3 shows that all survey respondents received group PD, an increase over the 86.6% receiving group PD in Year 2 (2015-16). Teacher participation in individual PD dropped from last year. Of those who responded to the survey 61.9% participated in individual PD this year while 73.3% took advantage of it last year. The majority of teachers participated in between 1-16 hours of group and individual PD.

Table 3. Parkrose HS Teachers' Hours of PD during SY 16-17 (n = 21)

Hours of PD	Group PD	Individual PD
0 hours	0.0%	38.1%
1-8 hours	47.6%	38.1%
9–16 hours	42.9%	19.0%
17–32 hours	0.0%	0.0%
33+ hours	9.5%	4.8%

Similar to the SY 15-16 evaluation, teachers found individual PD to be more useful than group PD (see Figure 3). Over sixty-one percent (61.6%) of survey respondents rated individual PD as very or extremely useful, while 23.8% of teachers rated group PD as very or extremely useful.

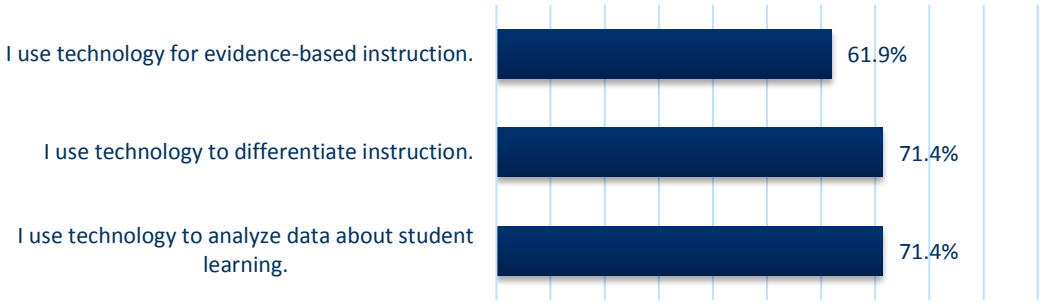
Figure 3. Parkrose HS Teachers' Ratings of PD Usefulness (n = 21)



How is the professional development impacting teacher instruction?

On the year-end survey, teachers indicated how the PD had impacted three key areas within their classroom instruction: evidence-based instruction, differentiating instruction, and analyzing and using data about student learning. Figure 4 below shows the number of teachers indicating that they use technology a moderate amount or a great deal for each area of focus. By the end of the SY 16-17, seventy-one percent (71.4%) of teachers reported that they used technology a moderate amount or a great deal to differentiate instruction (an increase over 63.0% from SY 15-16), and to analyze data about student learning (an increase over 53.9% from SY 15-16).

Figure 4. Parkrose Instructional Technology Use (% responding "A moderate amount/A great deal"; n = 21)



Teachers were asked to elaborate on the applications they had been using to differentiate instruction in their classrooms. One teacher described the benefits of iExcel for differentiating instruction for English Language Learners: "iExcel invites all students to work at their own pace, which is very important for ELL students. They can re-read things and look up words." Another teacher echoed the use of iExcel for differentiating instruction in general:

"We use iExcel, which can be aligned to Smarter Balance. It offers self-paced, guided practice for students. I have incorporated it into the classroom so that I can receive real-time data. While they are using it I have a real-time screen showing how they are doing, so I can help them right then. I can see students' knowledge gaps. A

combination of iExcel and iPads has given me a reflection of their understanding I never had before."

Another teacher discussed how translator applications are helpful for ELL students: "Often they have a translator application so they can translate on the go. I think it has opened up access to a lot of kids who didn't have it before." To understand how the PD model is impacting teacher instruction, teachers were asked to self-report their technology skill level as defined below on the year-end survey.

As illustrated in Figure 5 below, by the end of the 2016–17 school year, 76.2% of teachers who completed the survey rated themselves at either a Level 4 or 5 in terms of technology skill level, a slight increase over last year's 73.3%.

Level 1: I get someone else to do technology-based tasks for me.

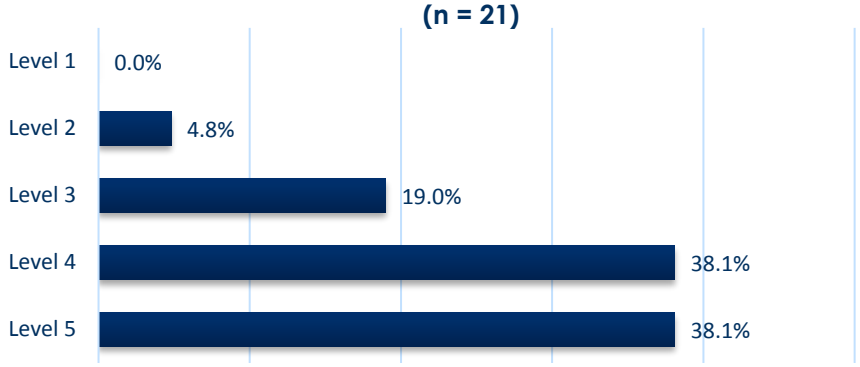
Level 2: I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.

Level 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.

Level 4: I use a variety of technology tools and I use them efficiently for all aspects of my job.

Level 5: I use technology efficiently, effectively, and in creative ways to accomplish my job.

Figure 5. Parkrose School District Teacher Technology Skill Levels (n = 21)



The Director of Technology commented on the changes in teachers' technology skill level over the three years of the TechSmart grant: "Our floor has risen every year. While there will always be teachers who are better implementers of technology than others, the ones who are less skilled are still better than they were the year before." Along with gauging the extent to which the PD had impacted teachers' technology use and skill level this year, the year-end survey asked teachers to discuss how effective the PD model had been for them (see Tables 4 and 5). Teachers made positive comments about the PD model, the support they are receiving from staff and other teachers, and the technology itself received through the TechSmart grant.

Table 4. Effectiveness of the PD Model at Parkrose High School

"The PD has been helpful in integrating certain technologies within my classroom. Student engagement has increased with the use of technology and conceptual understanding of many concepts is enhanced with the use of technology."
"I feel as though it would be difficult to describe my technology needs. I do receive help from colleagues when I need it, but I am behind the learning curve. I didn't grow up with technology, but only started to use it in college to the present. I would like to use more technology in class for sure."
"It is helpful anytime we get to hear how other teachers are using the technology. I often am one of the teachers sharing."
"Elizabeth (in the library) is a godsend. She has helped me problem solve issues several times during this year and is always available to help figure things out!"
"Having staff available to aid in technology-enhanced instruction is always helpful."
"The robust Wi-Fi throughout the building makes using the technology possible and having a full-time person to manage the iPads is invaluable."
"I just truly appreciate the technology we have at Parkrose High school. It helps me so much, especially since I have kids at all levels and it allows me to meet them where they are at."

Teachers also offered suggestions for improving the PD model moving forward which included more focus on specific topics and using the technology to support SPED students.

Table 5. Additional Comments of the PD Model at Parkrose High School

"More focus on technology to support special education students specifically students that are in general education classes."
"More time on specific topics with a follow up would be helpful. New teacher training is especially important but not enough time is devoted to this yet."

Summary: How is Professional Development impacting teacher instruction?

This evaluation question includes the following outcomes: 1) PD has helped teachers increase the use of technology for evidence-based instructional practices, 2) PD has helped teachers use technology to analyze and use data about student learning, and 3) PD has helped teachers use technology to differentiate instruction. Between 60-70% of teachers who completed the survey are achieving these outcomes which is an increase of about 10% from SY 15-16. The self-reported technology skill level of teachers did not show much change from the previous school year. Similar to SY 15-16, teacher survey results showed that individualized PD was preferred over group PD; however, while all teachers received group PD, close to 40% did not take advantage of any individual PD. Reasons expressed for this included some teachers resisting change, scheduling conflicts, and in general, some teachers using technology only a moderate amount in the classroom (which seems to be at least partially tied to the issue of students not bringing their iPads to class).

What new instructional strategies are teachers reporting?

Although only 57.1% of teachers indicated that their students have had adequate access to technology resources in their classrooms (e.g., iPads, or Chromebooks), they had many examples of the technology-based instructional supports that they are using. On the survey, teachers identified the technology supports they were using in their instruction and rated them on a scale of one to five (see Table 6).

Table 6. Parkrose HS New Technology Used for Instruction

Technology Supports	n = 16	Effectiveness Rating
Google Applications (includes Google Forms, Google Slides, Google Classroom, Google Calendars, Google Docs, Google Sheets)	50.0% (n = 8)	4.25
Applications (e.g., Demos, Edmodo, Kahoot, Socrative, Arduino, Twitter, GeoGebra)	50.0% (n = 8)	4.25
Online Sites (Twitter and Turnitin.com)	12.5% (n = 2)	4.00
Vernier Labware	8.3% (n =1)	4.00
iPads	8.3% (n =1)	2.00

Similar to the SY 15-16 evaluation, teachers most commonly reported Google applications and other apps as being most effective in supporting their instruction. One teacher explained, "Everything we do is through Google. If a student misses a class they know to look in the class file. They can work and collaborate better. From a collaboration standpoint technology has offered a lot". Another teacher commented on the impact of Google applications on their students:

> *"Google Docs has made our kids computer literate. Google Classroom links to Google Docs and other apps. With Google Docs, I can leave comments and students can share with one another and you couldn't do that before. Storybird is good because it allows ELL students to use pictures and simpler words. It increases accessibility."*

Additional technology supports include apps such as Demos, Edmodo, Kahoot, Socrative, Arduino, Twitter, and GeoGebra. On the year-end survey, teachers further described how they used various technological applications in the classroom. In general, applications were used for research, sharing information, collaborating, providing immediate teacher feedback, organization, and for generally enhancing student learning. Teachers had students conduct research using Webquests, Google, Citation Maker and library databases. One teacher commented, "I have shown students how to access the Gale Databases and then download their highlighted/noted articles to their Google Drive." Teachers used Google Docs, Nearpod and blind Kahoot to share notes with students. Several teachers said they used Google Docs for peer review. Another teacher commented, "We have read an article through Google Drive, electronically marked the text and created a shared document with questions and summaries." Teachers mentioned using Turnitin.com, Edmodo, and StudentVue for organization of work and tracking. Math teachers noted using GeoGebra and Desmos for enhancing students' exploration of math concepts.

Additional teacher quotes related to the use of Google applications and other online applications are included in Table 7 below.

Table 7. Parkrose HS Additional Descriptions of Technology Used for Instruction

"We have used applications like Notability where we download articles and students can mark the text digitally and make comments. With Apple TV, students can digitally post work on the "board" and share out quickly. I use the internet on a daily basis with the students. Having Wi-Fi all over the school has been beneficial."
"I use Nearpod. Most of my kids bring their iPads every day. With Nearpod, you can put presentations on the iPad. If they exit out of Nearpod I can see that. You can give quizzes on Nearpod and see their results. I can share results with the class and give feedback. You can show them where their mistakes are. It's interactive and checks for understanding. I also use Edmodo which allows me to post my lessons and assignments. I use Google Classroom too. There are also some science apps like Bioman where students can play with content areas. Unfortunately, some of the Bioman apps use Flash Player."

Teachers responded to a series of statements regarding the integration of technology into their classroom as shown below in Figure 6. Seventy-one percent (71.4%) of teachers used technology to improve students' basic reading, writing and math computation skills as well as their problem-solving and critical thinking skills. In contrast, forty-three percent (42.9%) of teachers altered their use of technology based on the newest technological applications or the latest research on teaching, learning and creating a standards-based curriculum.

Figure 6. Parkrose School District Teaching Instruction (% responding "True of me/Very true of me"; n = 21)

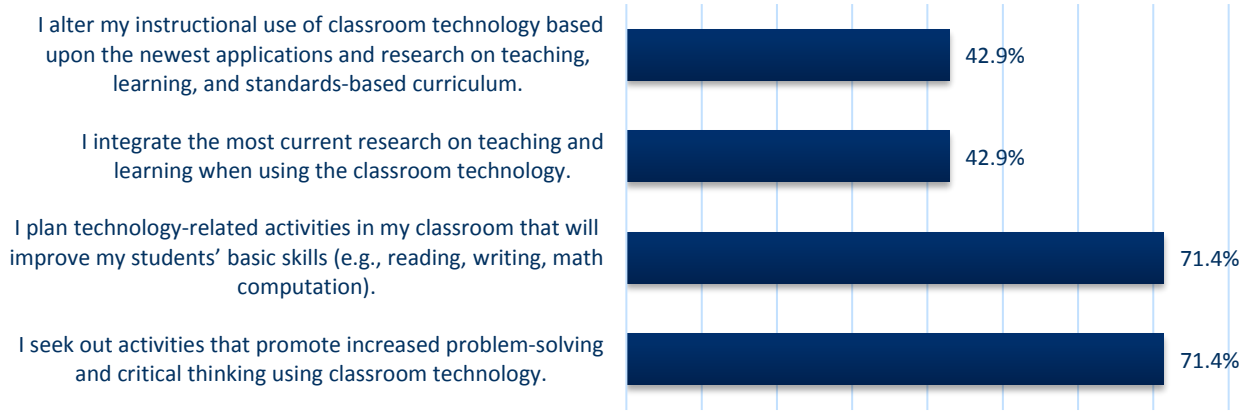


Table 8 below presents results from the rubric designed to rate the use of technology to support instruction. Aggregate teacher self-ratings for the rubric as well as the Parkrose Director of Technology's ratings of the teachers as a whole are presented. The element of the rubric with the highest rating for teachers was "planning and preparation" followed by "communicating with students". Teacher self-ratings showed room for improvement in the areas of using technology to support organizing physical

space and using questioning and discussion techniques. The Director of Technology rated teachers highest on the instructional elements of "managing classroom procedures", "communicating with students", and "using assessment in instruction."

Table 8. Technology Used for Supporting Instructional Practices

	Teacher Survey (n = 21)	Leadership Rubric (n = 1)
Planning and Preparation	3.67	3.00
Managing Classroom Procedures	3.19	4.00
Organizing Physical Space	2.57	3.00
Communicating with Students	3.57	4.00
Using Questioning and Discussion Techniques	2.90	3.00
Engaging Students in Learning	3.43	3.00
Using Assessment in Instruction	3.00	4.00
Demonstrating Flexibility and Responsiveness	2.95	3.00

The rubric also asked teachers and leaders to "Provide examples of how teachers used technology to support instruction for at-risk sub-groups (students of color, ELL, SPED, low SES) in the areas defined above." Teachers' comments centered on using applications for differentiating instruction and translating language. One teacher highlighted using iExcel, (a program mentioned earlier in this report as being used for differentiation) which modifies readings according to scores that students receive: "I have used videos and iExcel to help meet the needs of my ELL and SPED students." Another teacher commented on using Google Translator in the instruction of ELL students: "I have had students use Google Translator to help them access my content when they don't speak English." One teacher described using an app focused on self-expression: "We have used apps such as PicCollage that allow students to express themselves in various ways through words and images." The Director of Technology commented on the importance of providing at-risk student subgroups with iPads: "Most importantly, having student iPads helps our low-income students, recent immigrants, and refugee students to have exposure to technology that our more affluent students have natively in their homes."

In addition to the many positive descriptions provided about using technological applications, teachers also discussed barriers to successfully using technology at Parkrose HS. Table 9 below lists quotes from teachers about barriers that took on two main themes: 1) iPads are not being used, and 2) teachers resist instructional change. Other barriers were also mentioned such iPads not having a traditional keyboard or the cost of some applications.

Table 9. Comments about Barriers to Using Technology at Parkrose HS

Theme	Sample Quotes
iPads are not being used	• *"We have about 25% of students who have not even gotten their iPads this year."* • *"Poverty is a barrier. If they break or lose the iPad they can't pay for a replacement."* • *"There are some kids who have their insurance paid up and the iPads are still just sitting there; however, most of the 25% of kids who don't have iPads are kids who owe."*

Theme	Sample Quotes
	• *"Uneven resources is such a part of their life. Why would we put students in a position where we make them feel this inequity in the classroom?"*
Teachers resist change	• *"The only barrier is that things change so quickly that I don't know when I'm missing out on something fabulous. A newsletter would be great with updates but I don't have time. English teachers were keeping track of updates but a team or a consultant who could offer more content-focused trainings would help (i.e., how to use something new or how to make appropriate use of it in the classroom)."* • *"Teacher willingness to try new things. It goes hand-in-hand with students not bringing their iPads."* • *"Some people have a fear of something new and they feel like every year there is some new gadget out there and they are expected to learn and to suddenly make their classroom about that."* • *"Last year there was a lot more pushback and fear, which probably caused more teachers to not want to deal with it at all. The loosening of the atmosphere around this is helpful. Thinking of technology as something that can supplement and be helpful, and having more of a ground-level collaboration of people sharing what is useful to them is what I see happening on the instructional side."*
Additional barriers	• *"Not having a traditional keyboard for word processing (i.e., editing and proofreading)."* • *"One of the biggest limitations is the cost of technologies. We are limited to free apps or we must apply for a district purchase. "*

In the mid-year status report, the Director of Technology explained the issue of students not bringing their iPads to class, "This year approximately 70% of the students picked up their iPads. Some students did not get an iPad because they are using their own devices; however, most students who did not collect their iPads did not do so because they owed fees from last year (we charge $100 for a broken iPad and $270 to replace a lost iPad) or because they did not want to be responsible for any fees this year, if they should lose or break their iPads. This has been and will continue to be our largest obstacle to using technology in the classroom." Table 10 below details the number of students who did not pick up an iPads in SY 16-17 as a result of a broken, lost, or unreturned device during the previous year. The mid-year status report pointed out that iPad loss was significantly reduced this year, but the problem of students not paying fees for iPad loss or breakage persisted:

"We lost significantly fewer iPads at the HS than we did the year before BUT some of that is because at least 100 HS students who had fees from loss/breakage in the prior year never got iPads this year. Out of the 379 students in 2014-15 who had fees for loss or breakage, only about half actually paid those fees. We have very little leverage except on seniors and we have many transient students so it is fairly easy for the students to break, lose, or "lose" an iPad and have no consequence for that, which unfortunately many have figured out."

The mid-year status report detailed the reduction in lost, broken, or unreturned iPads as summarized in Table 10 below. The district is still seeing a large number of broken devices but the number of iPads lost or not returned decreased dramatically in 2015-16.

Table 10. iPad Breakage and Loss Reduction in 2014-15 vs. 2015-16

PHS	2014-15 (n = 379)	2015-16 (n = 182)
Broken	113	102
Lost	139	47
Not Returned	127	33

Teachers and administrators described several approaches to addressing the issue of students not bringing their iPads to class. The mid-year status report described one approach that was taken: "The iPad specialist has done some work going into each class and doing some spot checking on how many students have brought their iPads to class. She identifies what classes have the highest percentage of iPads in class and that class gets a reward (usually donuts)." One teacher set up a program so that students who could not afford to pay for iPad repairs could work off the iPad insurance deductible by completing assigned community service tasks around the school:

"I created a program to help students. If they do five hours of community service around the school they can get their $100 deductible paid off. It was really stressful for some students to feel like they were required to have this thing they wouldn't be able to pay for if it disappeared. The teachers picked up on that too and felt a little strange about requiring them to have them. We have had 20 students sign up and 5-6 complete the scholarship so far."

Teachers also discussed the value of a having a "class set" of iPads: "My classroom is one of the few which has the class set of iPads. If there are only 20 iPads you can't use them. A teacher can't plan for iPads if the students do not all have one. I fought to have a class set. Students walk into the room and get an iPad and a notebook. In AP, we do a lot of research. We say, 'Here are some terms. Look them up'. It is very unfortunate to not have enough iPads."

The most current solution to students not bringing their iPads was noted on the year-end status report. In 2017-18, the district will make using a school-issued iPad optional but will require have students to come to class with some kind of internet capable device of their own. The district will be moving towards a BYOD (bring your own device) model which was always the district's intent. This last solution leaves

room for improvement in addressing the issue of students not being able to afford to pay for broken or lost iPads, or to afford a device of their own. This suggests a need for continued attention on addressing this issue to ensure that fees associated with the use of devices are not a barrier to the successful use of technology at Parkrose HS.

Summary: What new instructional strategies are teachers reporting?

Before we can answer the evaluation questions related to how instructional strategies are impacting student engagement and learning outcomes, it is important to identify what new instructional strategies teachers are reporting. Similar to the SY 15-16 evaluation, teachers reported Google applications and other apps as being most effective in supporting their instruction. In terms of instruction, teachers reported most commonly using technology to support communication with students and planning and preparation. Although there are still barriers to the use of technology to support instruction in the form of students not coming to class with an iPad, the number of iPads lost or broken decreased in SY 16-17 and the district made efforts to move towards a model of Bring Your Own Device which is more likely to be sustainable moving forward. Although the evaluation shows that technology use has increased, there is not yet evidence that new instructional strategies are emerging as a result.

How are the new instructional strategies impacting student engagement?

While Parkrose HS teachers and leaders expressed a mix of opinions about technology use including many positive and hopeful statements, students reported neutral or negative opinions with regard to using technology in their classwork. Students who completed the year-end survey answered a series of questions about how the use of technology has affected their classroom engagement. The number of students completing the survey this year was relatively very low (68) in comparison to last year (503). As shown in Figure 7, only a quarter of those students (25.0%) reported that they enjoyed using technology, a decrease from last year's 31.6%. The number of students who disliked using technology (26.5%) went up from last year's 16.1% and the number of students who felt neutral (38.2%) decreased from last year's 48.3%.

Figure 7. Parkrose HS Students' Feelings about Technology Use this Year (n = 68)

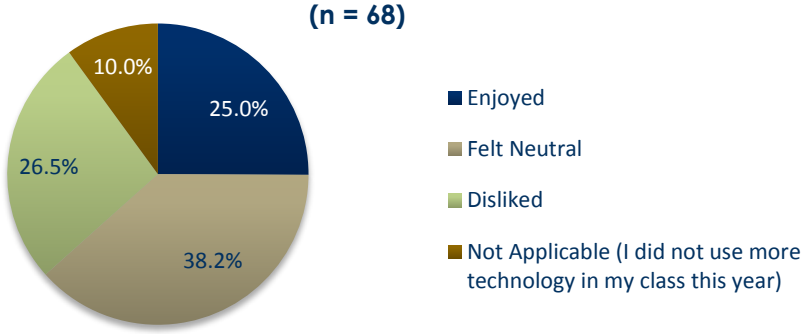
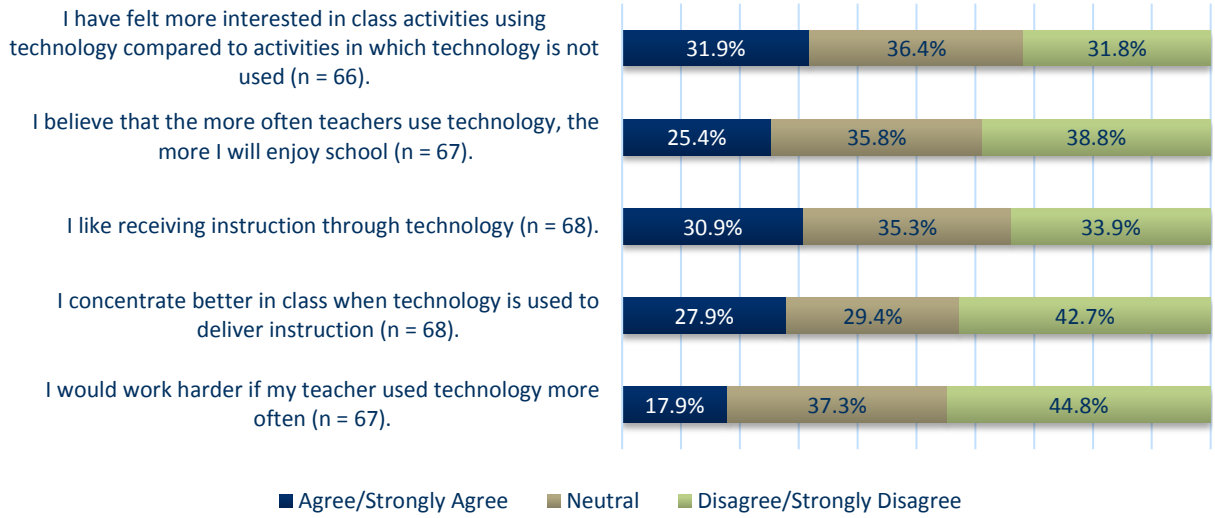


Figure 8 below provides a breakdown of student engagement related to the use of technology in the classroom. About one-third of students who took the survey like receiving instruction through technology (30.9%) and said they are more interested in class activities using technology (31.9%). About a quarter (25.4%) of students reported that the use of technology affected how much they enjoyed school. Similar to the SY 15-16 evaluation, these results do not provide strong evidence that the technology is being used

to alter instruction in a way that affects student engagement; however, it's important to remember that the number of students responding to the survey is much lower than last year.

Figure 8. Parkrose HS Student Engagement



Students' comments about technology were mixed. Positive comments described how technology makes school easier and more enjoyable and improves the learning experience. Table 11 provides a sample of comments related to these themes. These themes are similar to primary themes provided during the SY 15-16 evaluation which also included technology positively impacting student engagement (learning and enjoying learning) and making school work easier.

Table 11. Parkrose HS Students' Positive Opinions of Technology Integration

Theme	Sample Quotes
Makes school easier (n = 3)	• *"It is good. I like when teachers use Nearpod because some people can't see the front of the board."* • *"Some teachers and classes are really good with incorporating technology. Kahoot in Spanish always worked out well. Using technology for all the projects in health has helped me retain information and become interested."*
Improved learning experience (n = 2)	• *"Before the use of technology, it seemed as if it would be a distraction; however, I have come to realize that it has improved my learning experience."* • *"Incorporating technology was nice because we can get more free time in researching activities."*
Students enjoy school (n = 2)	• *"Technology has made school more interesting because it is better than pen and paper. It has taught me more on how to use technology as it is always developing."* • *"We rarely use iPad's and technology, but when we do it seems a lot more interesting and fun to learn."*

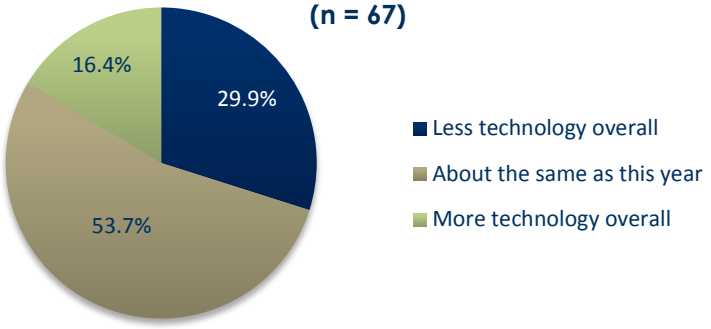
Students who shared a negative perception said that they did not enjoy technology, more training is needed for teachers, and that technology makes learning difficult. Although the student survey sample size for the SY 16-17 evaluation was much smaller, these are the same themes found during the SY 15-16 evaluation. Additionally, five students reported that they had not used technology in their classrooms and had no opinions. Table 12 provides a sample of comments related to these four themes.

Table 12. Parkrose HS Students' Negative Opinions of Technology Integration

Theme	Sample Quotes
Students do not enjoy technology (n = 9)	• *"I think the iPads were useless."* • *"I don't like the way they almost entirely focus on mobile devices because they are usually worse at doing school work. It is easier to read on paper than a small screen."* • *"It gets tiring charging my iPad every night. When I forget my iPad at home, I am completely out of luck if the assignment requires technology."*
Technology makes learning difficult (n = 6)	• *"I do not want technology because notes are easy to take on paper. Our iPads are so slow and are distracting."* • *"Sometimes the sound or projector itself doesn't work and kids tend to lose focus and go on their phone. I honestly think it is a waste and would rather have a tutor and relevant textbooks to help me."* • *"I don't really like technology. It gets really confusing and stressful."*
Technology has not been used in classrooms (n = 5)	• *"No opinions, my classes have not used technology."* • *"Have not used enough technology this year to have an opinion."*
More training is needed (n = 2)	• *"My opinions have not changed. Teachers who are not tech savvy struggle a bit."* • *"It is honestly only helpful if the teacher implements it in their lesson successfully. It does not help me if they just put the exact same information in text that they would say verbally."*

Although students reported that technology integration had a neutral or negative effect on their engagement, 53.7% of students wanted their teacher to use about the same amount of technology next year (Figure 9). Nearly one-third (29.9%) of students indicated that they wanted less technology to be used next year.

Figure 9. Parkrose HS Students' Desire for Technology Use Next Year (n = 67)



Summary: How are the new instructional strategies impacting student engagement?

The SY 16-17 evaluation does not provide evidence that student engagement has been positively impacted by the integration of technology into the classroom. Only one-third of students who completed the SY 16-17 student survey reported increased levels of engagement. Similar to the SY 15-16 evaluation, students provided reasons for their negative opinions about the technology including that technology is not being used in their classrooms and that more training is needed for teachers.

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

The success of the Parkrose HS TechSmart grant is measured in part by 9th grade credit attainment and high school graduation. To explore whether instructional practices are showing promise for improving students' credit attainment, PRE examined credit attainment for the Treatment and historical Comparison Groups. Students are considered "on track to graduate" if they earn six or more credits annually. Table 13 shows that the historical Comparison Group had significantly higher average 9th grade credits than Cohort 1 and Cohort 2 ($F(2,658) = 64.21$, $p < .00$). Post-hoc comparisons using the Tukey HSD test indicated that the mean 9th grade credits for the Comparison Group ($M = 7.87$) were significantly higher than those for Cohort 1 ($M = 6.66$) and Cohort 2 ($M = 5.72$). In addition, a significantly higher percentage of Comparison Group 9th graders were on track to graduate, X^2 (1, N = 657) = 22.09, $p < .01$. The Comparison Group also showed significantly higher credit attainment in 10th grade when compared to Cohort 1, $t(382) = 4.27$, $p < .01$ and a significantly higher percentage of 10th graders who were on track to graduate, X^2 (1, N = 384) = 7.23, $p < .01$.

Table 13. Treatment and Historical Comparison Group Credit Attainment and % On Track to Graduate

	Average Credits			% on Track		
	Cohort 1	**Cohort 2**	**Historical Comparison Group**	**Cohort 1**	**Cohort 2**	**Historical Comparison Group**
9th Grade	6.66 (n = 227)	5.72 (n = 259)	7.87 (n = 175)*	76.2%	67.1%	86.9%*
10th Grade	13.07 (n = 212)	N/A	14.35 (n = 172)*	75.0%	N/A	86.0%*

*Indicates a significant difference between groups

Teacher level of technology integration was assessed on the year-end teacher survey and 9th grade credit attainment for Cohort 1 students was examined by teacher level of technology integration. Due to the time lag in receiving the class roster data from ODE, the results below are presented only for Cohort 1 students and their teachers during SY 15-16 of the grant. Technology integration was measured on a 7-point scale with those teachers scoring from 5.0-7.0 coded as high integrators and those teachers scoring from 3.0-4.9 coded as medium integrators. The results presented below are for 7 high integrating teachers and 4 medium integrating teachers. As shown in the Figures below, students of high technology integrating teacher earned a significantly higher number of credits in 9th grade than students of medium integrating teachers, t (213) = -4.19, p <.01, and the percentage of students who were on track to graduate in 9th grade was significantly higher for high integrating teachers, X^2 (1, N = 215) = 9.39, p <.01. These results show that teachers who are using technology to support instruction are showing promise for improving student academic outcomes.

Figure 10. Parkrose HS Average 9th Grade Credits for Medium and High Integrating Teachers

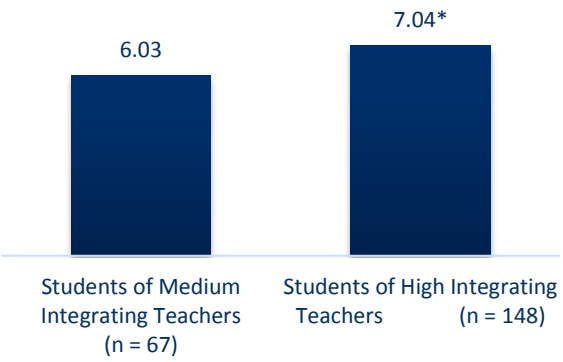
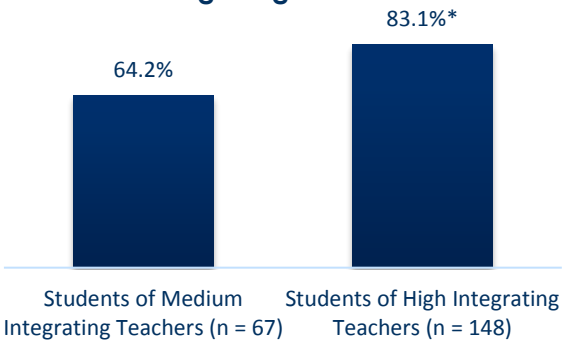
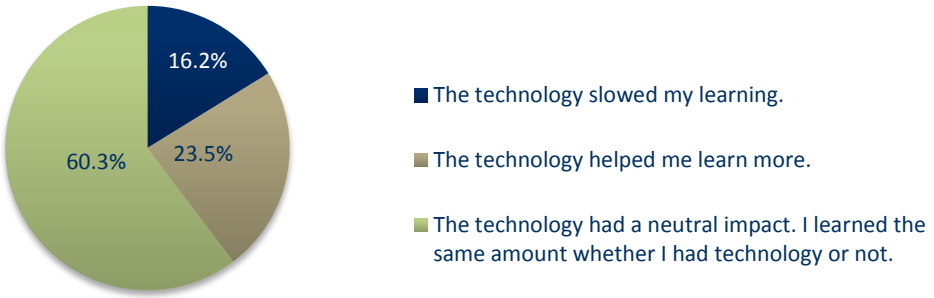


Figure 11. Parkrose HS % of Students On Track to Graduate in 9th Grade Medium and High Integrating Teachers



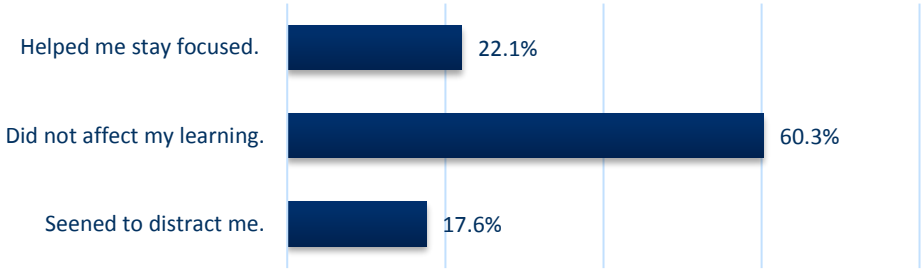
Students were asked a series of questions on the survey about how the use of technology in instruction affects their learning. Students generally had a neutral response: Sixty percent (60.3%) of students who completed the survey indicated that they learned the same amount whether they had technology in their classes or not. Just under a quarter (23.5%) of students believed that the technology helped them to learn more (see Figure 12).

Figure 12. Parkrose HS Students' Experience with Technology (n = 68)



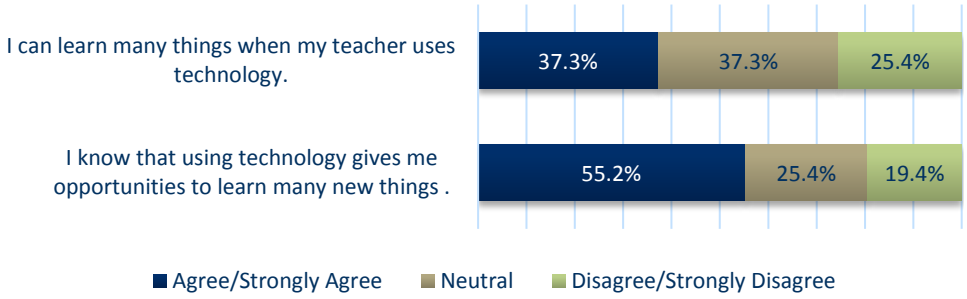
As shown in Figure 13, 60.3% of students reported that technology has not affected their learning, and 17.6% reported that the technology seemed to distract them is consistent with the responses reported above about technology slowing students' learning and is also consistent with student responses in the SY 15-16 evaluation.

Figure 13. Parkrose HS Effects of Technology on Learning (n = 68)



Over half of the students indicated that technology provides opportunities to learn new things (55.2%), but only 37.3% reported that they can learn new information when their current teachers use technology (see Figure 14). These results are consistent with those from the SY 15-16 evaluation and suggest that there is still potential for improvement in how Parkrose HS teachers use technology to affect student learning.

Figure 14. Parkrose HS Students' Perceptions of Technology Use in Instruction (n = 67)



When teachers were asked whether new practices were showing promise for improving student academic outcomes, they noted that students had greater comfort with using the iPads and emphasized that using technology helps students beyond high school. One teacher commented:

"I've seen fewer students this year who had general questions about how to operate the devices. Their familiarity with the devices is going up and their comfort level with the tablet technology is increasing."

Another teacher added, "It is a lot easier to be a teacher with the use of technology. Turn-it-in.com is a service we use and all students use. Plagiarism is gone. Technology makes students more competitive in the job market."

Summary: Are the new instructional practices showing promise for improving academic outcomes?

The results from the analysis of student outcome data does not support the idea that new instructional practices are improving academic outcomes for Treatment Cohorts over and above the instruction received by the historical Comparison Group. However, when credit attainment was examined within Cohort 1 students for high and medium integrating teachers, the results showed significantly higher credit attainment for students of high integrating teachers. These results show that teachers who are using technology to support instruction are showing promise for improving student academic outcomes.

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

In order to gain insight into whether instructional practices are showing promise for improving academic outcomes with at-risk student subgroups, credit attainment and percent on track to graduate were examined by subgroup for Treatment and Comparison Group students. The table below presents these data for Cohort 1 and Cohort 2 ninth grade students as well as the four at-risk subgroups each Cohort. After one year of implementation, the Cohort 1 students were showing lower credit attainment across all subgroups than the historical Comparison Group. An independent samples t-test revealed that this difference was significant for the LEP subgroup, t (31) = -2.60, p <.05, the economically disadvantaged subgroup, t (242) = -4.45, p <.01 and the ethnic minority subgroup t (263) = -5.39, p <.01. Cohort 2 ninth grade students also showed lower credit attainment across all subgroups than the historical Comparison Group. An independent samples t-test revealed that this difference was significant for the LEP subgroup, t (38) = 3.07, p <.05, the SPED subgroup, t (48) = 2.21, p <.05, the economically disadvantaged subgroup, t (270) = 6.80, p <.01 and the ethnic minority subgroup t (278) = 8.33, p <.01.

Table 14. 9th Grade Credit Attainment for Treatment and Comparison and At-Risk Subgroups

	Cohort 1		Cohort 2		Historical Comparison Group	
	Average 9th Grade Credits	**% on Track**	**Average 9th Grade Credits**	**% on Track**	**Average 9th Grade Credits**	**% on Track**
All Students	6.66 (n = 227)	76.2%	5.72 (n = 259)	67.1%	7.87 (n = 175)	86.9%
LEP Students	5.38 (n = 15)*	60.0%	4.88 (n = 22)*	47.6%	7.39 (n = 18)	77.8%
SPED	5.41 (n = 34)	47.1%	5.05 (n = 32)*	56.3%	6.44 (n = 18)	66.7%
Free/Reduced Lunch	6.39 (n = 157)*	70.1%	5.53 (n = 185)*	62.4%	7.51 (n = 87)	80.5%
Students of Color	6.66 (n = 161)*	77.6%	5.73 (N = 176)*	67.6%	7.85 (n = 104)	85.6%

*Indicates a significant difference between groups

After two years of implementation, the Cohort 1 students were showing lower 10th grade credit attainment across all subgroups than the historical Comparison Group. An independent samples t-test revealed that this difference was significant for the economically disadvantaged subgroup, t (228) = 2.94, p <.01 and the ethnic minority subgroup t (252) = 3.14, p <.01.

Table 15. 10th Grade Credit Attainment for Treatment and Comparison and At-Risk Subgroups

	Cohort 1		Historical Comparison Group	
	Average 10th Grade Credits	**% on Track**	**Average 10th Grade Credits**	**% on Track**
All Students	13.07 (n = 212)	75.0%	14.35 (n = 172)*	86.0%
LEP Students	10.96 (n = 14)	50.0%	13.19 (n = 18)	77.8%
SPED	10.48 (n = 31)	48.4%	12.15 (n = 17)	58.8%
Free/Reduced Lunch	12.58 (n = 146)	67.8%	13.86 (n = 84)*	81.0%
Students of Color	14.26 (n = 102)	84.3%	13.07 (n = 152)*	75.7%

*Indicates a significant difference between groups

As presented in the SY 15-16 evaluation report, PRE was able to examine ELPA test scores for Cohort 1 and the historical Comparison Group in 9th grade utilizing results from the previous version of Oregon's ELPA assessment. ELPA test scores were examined for those students in the Treatment and historical Comparison Groups who took the ELPA assessment in their 9th grade year, and the results are presented below by ELPA levels of attainment. The percentage of students scoring at a level four or level five was higher for the Treatment Cohort (53.3%) compared to the historical Comparison Group (23.6%). Due to the small sample sizes, the differences between the historical Comparison Group and Cohort 1 were not significant.

Table 16. ELPA Test Scores by Level of Proficiency (2014-15)

	Cohort 1 9th grade (n = 15)	**Historical Comparison 9th grade (n = 17)**
Level 1 (Beginning)	13.3% (2)	0.0%
Level 2 (Early Intermediate)	6.7% (1)	11.8% (2)
Level 3 (Intermediate)	26.7% (4)	64.7% (11)
Level 4 (Early Advanced)	40.0% (6)	11.8% (2)
Level 5 (Advanced)	13.3% (2)	11.8% (2)

Starting with SY 15-16, PRE will be examining ELPA test scores for the ELPA21 assessment. Since ELPA21 is scored differently, we will not be able to make comparisons to the historical Cohort. Table 17 below presents the ELPA21 results for Cohort 1 students in 10th grade and Cohort 2 students in 9th grade. In future years of the evaluation, we will be able to examine changes in ELPA21 proficiency levels across years in order to detect growth within the Treatment Cohorts. The scores presented in Table 17 are only descriptive in nature and do not assist in answering the evaluation question regarding whether new

instructional practices are showing promise for improving student academic outcomes with at-risk student subgroups.

Table 17. ELPA21 Results (2015-16)

Proficiency Determination	Cohort 1 10th Grade (n = 14)	Cohort 2 9th Grade (n = 22)
Emerging	21.4% (N = 3)	45.5% (n = 10)
Progressing	78.6% (n = 11)	54.5% (n = 12)
Proficient	--	--

Teachers and leaders discussed whether incorporating more technology into their instruction has impacted academic outcomes for at-risk student subgroups this past school year. As mentioned previously, teachers are using apps that differentiate instruction and are particularly helpful for ELL students, some of whom need to work at a slower pace and to look up words frequently. One teacher commented on how the technology is making students more technologically literate, particularly with regard to the Smarter Balanced Assessment: "We've been recognized in the state for an increase in graduation rates of minority students, especially Hispanic and Black students and our reading/writing score is up to 76% which is 10% higher than state. Part of Smarter Balanced is taking a test on computer. Our students are super tech literate so they do well."

Providing access to technology was discussed as a step in the right direction towards closing the achievement gap. For example, the Director of Technology at Parkrose HS acknowledged that it is difficult to know whether the use of technology to support instruction is making progress towards closing the achievement gap but emphasized that giving student subgroups access to technology is a start:

"Access is obviously an issue. We have refugee families and recent immigrant families. We have a significant low SES population who wouldn't have a device if we hadn't provided them. That's where I know we have made a huge difference as far as the equity component. We put devices in the hands of kids who would not have had devices otherwise. In terms of whether we are closing the achievement gap, I don't know."

Another teacher echoed the remarks about access and provided examples of how the technology is supporting ELL students through translation services: "I don't have hard data but I have students who don't have technology at home so at least now they have a device. Often with our students of color/poverty this helps. Regarding ELL students, they can use a translator app to translate on the go. I think it has opened up access to a lot of kids who didn't have it before. However, I still have kids who break iPads and can't pay the $100 for repairs."

While providing student subgroups with access to technology is a step toward closing the achievement gap, it should be acknowledged that a common obstacle to utilizing the technology at Parkrose HS is that many students are unable pay for repairs or replacement iPads. So while the grant is providing increased access, it can only do so to a certain extent.

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

Although the results of the student achievement subgroup analyses do not show promise for improving student academic outcomes with at-risk subgroups, teachers did provide examples of how the technology is being used to differentiate instruction and providing access for at-risk subgroups. Differentiating for at-risk subgroups is an area that has been improved upon by Parkrose HS since the SY 15-16 evaluation.

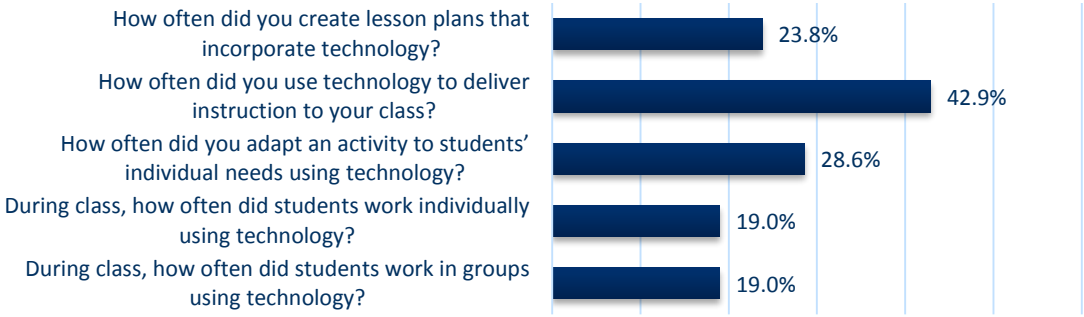
Digital Age Learning Culture

Districts embrace a cultural shift and view technology as positive.

Has the use of technology to support instructional practices increased?

As reported in the previous section on teaching effectiveness, Parkrose HS teachers provided many examples of their use of technology to support instructional practices. Teachers consistently mentioned using Google Applications and many other apps such as Nearpod, Edmodo, StudentVue and iExcel, to support their instruction. While descriptions of specific applications were generally positive, fewer than half of teachers (42.9%) reported that they used technology to deliver instruction to their class a great deal (see Figure 15 below), a drop from 56.7% in the SY 15-16 evaluation. It is important to keep in mind that the survey response rate was much lower this year. There was an increase since last year in the number of teachers who adapted activities for individual students' needs using technology: Twenty-nine percent (28.6%) of teachers surveyed used technology to cater to individual students this year, compared to 16.7% last year. The data show that the use of technology to support instructional practices has increased.

Figure 15. Frequency of Technology Integration Among Parkrose HS Teachers (% responding "A great deal"; n = 21)



When students were asked whether the use of technology in the classroom had increased since the last school year, thirty-five percent (35.3%) of students reported an increase in the use of technology, which is up from last year's 24.9%. Thirty-eight percent (38.3%) indicated that it had not increased and 26.5% were neutral.

Summary: Has the use of technology to support instructional practices increased?

From SY 15-16 to SY 16-17, there was a 13.8 percentage point drop in the number of teachers who reported that they use technology to deliver instruction "a great deal" and only 35.3% of students reported an increase in technology use. These evaluation results do not provide evidence that this outcome has increased after an additional year of implementation.

Is the learning management system useful for identifying effective instructional practices?

Parkrose HS does not currently have one schoolwide learning management system. The mid-year status report indicated that the district uses Google Classroom as an organization system and is slowly rolling out AssessmentVue, which runs through Synergy: "We have no plans for an LMS. We differentiate through our PLC work and reflecting on student work. We have started AssessmentVue (although this is used much more in the lower grades). High school teachers mostly use Google Classroom as an assignment distribution and collection method. The advantage to this is that it collects and organizes student work in the teacher's Google Drive. Since we are such a Google intensive district this is handy for us."

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

The primary function of the TechSmart grant at Parkrose HS has been to enhance digital capacity, specifically through upgrading the school's wireless network and supporting the iPads. School leaders and teachers also noted that the most impactful part of the grant was funding for the technical support staff as highlighted by the School Improvement Director:

> "*What we spent our money on this last year and what we will spend it on again next year (since we got permission to carry it forward for one more year) is the iPad support staff. That's been vital for the success of our one-to-one program. That staff time is used to troubleshoot, to work with kids on getting their iPads and making sure their iPads are working, and to work with teachers to make sure that they have the technical support need in the classroom."*

An emphasis on the value of the technical support staff was echoed in the mid-year status report, "Most of the grant paid impact this term was around the technical support staff providing guidance and structure for the HS iPads. Her work at the high school tracking, troubleshooting, maintaining, answering questions about and generally supporting the iPads is the only way this project works."

On the teacher survey, 57.1% of teachers reported that their students had adequate access to technology resources in their classrooms. Although this leaves room for improvement, 90.4% of teachers reported that they have increased their use of digital content and resources in their instruction since receiving technology-related PD, which shows that progress is being made toward a higher level of technology integration. The digital resources that teachers highlighted on the survey were Nearpod, Google Applications, Desmos, GeoGebra. Table 18 provides examples of how teachers were using each of these resources.

Table 18. Parkrose HS Teachers' Use of Digital Content

Digital Content	Teachers' Application of the Technology
Nearpod	"I use Nearpod to deliver notes. I use apps such as bioman to enhance learning and give kids application of science. I also incorporate uses of website into activities such as a weather forecasting assignments where the kids us a link or QR code to get to a website that they can explore to understand the concept and answer questions."
Google Applications	"Group writing utilizing Google Docs and teacher feedback in real time."
Desmos	"Using Desmos to explore mathematical relationships."
GeoGebra	"I have used GeoGebra do use during investigations in Geometry."

On the year-end survey, students listed the technologies they wish their teachers would use in the classroom. Specifically, students expressed a desire for teachers to increase their use of computers and the Edmodo application. Students commented that computers are easier for them to use than iPads because computers have bigger screens, are faster, typing is easier, and some applications work better with a computer versus an iPad. Students wanted teachers to use Edmodo more consistently to help with organization and disseminating information. Table 19 provides a sample of student quotes.

Table 19. Technology Students Wish Teachers Would Use

Theme	Sample Quotes
Use computers (n = 14)	• *"I would rather use computers than the iPads we currently use because they are faster and easier to use."* • *"I wish teachers would use computers more because some websites or services work best on computers like Google Docs."* • *"I wish teachers would use computers because they are more helpful than iPads. They have bigger screens and we can print off of them. Typing is also much easier and faster."*
Use Edmodo (n = 6)	• *"I wish teachers would use Edmodo in more classes. It helps with organization and aids in giving out important information and changes."* • *"I hope more teachers use Edmodo and post what we are doing daily like some of my teachers."*

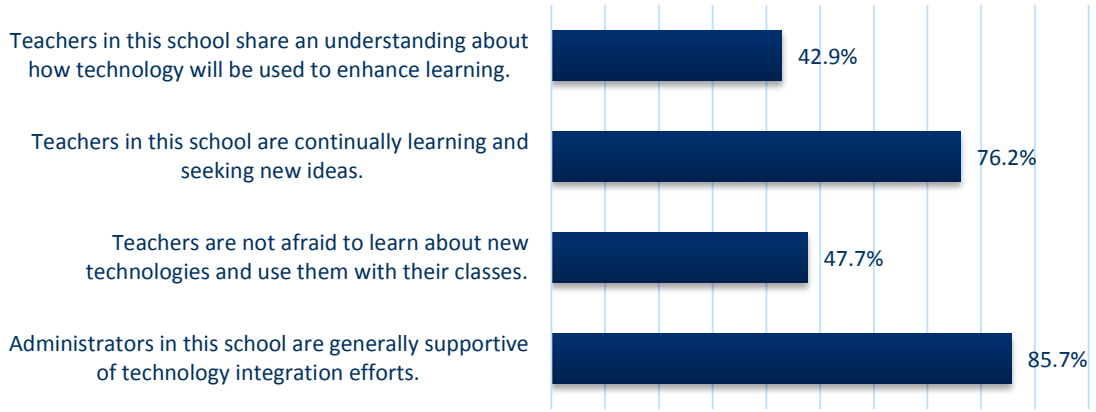
Summary: Do teachers have increased access to and use digital content and resources?

Although only 57.1% of teachers reported that their students had adequate access to technology resources in their classrooms, 90.4% of teachers reported that they have increased their use of digital content and resources in their instruction compared to 77.8% in SY 15-16. Teachers are using similar digital resources as they were during SY 15-16 such as Nearpod and Google Applications.

Is there evidence of district wide support for technology integration?

The culture of support for technology integration at Parkrose HS continued to develop during SY 16-17 of the grant. On the teacher survey, a majority of teachers (85.7%) indicated that Parkrose HS administrators are generally supportive of technology integration efforts. Over three-fourths (76.2%) of respondents agreed or strongly agreed that Parkrose HS teachers are continually learning and seeking new ideas, up from last year's 66.6%; however, forty-three percent (42.9%) of respondents agreed that the teachers share an understanding about how technology will be used to enhance learning (see Figure 16), which is a slight drop from last year's 46.6%.

Figure 16. Parkrose HS Teachers Perceptions of a Culture of Support for Technology Integration (% responding "Agree/Strongly agree"; n = 21)



One teacher who was interviewed commented that there is support in the district despite the current challenge with technology integration: "I think there's a culture of support. I think this problem (regarding students not bringing their iPads to class) has got everyone a little flummoxed, but there's a definite belief in the potential of technology in the district." Another teacher noted that the support is coming in the form of help for teachers with utilizing the iPads, but there could be more: "They have made a lot of opportunities for teachers who are interested in integrating the iPads; however, there hasn't been as much formal advocacy." Another teacher echoed that while technology integration is challenging, there is support within the district: "I think there's a lot of support and opportunities. One of the biggest challenges in a teacher's career is having the time to use this support. They do integrate it into our PD and we can choose to do a more intensive training if needed."

Summary: Is there evidence of districtwide support for technology integration?

Survey and interview data from the SY 16-17 evaluation show evidence administrator support for technology integration at Parkrose HS which is consistent from the previous year's evaluation. Similar to the SY 15-16 evaluation, less than half of the teachers completing the survey reported a shared understanding among teachers with regard to the benefits of technology use. Teachers need more training and support in order to feel confident in their ability to use the new technologies in their classroom.

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

As previously discussed, Parkrose HS has an opportunity for improvement in terms of engaging students with technology. Last year, 63.3% of Parkrose HS students preferred using technology to complete their assignments and this year 55.2% would choose using technology over other means (see Figure 17).

Figure 17. Parkrose School District Students Choosing How to Do The Same Assignments (n = 67)

When teachers were asked whether new practices were showing promise for improving student engagement, they acknowledged that technology, while it may have drawbacks such as being a distraction, is a part of life and can be an educational catalyst, and that kids generally are motivated and more apt to use technology to do their classwork. One teacher commented on technology being important, even if distracting: "Technology is important to kids. If they can use it in the classroom, they are more willing to do that, than when they have to do work on paper. I think it is a distraction but it is here." Another teacher described how kids are positively engaged with technology: "Kids are so tech savvy. They are engaged with tech. I like to use a variety of strategies, making them fun and engaging through technology. Anything that offers choice and creativity, they like." Another teacher also commented on the importance of engaging kids with technology: "The world is right there if you can access it. If you can show kids how to use technology well I think it does engage them and I think it can be a lifeline."

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

The SY 16-17 evaluation does not provide strong evidence that an increased number of students are engaging with new technology. Last year, 63.3% of Parkrose HS students preferred using technology to complete their assignments and this year 55.2% would choose using technology over other means.

Visible Leadership

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

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

Parkrose HS has made efforts to share information about its technology integration efforts with other districts. The Parkrose HS Director of Technology gave examples of sharing knowledge across districts: "We all work really closely together. At a recent conference we talked about one-to-one initiatives, how do you help teachers change the way they teach and why we need to make this change. I'm right in the middle of all discussions." The School Improvement Director also commented on shared learnings:

> *"A regional group of technology administrators have a forum in their monthly meetings on the use of technology in the district. Over the last few years we have had districts reach out to us asking, 'What have you learned?' 'How can you help?' We have had multiple conversations with folks where they have reached out to us because they were aware of what we were doing. But we've also used some technology dollars to providing professional development that was external. We took a team to a local technology conference where our team could see what other schools were doing."*

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

Similar to the SY 15-16 evaluation findings, the district has made efforts to share information and lessons learned from their technology integration efforts with other districts.

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

Parkrose School District leaders have been providing support for technology integration at various levels. On the teacher survey, 85.7% of respondents (n = 21) indicated that administrators at Parkrose HS have been generally supportive of technology integration efforts. When describing the culture of support, as reported previously, Parkrose HS teachers had positive feelings about the use of technology, they noted that that there were many opportunities for PD training, and they also pointed out barriers to using technology successfully. One teacher appreciated receiving assistance from the technology support staff: "Our iPad person is invaluable. This grant pays for part of her salary. I'm willing to try new things. She lets me know about new apps. A lot of people enjoy skill share which is helpful. When I want to learn an application, it helps to have someone well versed with it." Another teacher acknowledged support from administration but continues to be frustrated the lack of devices:

"The only negative aspect of using technology is not having enough iPads. My frustration is trying to get these iPads. Our IT department is very helpful. The administration supports us using technology as long as we show data that we are using it. I think the teaching staff wants to make this happen. If you have a room full of students, and even 5 don't have iPad, you're in a bad way."

The School Improvement Director and the Director of Technology noted the importance of differentiating the support provided to teachers. The School Improvement Director said, "We have learned that we need to have multiple models of professional learning options to be as comprehensive as we can while at the same time trying to be as supportive." The Director of Technology noted that district leadership has provided support by modeling technology: "We have a differentiated training and we do a lot of one-on-one work with teachers, co-teaching with them so that we teach and they watch. This is so that they can feel comfortable. But, we have some work that we could do there."

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

The SY 16-17 evaluation showed that 85.7% of teachers responding to the survey agree that administrators have been generally supportive of technology integration efforts. Similar to the SY 15-16 evaluation findings, teachers continued to comment on the support received from the iPad support position as evidence of support from district leaders.

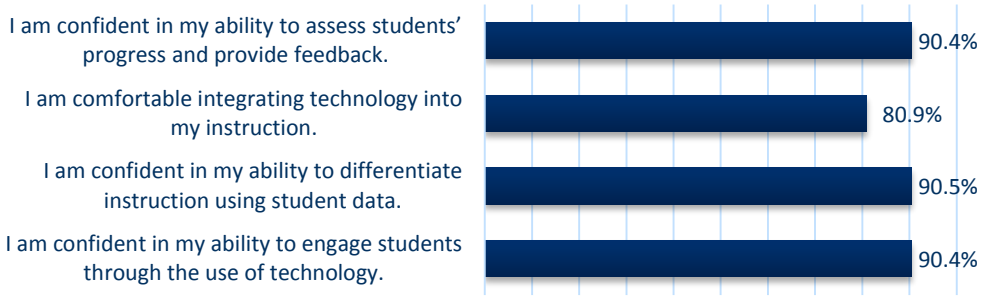
Data Driven Improvement

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

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

As highlighted in the previous section on teaching effectiveness, Parkrose HS teachers greatly increased their use of data-driven instructional strategies using technology. Although the sample size for the teacher survey was only 50% for SY 16-17, teachers' use of technology to analyze student learning data increased from 53.9% last year to 71.4% this year, and teachers' use of technology to differentiate instruction went up from 63.0% last year to 71.4% this year. Consistent with these data, Figure 18 below shows that by the end of the year, 90.5% of teachers participating in the survey reported increasing their use of technology to differentiate instruction, a great increase over last year's 55.5%, and over ninety percent (90.4%) have increased their use of technology to analyze data about student learning this year, up from last year's 63.0%. So, a majority of teachers are reporting that they use technology for data driven instructional strategies and a great majority of teachers are reporting that they have increased these practices using technology. In addition to the data in Figure 18, 66.6% of teachers indicated that they used formative assessments to identify effective instructional practices using technology.

Figure 18. Parkrose HS Data Driven Improvement (% responding "Agree/Strongly agree"; n = 21)



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

Parkrose HS is showing promise in the area of data driven improvement. Teachers expressed high levels of confidence in their ability to assess student progress and differentiate instruction using student data. Future evaluation efforts will focus on learning how technology is supporting this data driven instruction. In terms of using data to improve the professional development or for the purposes of the grant evaluation, the district struggled with participation in the teacher and student surveys and could benefit from increased project evaluation efforts.

Funding & Budget

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

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

The Parkrose Director of Technology commented on how administrator time has been repurposed as a result of the grant. She noted that administrators are going into classrooms and co-teaching with the teachers to support them in using technology:

> *"I guess you could say that in a way we have repurposed some of our administrative time. Michael and I spend probably at least 5-6 hours in the classroom, working with teachers to teach using a different technology. We have changed how we think about spending money away from a lab model concept to an individual device concept. We've definitely shifted a lot of things about what we expect teachers to do and what we expect classrooms to look like to accommodate technology."*

The discussion of repurposing resources to support technology integration also prompted the School Improvement Director to reflect on strategic planning for technology in the same way that they do for curriculum: "There are certain components that we tried in the grant that we feel are really important to continue and we have to find a longer-term funding base to be able to do it. We are looking at how to fund technology in the same way as we fund curriculum. Since we have been a part of the grant, we have changed our thinking and our strategic planning."

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

The SY 16-17 evaluation provides evidence that Parkrose is beginning to reframe the way they think about resources to support technology integration. This grant has allowed the district to realize some strategic priorities they have for moving forward and to be creative in thinking about how to fund those.

Strategic Planning

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

In terms of the district's strategic plan, school leaders commented on the development and growth of technology use in education as it relates to the rapid development of technology that is taking place in the world. The School Improvement Director remarked:

> *"We just adopted mass curriculum that is much more efficient. A few years ago, our district would have bought books and would have spent a lot more money. Now, our strategy has changed as we have learned what technology can do, for efficiency in teaching, learning effectively, and new ways to differentiate for our kids. We need to leverage all the information that's out there. Technology is shifting the paradigm of instruction. We have a different responsibility in terms of supporting kids with navigating their world. I think the lens has changed for how we look at curriculum, instruction and assessment because we are now looking through what we have learned over the last three years."*

The Director of Technology reported that the district's strategic plan reflects a shared commitment to improving student outcomes, but that there is still a lot of work to do: "We are trying to move away from educating kids in the 1970s and over into 2020, 2030. You have adults from 1980 trying to create adults for 2030 and we just have to change. Technology factors into our plan for our kids in a way, but not as much as it should. It's about acknowledging the fact that this is a very different world given what we have available through the use of technology."

Summary: Does the district strategic plan reflect shared commitment to improving outcomes for students?

The district strategic plan does reflect a shared commitment to improving outcome for students and district leaders realize that technology will play a big role in this plan.

Engaged Communities & Partners

Parents, stakeholders, community groups and others are actively and systemically involved in helping students develop, learn, and achieve.

Do district leaders demonstrate increased communication with and among outside stakeholders regarding technology integration?

In SY 16-17, there were no reported activities with regard to engaging with other non-district stakeholders in the community around technology integration. The Director of Technology said that district leaders are focused on collaborating within and between districts more than reaching out to other community stakeholders: "We work across districts with other folks who have iPad initiatives, who are in the same place we are in terms of pushing teachers in the way they teach. We do a lot of that. But, in terms of working with normal community members, no."

Evaluation Insights at Parkrose High School

The 2017 evaluation for the Parkrose HS TechSmart grant investment as compared to 2016 showed some good progress and pointed to a few areas that continued to be targeted for improvement. Data collection at all levels (administrators, teachers, students) revealed areas of progress and difficulties that Parkrose HS has had with schoolwide technology integration efforts.

- The SY 16-17 evaluation highlighted positive aspects of the TechSmart grant investment at Parkrose HS. Having a dependable internet connection is foundational to using technology in the classroom, and this is in place and functioning well; teachers and administrators continue to express appreciation for the robust Wi-Fi access throughout the school as provided by the grant. In addition, it has become evident during the three years of the grant that having a half-time dedicated technical support staff person at the high school is of key importance. This year, perhaps the biggest impact of the grant at Parkrose HS was the funding of this position. Other positive aspects of technology integration efforts at Parkrose HS are that the culture among administrators and teachers is very positive and teachers are being given varied opportunities to receive PD training in integrating technology into their classroom instruction. Teachers who completed the survey rate themselves highly in terms of their technology skill level and they are using technology in their classrooms a moderate amount to a great deal. Also, teachers are using many technological applications in their instruction that they have given high effectiveness ratings.
- Along with myriad positive developments within SY 16-17, it continues to be apparent from the SY 16-17 evaluation that technology integration is a process that needs some time to develop and progress. Some of the positive data within the evaluation were juxtaposed with other data that suggested room for improvement. For example, while teachers report feeling confident about their abilities to use technology in particular areas of instruction (such as tailoring instruction for individual students' needs), fewer than half agree that they have a shared understanding of how technology is to be used to enhance learning. In addition, while teachers feel confident about their abilities to engage students with technology, students' self-reported engagement is low based on their lack of enjoyment and interest in using technology in their classwork. Another example of juxtaposed data was that while teachers rated individualized PD training as more useful than group PD, over 1/3 of teachers received no individual PD training. While teachers described a multitude of applications they felt were effective instructional supports, just over half report that their students have adequate access to technology in the classroom. These juxtapositions reinforce the overarching theme in SY 16-17 that while progress has been made, more needs to be done towards successful technology integration at Parkrose HS.
- Barriers to using the iPads for instruction were identified by administrators, teachers, and students. While teachers and administrators feel that many students are benefitting from technology, similar to last year, not all students are bringing their iPads to class, and this is an obstacle to improving technology integration at Parkrose HS. Some students do not bring their iPads to class because they are broken or lost and the students are not able or willing to pay the repair or replacement fees. Students' failure to bring their iPads to class has caused some teachers not to use them regularly. When teachers do not use the iPads for instruction, students continue not to bring them to class, reinforcing the cycle. Several approaches have been taken to address

this issue that have been helpful, but the issue persists. The latest plan for addressing this barrier, as noted on the year-end grant status report, is not to require students to use a school-issued iPad as long as they bring a device capable of connecting to the internet to school, creating a BYOD (bring your own device) model. The district is still working to resolve the issue of students not being able to pay for iPad breakage or loss should they choose a school-issued iPad. For example, one teacher has created community service opportunities to give students the opportunity to earn iPad replacement money. As mentioned by teachers and administrators, with the transition to an online math curriculum next year, the availability of devices for all students will be even more necessary. Students identified other barriers to using technology at Parkrose HS. These included iPads being cumbersome, distracting, not as desirable to use as computers and that traditional classroom activities such as lectures by teachers were preferable. It appears that increasing iPad use among both students and teachers could involve increasing or maintaining iPad breakage and loss prevention measures, addressing students' lack of ability to pay fees associated with the iPads, increasing student buy-in with regard to using iPads and increasing teacher use of iPads in the classroom. The latter two items could be addressed through teachers' PD training.

- Another theme that carried over from last year is that students' opinions about using technology in their classwork were largely neutral or negative. It is very important to point out the low response rate on the student survey during SY 16-17 of the grant and to keep this in mind when interpreting student survey data. Only about a quarter of students participating in the survey reported that they enjoyed using technology. A majority of students felt they learned about the same amount whether they used technology or not; however, just over half of students said they would like about the same amount of technology to be used next year as was used this year, and that they would prefer to complete an assignment using technology versus not using it. This indicates some mixed opinions; while students' enjoyment of technology and their interest in using it is low, students do have a level of buy-in, albeit low, for using technology. Students most commonly felt they learned the most from lecture/presentation by the teacher, reading or working alone and they were most commonly interested in reading, working alone, doing small group work, or watching films. Using an iPad was rated low in terms of being an activity that stimulated learning and captured their interest. This points to a need for teachers to work on increasing student enjoyment of technology, and interest in classwork using technology, as they continue to work on making technology a more integrated and compulsory part of school.

Project Summary

Reynolds School District's (RSD) MHCRC TechSmart grant focuses on improving student achievement in 8th grade math, 9th grade credit attainment, and English learners' progress. RSD chose to focus on these outcomes because in the 2013–14 school year, 44% of its students were English language learners. In addition, less than half of students completing their first year of high school were on track to graduate (earning six or more credits), and math was the course most frequently failed. RSD is using the TechSmart grant for middle and high school math classroom technology and related teacher professional development (PD).

District administrators are implementing a staggered-rollout strategy where they will onboard a cohort of math teachers every school year for the first three years of the grant so that by Year 4, the district will have full implementation of technology-rich math curriculum across all middle schools and 9th grade students at the high school. In addition, RSD's grant also helps fund technology for the Project Lead the Way curriculum, a STEM-based, nationwide education program being offered to 7th through 9th grade students as an elective course to increase student engagement in math and science.

RSD completed its second year of project implementation in School Year 16-17 (SY 16-17). Eight of the twelve teachers from SY 15-16 (Cohort 1) continued implementation during SY 16-17. Those who did not continue from Cohort 1 either left the district or were no longer teaching math. A second cohort of 19 teachers began implementation in SY 16-17 (Cohort 2). This report breaks down reporting for Cohort 1 and Cohort 2 teachers where relevant, given the different levels of exposure to the technology and PD. The math teachers received teacher and student technology devices including Microsoft Surface Pros (teachers), short throw projectors, Dell Venues (students), and 3D printers. In addition to receiving the devices, the math teacher cohort participated in PD sessions in the summer prior to the school year and throughout the year that focused on using technology to support math education and English language development.

Methods

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Data collection efforts for the SY 16-17 evaluation in RSD are summarized below.

Teacher Survey

PRE designed a survey that was administered online to teachers twice during SY 16-17, in September of 2016 and April of 2017. The IT TOSA administered the surveys. Twenty-five teachers (9 Cohort 1 and 16 Cohort 2) completed the baseline survey, and 18 teachers (6 Cohort 1 and 12 Cohort 2) completed the year-end survey.

Teacher Interviews

PRE conducted phone interviews with nine teachers involved in the TechSmart grant in Reynolds School District. Three of these teachers were part of Cohort 1 and in their second year of implementation, and six teachers were in Cohort 2 in their first year of implementation.

District Leader Interviews

PRE conducted interviews in spring 2017 with five leaders including the Reynolds High School assistant principal, Reynolds Middle School principal, the Director of Secondary Education, and the Director of Grants and Partnerships.

Student Surveys

Staff members administered the student survey online in May 2017. The survey was distributed to students who were participating in a class taught by one of the teachers in the TechSmart math cohort, and 1,270 students completed it. Table shows the grade levels of students who completed the survey.

Table 1. Reynolds Student Survey Responses

Grade	n	% of total responses
6th	298	23.5%
7th	424	33.4%
8th	335	26.4%
9th	113	8.9%
10th	54	4.3%
11th	17	1.3%
12th	29	2.3%

Leadership Rubric

The leadership rubric was completed by three principals in Reynolds School District.

Reynolds Walk Through Tool

RSD developed a district specific walk-through tool for the evaluation of their TechSmart grant and shared this data with PRE for inclusion in the SY 16-17 evaluation report. District administrators completed 26 observations for Cohort 1 teachers and 47 observations for Cohort 2 teachers. A copy of this tool can be found in Appendix H.

Student Achievement Data

In order to examine the impact of the TechSmart grant investment in Reynolds School District, comparative analyses will be conducted using a historical comparison group. A concurrent comparison group was not created for Reynolds because over the course of the grant, students may move in and out of TechSmart teacher classrooms. The Treatment Cohort is made up 6th grade students who had TechSmart math teachers during SY 15-16. The historical Comparison Group is all RSD 6th graders during the 2012-13 school year. The historical Comparison Group started in 2012-13 because the student information system at RSD changed this year and data are not available for the 2011-12 school year. Thus, the Comparison Group will overlap by one year with grant implementation. The table below presents the number of students in our Treatment and historical Comparison Group by year. The results presented in this report compare one cohort of 6th grade TechSmart students to all 6th grade students from the 2012-13 school year.

Table 2. Treatment and Historical Comparison Group Sample Size

Cohort 1		Historical Comparison Group	
Year	**N**	**Year**	**N**
2015-16 (6th)	163	2012-13 (6th)	754
		2013-14 (7th)	754
		2014-15 (8th)	666
		2015-16 (9th)	465

Figure 1 below presents the at-risk indicators for the Treatment and historical Comparison Groups of students at RSD. Overall, there were a higher percentage of Cohort 1 students identified as students of color and qualifying for free and reduced lunch relative to the historical Comparison Group. There were fewer LEP and SPED students in Cohort 1 compared to the historical Comparison Group.

Figure 1. Reynolds School District At-Risk Indicators

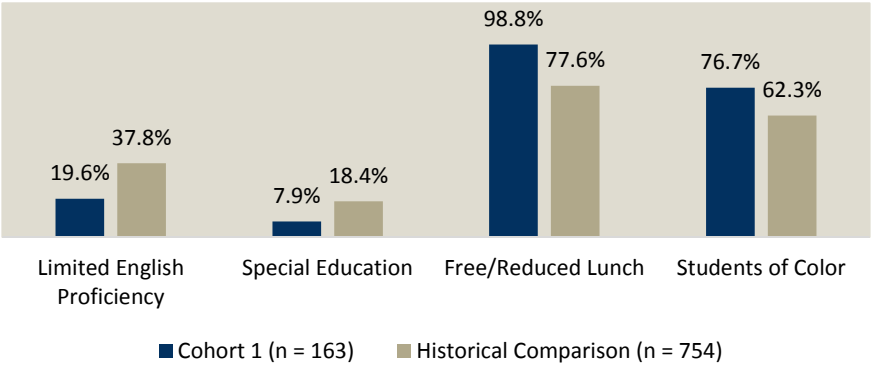
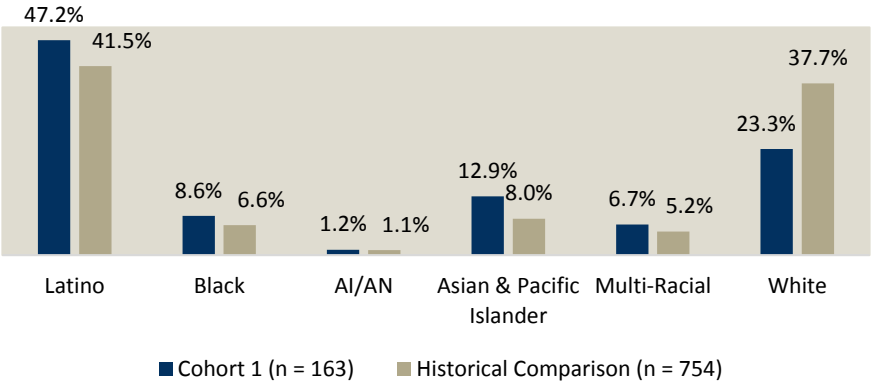


Figure 2 below provides a summary of the breakdown of student race/ethnicity in the Treatment and historical Comparison Groups and shows a higher proportion of white students in the historical Comparison Group relative to the Treatment Cohort.

Figure 2. Reynolds School District Race/Ethnicity



Findings

The evaluation findings from the SY 16-17 evaluation at Reynold School District are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

Teaching Effectiveness

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

The TechSmart professional development (PD) activities had several different components during the second year of implementation as highlighted in the mid-year status report. As a result of budget constraints, the district was forced to reduce the two dedicated TOSAs from SY 15-16 to one half-time TOSA and one less-than-half-time PD administrator. The half time IT TOSA was dedicated to the TechSmart project and offered both formal and informal PD to the math teachers involved in the grant. The IT TOSA offered introductory training for the 19 Cohort 2 teachers which included an introduction to their new devices as well as to OneNote, Office365, and Schoology training which are the primary applications used for math instruction. This introductory training took place at the beginning of the school year and was offered for up to two days depending on the needs of the teacher. In addition, teachers from both cohorts participated together in school based monthly meetings to focus on utilization of instructional tools. The teacher cohorts identified specific needs for each meeting, and topics included the Desmos graphing calculator, OneNote Classroom, and PlayPostit. The teachers also reviewed tools for collaboration such as Schoology and Office365. Teachers discussed standardized implementation and student device management as well. Some teachers considered these monthly meetings to be informal ways of sharing information, as noted by one Cohort 2 teacher:

> *"There has been no formal training. There have been a few informal trainings in the form of the monthly cohort meeting and talking about issues. We have also been part of a lab cycle so there has been some training and some experience through doing observations in another classroom, and then taking part in co-teaching using technology in the classroom."*

Lab cycles are described as a cornerstone of teacher PD for RSD's TechSmart project. The mid-year status reported noted, "Lab cycles during this reporting period helped to define what is 'quality talk' between students, which vocabulary and language development concepts are important, and how to leverage technology to facilitate students interacting and practicing language centered around math." The year-end status report indicated that all teachers (includes Cohorts 1 and 2) participated in two full lab cycles that took place between January 31 and June 21, 2017.

Individual PD sessions were offered by the IT TOSA as described in the year-end status report, "We had individual one-on-one meetings with the IT TOSA driven by teacher needs. He shares a weekly rotating schedule across the four buildings served in order, for teachers to better anticipate their needs in alignment with his upcoming availability in their buildings." One Cohort 1 teacher commented on the value of this informal training:

"On Monday mornings, the TechSmart TOSA would meet with us and we would talk about anything technological that he could offer. For example, Skype for Business is something that was introduced to us to see if we could find that useful. We talk about and share new findings on the technology and software programs we are using."

Several teachers described how they have received PD from other teachers. Specifically, many of the Cohort 2 teachers commented on how the Cohort 1 teachers have been a source of mentoring support for the technology integration, which is how the grant was designed. Teachers meet monthly for late start meetings which last 60-90 minutes. One goal of these meetings is for them to become more teacher-led as the grant progresses as described in the year-end status report, "Teachers collaborated across grade levels and buildings. As we grow into the project, there is a gradual release of leadership of the monthly meetings from the IT TOSA to the participating teachers who are encouraged to add items directly to the agenda". A Cohort 2 high school teacher commented on these monthly meetings:

"Once a month, all teachers at the high school meet when we have a late start. We break into our groups, talk about what's going well, and troubleshoot. Somebody is always sharing solutions to other teachers' problems."

Table 3 and Table 4 summarize the amount of group and individual PD that teachers in each cohort received by the end of the school year. The year-end survey data show that nearly all of the teachers in both cohorts reported receiving more than nine hours of group PD.

Table 3. Reynolds School District Hours of Group PD

Hours of Group PD	Cohort 1 (n = 6) End of Year Survey	Cohort 2 (n = 12) End of Year Survey
0 hours	0.0%	0.0%
1-8 hours	0.0%	8.3%
9-16 hours	33.3%	16.7%
17-32 hours	33.3%	25.0%
33+ hours	33.3%	50.0%

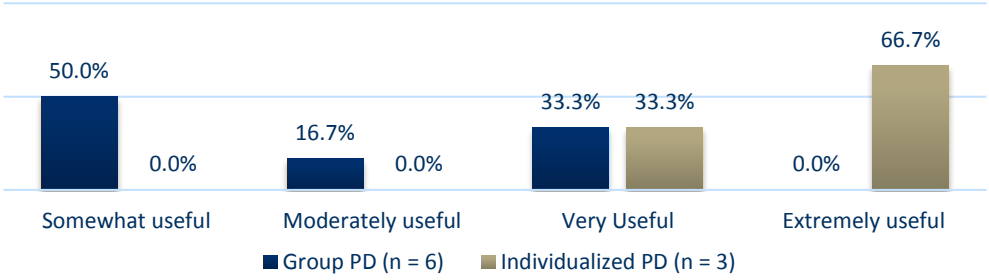
Table 4 shows that the majority of Cohort 2 teachers received 1-8 hours of individualized PD and half of Cohort 1 teachers did not receive any individualized PD.

Table 4. Reynolds School District Hours of Individualized PD

Hours of Individualized PD	Cohort 1 (n = 6) End of Year Survey	Cohort 2 (n = 12) End of Year Survey
0 hours	50.0%	0.0%
1-8 hours	0.0%	58.3%
9-16 hours	16.7%	33.3%
17-32 hours	16.7%	8.3%
33+ hours	16.7%	0.0%

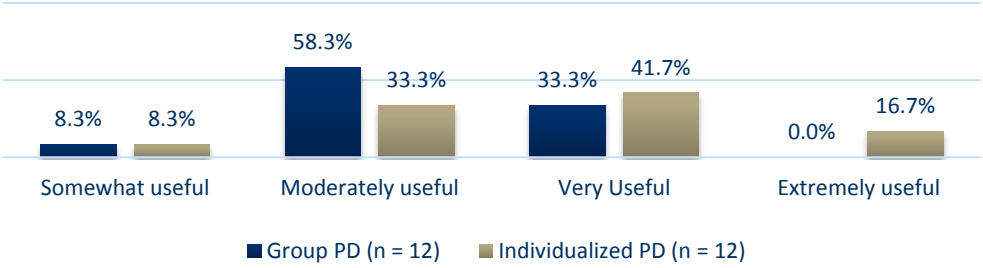
Teachers rated the usefulness of the group and individual PD at RSD and while only 33.3% of Cohort 1 teachers rated the group PD as very useful, 100% rated the individual PD as very or extremely useful. It is important to note that only three teachers rated the individualized PD at the end of the year.

Figure 3. Reynolds School District End of Year Teacher Ratings of PD Usefulness - Cohort 1



Cohort 2 teachers rated the group PD slightly higher than Cohort 1 teachers with more than 90% reporting it was at least moderately useful. Cohort 2 teachers gave lower ratings to individual PD as shown in Figure 4 below.

Figure 4. Reynolds School District End of Year Teacher Ratings of PD Usefulness - Cohort 2 (n = 12)



How is the professional development impacting teacher instruction?

Leaders (IT TOSA and principals) in RSD provided examples of how the PD has impacted teacher instruction. A middle school principal emphasized how the technology has changed the way students receive instruction and has gone away from the "sit and get" format which is the idea that students sit and receive information in a lecture format:

> *"I was in one of our eighth-grade math teacher's rooms the other day. Just the very interactive nature of things, the very real-time aspect, kids being able to present their work in a safe way in front of the room. There is the whole thing of being able to interact with the curriculum as opposed to the old "sit and get" way of doing things. And what's been exciting is that "sit and get" thing has gone by the wayside."*

The teacher survey asked how effective the PD model has been in impacting teacher instruction. Cohort 1 teachers had mixed opinions of the PD model and suggested more individualized PD as well as more time for discussing ideas regarding how to implement new techniques in their classrooms (see Table 5).

Table 5. Effectiveness of the PD Model at Reynolds for Cohort 1

"I haven't found it useful. If I have an individual issue there is no avenue for me to receive help. The group PD focuses on whole-group needs."
"I have been able to implement a self-paced portion of my class that would not be possible without the technology. We have spent a bunch of time on lesson creation, using strategies, which are great, but I think we need more time to discuss technology and how to implement it in our classrooms. Sharing ideas, looking for new resources, playing with resources. We get a little bit of time for this, but not nearly enough."
"Very useful – we've learned many digital techniques."
"Moderately effective."

Cohort 2 teachers had more positive feedback with regard to the technology itself but gave mixed reports regarding the effectiveness of the lab cycle and the monthly meetings, as shown in the sample of quotes included in Table 6 below.

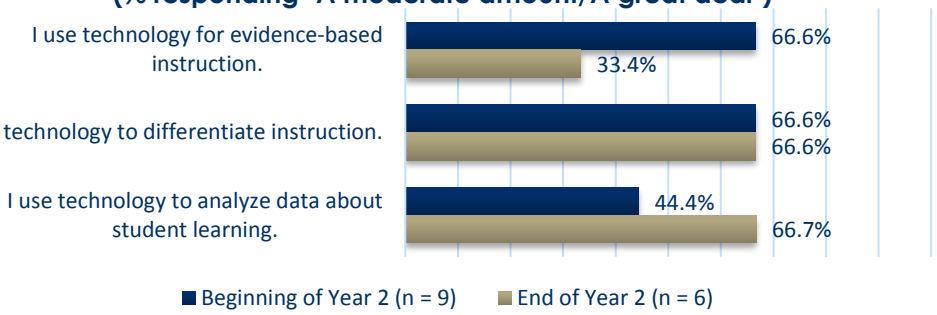
Table 6. Effectiveness of the PD Model at Reynolds for Cohort 2

"It was really good. I was nervous about the computers but now I am using them every day. I am excited to try new things on them."
"Very helpful. I am pleased to be able to meet my students' needs at a much more individual level due to technology."
"In order to improve instruction with technology, grant teachers should be waived from fulfilling other standard teacher obligations. The time commitment is a strain, adding one more thing to an already full plate."
"The lab cycle model was not very helpful. Being dropped into someone else's classroom out of sequence was stressful and confusing. We did not have enough planning time. I would strongly prefer a peer observation model."
"The one-on-one time spent at our schools was much more helpful than the monthly meetings. I found the monthly meetings to be unproductive in the format they are in. I would recommend that once a month they be moved to site meetings at each school with the whole cohort meeting quarterly."
"This professional development model has not been effective in terms of helping me change my instruction by using technology in the classroom. The focus has been on increasing our use of the Mathematical Practice Standards and has not been very effective to that end."

The survey also asked teachers to describe the extent to which the PD increased their use of technology for evidence-based instruction, differentiating instruction, and analyzing and using data about student learning. The results are presented below for Cohort 1 and Cohort 2 and show that about two-thirds of Cohort 1 teachers are using technology to support these aspects of instruction, which is consistent with the responses from the Cohort 1 post-survey during the SY 15-16 evaluation. In SY 16-17, there was a

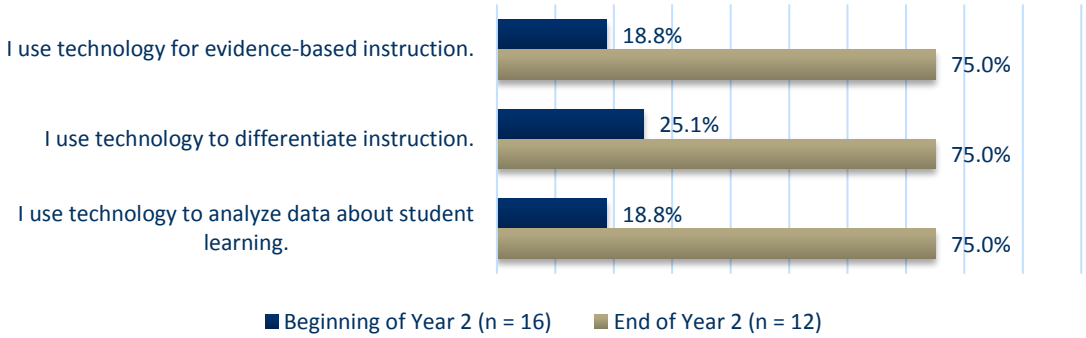
notable decrease in the percentage of Cohort 1 teachers who report using technology for evidence-based instruction. This difference may be partially attributable to the fact that one-third of Cohort 1 teachers did not complete the year-end survey.

Figure 5. Reynolds School District Instructional Technology Use - Cohort 1 (% responding "A moderate amount/A great deal")



Cohort 2 teachers showed large percentage point gains over the course of their first year of implementation. By the end of SY 16-17, 75% of Cohort 2 teachers were using technology to support evidence-based instruction, to differentiate instruction, and to analyze data about student learning.

Figure 6. Reynolds School District Instructional Technology Use - Cohort 2 (% responding "A moderate amount/A great deal")



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

Level 1: I get someone else to do technology-based tasks for me.

Level 2: I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.

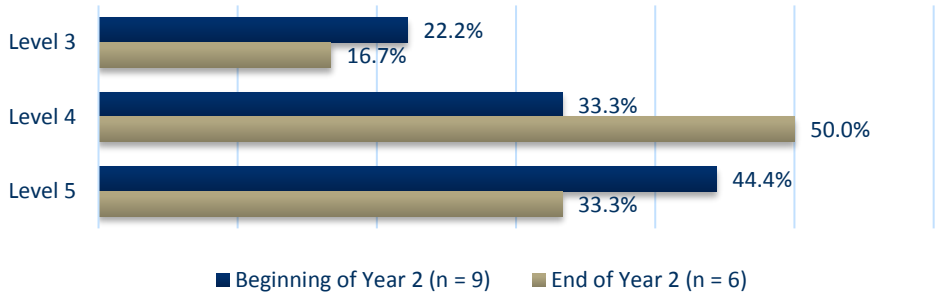
Level 3: I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.

Level 4: I use a variety of technology tools and I use them efficiently for all aspects of my job.

Level 5: I use technology efficiently, effectively, and in creative ways to accomplish my job.

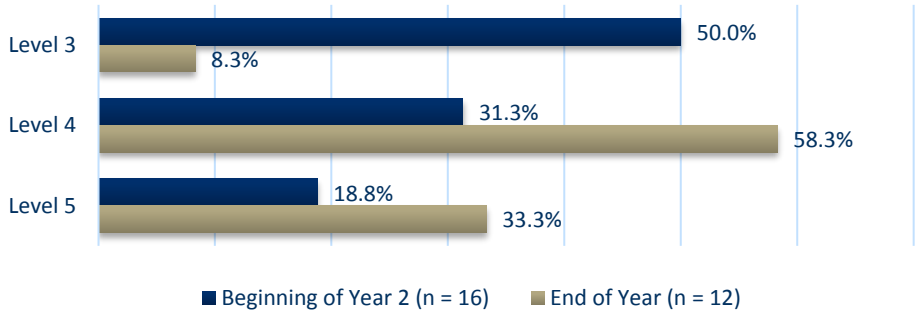
As illustrated in Figure 7, by the end of their second year of implementation, 83.3% of Cohort 1 teachers rated themselves at a Level 4 or 5 which, while high, was a decrease from the 100% reported in the SY 15-16 evaluation report. In contrast, Figure 7 also suggests that teachers continued to improve their technology skill levels during Year 2 of implementation, with a higher percentage of teachers rating themselves at Level 4 or 5 on the year-end survey relative to the beginning of the year survey. No Cohort 1 teachers rated themselves at a Level 1 or 2.

Figure 7. Reynolds School District Teachers' Technology Skill Level - Cohort 1



Cohort 2 teachers' skill level increased over the course of the year. By the end of their first year of implementation, 91.6% of Cohort 2 teachers rated their technology skill at a level 4 or 5 and no teachers rated their skill at a level 1 or level 2 (see Figure 8).

Figure 8. Reynolds School District Teachers' Technology Skill Levels - Cohort 2



Summary: How is Professional Development impacting teacher instruction?

This evaluation question includes the following outcomes: 1) PD has helped teachers increase the use of technology for evidence-based instructional practices, 2) PD has helped teachers use technology to analyze and use data about student learning, and 3) PD has helped teachers use technology to differentiate instruction. About two-thirds of Cohort 1 teachers are using technology to support these aspects of instruction which is consistent with the responses from the Cohort 1 post-survey during the SY 15-16 evaluation. Ideally, after two years of implementation, we would like to see a higher percentage of teachers indicating that the PD has helped them increase their use of technology for these aspects of instruction. There was also a drop from 100% to 83.3% in the percentage of Cohort 1 teachers who rated their technology skill level at a 4 or 5 which is not expected after two years of implementation. Improved survey responses would allow PRE to more reliably assess this change.

What new instructional strategies are teachers reporting?

Math teachers were asked to provide examples of instructional strategies that they believed had been effective in their classroom instruction and rated the strategies on a scale of one to five, with five being the most effective. Cohort 1 teachers are using technology to support differentiating instruction and other classroom activities as shown in Table 7 below.

Table 7. How New Technology is Being Used for Instruction – Cohort 1

Instructional Supports	Effectiveness Rating End of Year
Differentiating Instruction	3.00 (n = 2)
Utilizing Technology for Note Taking	3.00 (n = 1)
Utilizing Technology for Flipped Model	5.00 (n = 1)
Utilizing Technology for File Sharing	4.00 (n = 1)
Utilizing Technology to Provide Immediate Feedback	5.00 (n = 1)
Utilizing Technology to Help with Student Understanding	3.00 (n = 1)

Cohort 2 teachers most commonly reported using technology to differentiate instruction followed by using technology for hands-on activities, small group instruction, and group practice. See Table 8 below for instructional supports most commonly reported by Cohort 2 and their effectiveness ratings on the year-end survey.

Table 8. How New Technology is Being Used for Instruction – Cohort 2

Instructional Supports	Effectiveness Rating End of Year
Differentiating Instruction	3.71 (n = 7)
Utilizing Technology for Hands-On Activities	3.33 (n = 3)
Utilizing Technology for Small Group Instruction	3.00 (n = 2)
Utilizing Technology for Group Practice	4.00 (n = 2)
Utilizing Technology for Simulations	4.00 (n = 1)
Utilizing Technology for Individual Practice	3.00 (n = 1)
Utilizing Technology to Expose Students to Various Types of Help	4.00 (n = 1)
Using Technology to Integrate Other Disciplines into Instruction	3.00 (n = 2)
Using Technology for Summative Assessment	5.00 (n = 1)
Utilizing Technology for Response to Intervention	5.00 (n = 1)
Utilizing Technology for Educator Collaboration	4.00 (n = 1)
Utilizing Technology for Instructional Purposes (Organize, Present Lesson Plans)	5.00 (n = 3)
Utilizing Technology to Take Notes and Review Material	4.50 (n = 2)

When teachers were asked to report instructional strategies that have been effective in their classroom, the majority of teachers reported instructional techniques as opposed to tools such as OneNote, Schoology and Kahoot that were reported last year. This provides evidence of a shift in the way that teachers are thinking about how technology can be used to support instruction.

Teachers were asked to self-assess using the rubric on the year-end survey and leaders (principals) were asked to complete the rubric "thinking about their TechSmart teachers as a whole" following their leadership interview in the spring. The leadership rubric was completed by three principals in RSD.

Table 9 presents results from the rubric designed to rate the use of technology to support instruction. Aggregate teacher self-ratings for the rubric as well as the aggregate ratings from three RSD principals who provided ratings thinking about "TechSmart teachers as a whole" are presented below. Cohort 1 and Cohort 2 teachers rated themselves highest in the areas of using technology to support engaging students in learning and using technology to support planning and preparation. The principals rated teachers highest in using technology to support managing classroom procedures, organizing physical space, and communicating with students.

Table 9. Technology Used for Supporting Instructional Practices (1 = Not at all, 2 = Very Little, 3 = Somewhat, 4 = To a Great Extent)

	Teacher Survey: Cohort 1 (n = 6)	Teacher Survey: Cohort 2 (n = 12)	Leadership Rubric Survey (n = 3)
Planning and Preparation	3.33	3.92	3.67
Managing Classroom Procedures	3.17	2.92	4.00
Organizing Physical Space	2.83	2.50	4.00
Communicating with Students	2.67	3.17	4.00
Using Questioning and Discussion Techniques	2.50	2.83	3.67
Engaging Students in Learning	3.50	3.42	3.67
Using Assessment in Instruction	3.17	3.00	3.67
Demonstrating Flexibility and Responsiveness	3.00	3.09	3.67

In the rubric, principals provided specific examples of how teachers are using technology to support new instructional practices in these areas. For example, one principal noted how a teacher is using technology to support communication with students and student engagement:

> *"Teachers are using OneNote to give immediate feedback to students about their work. They are also using Schoology as a learning management system posting assignments and activities to flip the classroom. More activities can be done at home prior to the lesson at school improving instruction and engagement."*

Another principal commented on how teachers can provide students with real-time feedback and to differentiate instruction using the technology: "Teachers can give very 'real-time' responses to student questions by having the capacity to project their work onto the Short Throw Projector; additionally, the ability to differentiate work is greatly enhanced via access to very specific software."

Principals also commented on how teachers have used technology to support instruction for at-risk subgroups (i.e., students of color, ELL, SPED, and low SES) in these areas of instruction. All three principals commented on the fact that teachers can differentiate instruction for at-risk subgroups using the

technology as highlighted by one principal, "It is clear that the degree to which a teacher can differentiate is greatly enhanced via technology." Another principal echoed this comment:

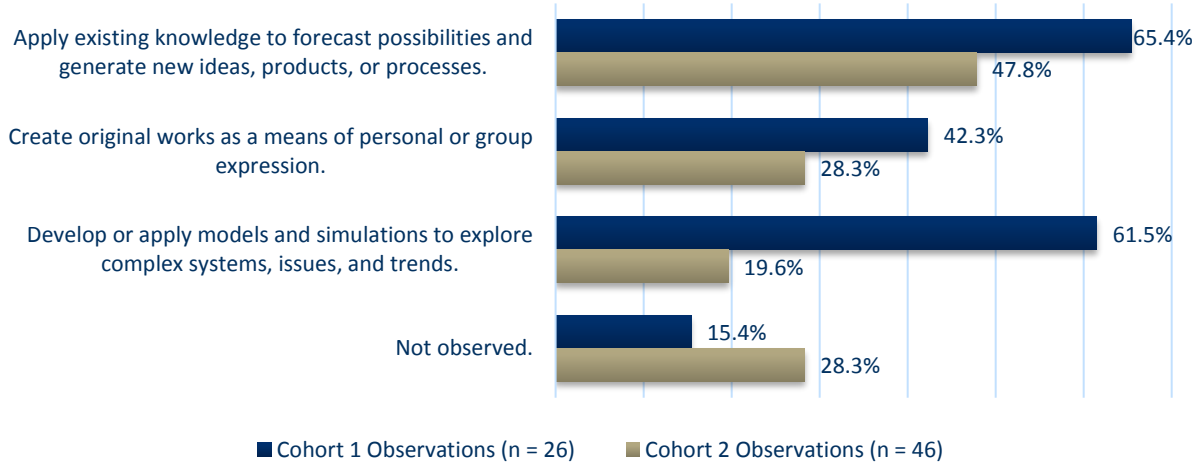
> *"Teachers can differentiate instruction through the use of OneNote and other multimedia activities online. They can also create stations in a classroom to assist different styles and levels of learners to facilitate individual learning and growth."*

Reynolds Walk-through Data

Content from the RSD specific walk-through tool that is relevant to this evaluation is presented below by cohort. Observers were asked to mark all that apply when conducting the observation and if none of the items were observed during a classroom visit, they marked "not observed".

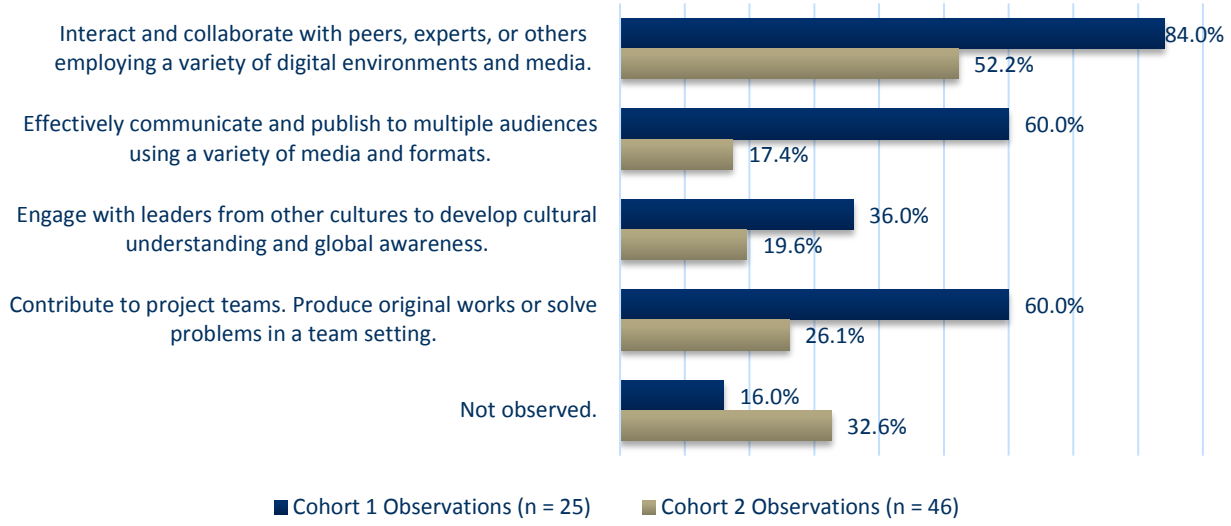
Observers were first asked to report whether there was evidence of educational technology use within the classrooms and 100% reported 'yes' for both Cohort 1 and Cohort 2. Overall, results from these observations of student behavior provide evidence that the Cohort 1 teachers are further along in their instructional change process, as evidenced by Cohort 2 students being observed using technology in the classroom less frequently. For example, 84.0% of Cohort 1 classrooms and 52.2% of Cohort 2 classrooms had students interacting and collaborating with peers, experts, or others employing a variety of digital environments and media. Similarly, observers recorded whether they saw students select and apply digital tools to gather, evaluate, validate, and use information. Observers noted this more often in Cohort 1 teachers' classrooms than in Cohort 2 teachers' classrooms. This was actually the area with the highest percent of non-observable ratings for Cohort 2 (42.6%). Finally, observers noted whether students appeared to understand ethical issues related to digital technology. Sixty-five percent (65.4%) of students in Cohort 1 classrooms and 31.9% of students in Cohort 2 classrooms showed evidence of advocating and practicing safe, legal, and responsible use of information and digital technology. Figures 9-14 below provide a detailed summary of observation data by cohort.

Figure 9. Students Demonstrate Creative Thinking and Problem Solving Skills in Mathematics to Innovative Products and Processes Using (Digital) Technology



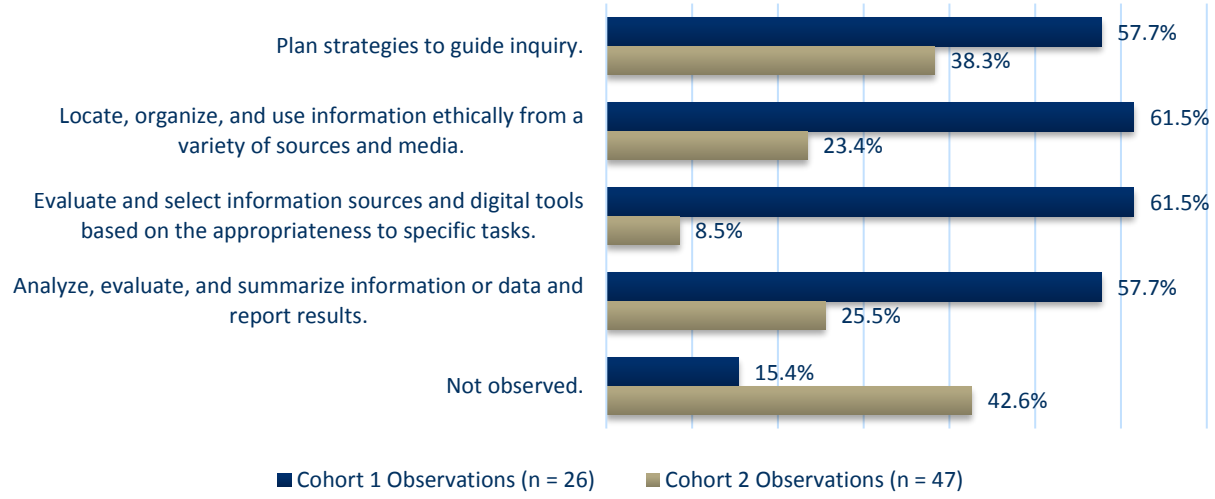
*Observers were asked to check all that apply

Figure 10. Students use Digital Media and Environments to Communicate and Work Collaboratively, Across the Global Community, to Support Individual Learning and Contribute to the Learning of Others



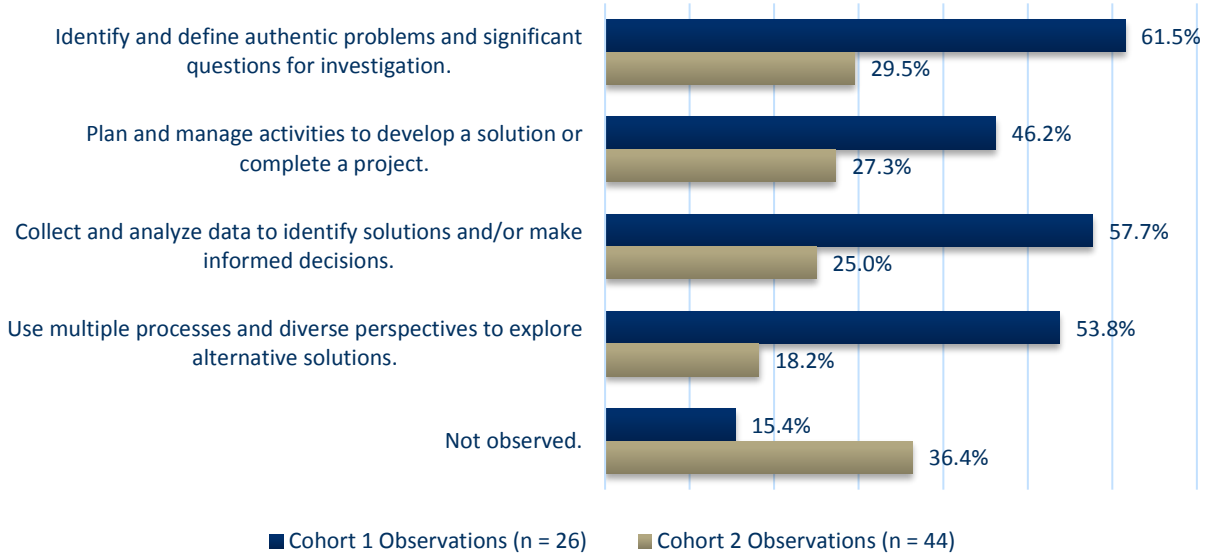
*Observers were asked to check all that apply

Figure 11. Students Select and Apply Digital Tools to Gather, Evaluate, Validate, and Use Information



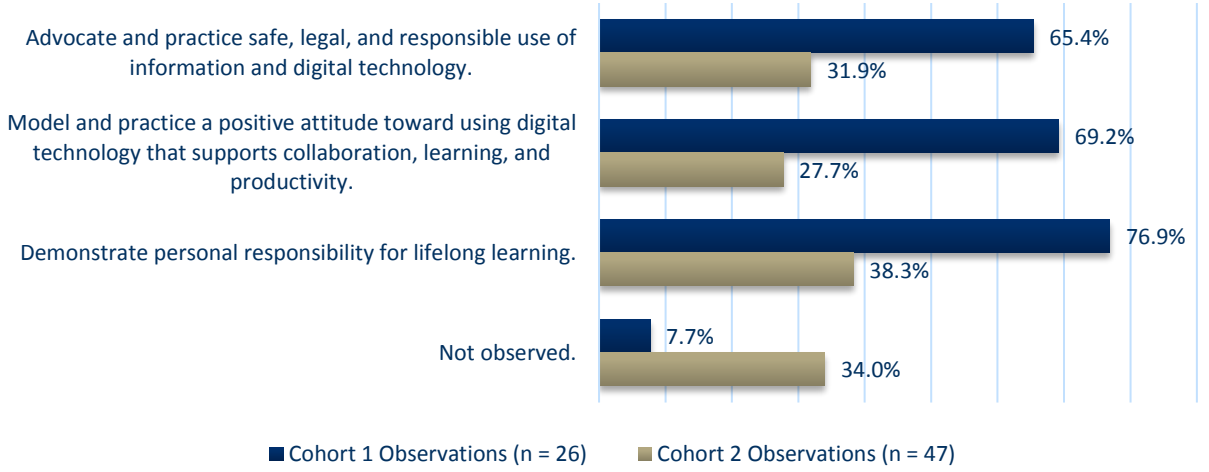
*Observers were asked to check all that apply

Figure 12. Students Use Critical Thinking Skills to Plan and Conduct Research, Manage Projects, Solve Problems, and Make Informed Decisions Using Appropriate Digital Tools and Resources



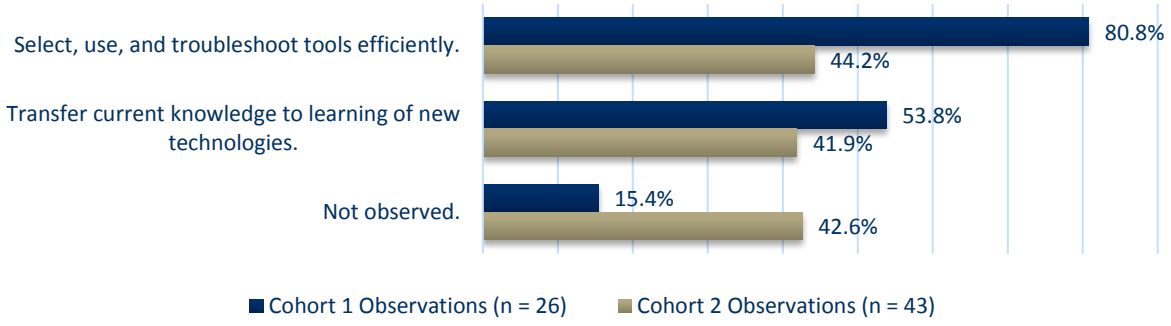
*Observers were asked to check all that apply

Figure 13. Students Understand Issues Related to Digital Technology and Practice Legal, Ethical, and Responsible Behavior



*Observers were asked to check all that apply

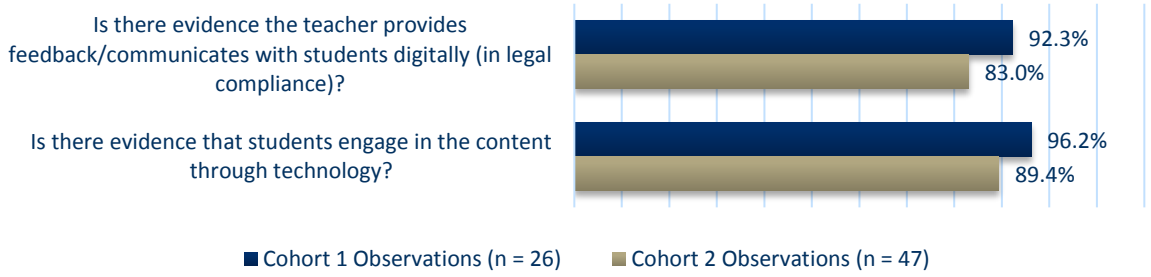
Figure 14. Students Utilize Technology Concepts and Tools to Learn



*Observers were asked to check all that apply

In terms of the teachers' instruction, observers reported that 92.3% of Cohort 1 and 83.0% of Cohort 2 teachers are providing feedback and communicating with students digitally. Similarly, 96.2% of Cohort 1 and 89.4% of Cohort 2 teachers have students engaging in content through technology (see Figure 15).

Figure 15. Reynolds Evidence Teachers Provide Feedback and Students Engage in Content through Technology (% responding "Yes")



Observers recorded specific digital tools being used in the classroom by students. In both cohorts, the tool most commonly noted was the projector, followed by student computers. Cohort 1 students also showed evidence of using Schoology (72.0%), mobile devices (60.0%), OneNote (60.0%) and the active stylus (60.0%). Beyond the project and student computers, Cohort 2 students were most commonly observed using Schoology (36.4%), Mobile Devices (27.3%), and OneDrive (18.2%).

Table 10. There is Evidence that the Following is Used in the Classroom by Students

Digital Tool	Cohort 1 Observations (n = 25)	Cohort 2 Observations (n = 44)
Projector	92.0%	75%
Student Computers (Dell Venue Pro 10)	96.0%	75%
Schoology	72.0%	36.4%
Mobile Devices	60.0%	27.3%
OneNote	60.0%	20.5%
Student Use of Active Stylus	60.0%	11.4%

Digital Tool	Cohort 1 Observations (n = 25)	Cohort 2 Observations (n = 44)
Online Video Lessons (Khan Academy, Discovery Ed, Teachertube, etc.)	44.0%	9.1%
OneDrive (Cloud Storage)	40.0%	18.2%
Online/Digital Collaboration	32.0%	6.8%
Survey/Polling Apps and Websites (Socrative, etc.)	16.0%	2.3%
Word	8.0%	2.3%
Other (Weebly, myhrw.com, Desmos)	8.0%	2.3%
Excel	4.0%	0.0%

Observations showed similar results for the digital tools being used by teachers as shown in Table 11 below. Projectors were used by 100% of teachers in both cohorts. Student computers, teacher computers, and Schoology were the next most commonly observed technology for Cohort 1 and Cohort 2 teachers.

Table 11. There is Evidence that the Following is Used in the Classrooms by Teachers

	Cohort 1 Observations (n = 26)	Cohort 2 Observations (n = 47)
Projector	100.0%	100.0%
Student Computers (Dell Venue Pro 10)	92.3%	68.1%
Teacher Computers (Surface Pro 3)	88.5%	80.9%
Schoology	69.2%	42.6%
Student Use of Active Stylus	57.7%	12.8%
Mobile Devices	46.2%	25.5%
OneDrive (Cloud Storage)	46.2%	25.5%
OneNote	46.2%	23.4%
Online/Digital Collaboration	42.3%	2.1%
Online Video Lessons (Khan Academy, Discovery Ed, Teachertube, etc.)	38.5%	14.9%
Survey/Polling Apps and Website (Socrative, etc.)	15.4%	0.0%
Word	11.5%	4.3%
Other (Weebly & myhrw.com)	7.7%	0.0%
Excel	7.7%	2.1%

Teachers who were interviewed discussed some of the barriers to using technology for instructional purposes, including finding the time to learn how to implement new activities, as described by one teacher, “I think the biggest barrier is just time. I hear about good activities from others and I would love to integrate some of them, but I don’t have time to actually meet to do that. So that’s always frustrating to feel like there’s just not time to really focus, get introduced to something and then implement it.” Another Cohort 2 teacher brought up the difficulty of monitoring students on the technology and suggested that the district invest in monitoring software: “One of the things that was remarkably effective at my last position was we had monitoring software. Here you have to pretty much walk around and you're constantly having to tell kids to get back on task. So that's something that we've got to figure out.” A few Cohort 1 teachers also commented on the fact that students do not have access to technology outside of the classroom. One teacher noted,

"Some students have difficulty accessing the internet and technology outside the school. It might be they have to go to a library or somebody else's house to get to a computer. So, I found that I'm careful about how I make assignments outside of the class so that I make sure they're accessible to everybody. So, that's the only barrier I can think of."

The year-end status report described in detail how the district is working to overcome this barrier of student access to technology, and teachers brainstormed to develop possible solutions for students who don't have access to a computer at home. These solutions are listed below:

- Ask students if they have a phone or tablet that can get on Wi-Fi (knowing that the majority of our students do). The technology that we have chosen to use in the district is platform agnostic, so that any device capable of accessing the internet is able to support school work.
- Remind students that they can go to the public library. Many have expressed they take their younger siblings to the local library a few times a week after school, as it is a safe place for them to play.
- Ask students if they have a room at their apartments with computers they can use. Many low-income apartments in the area do have this, students just don't make the connection that this is a solution without a reminder.
- Ask students if they ever borrow Wi-Fi from their neighbors on their phone, or an old phone that doesn't have data service, or a tablet.

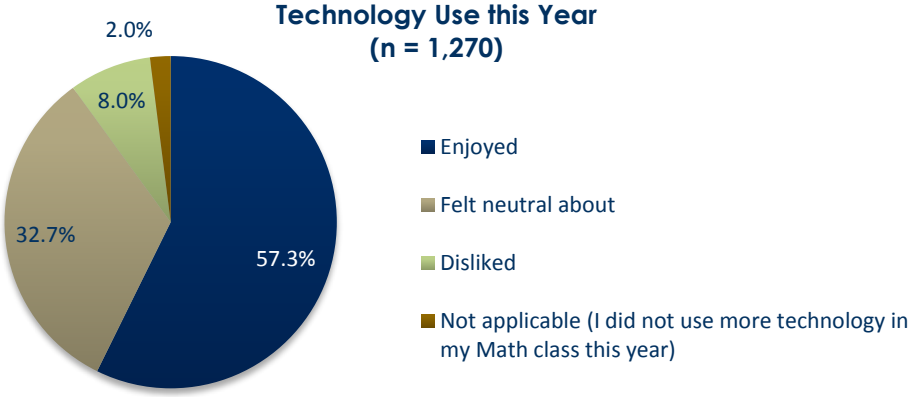
Summary: What new instructional strategies are teachers reporting?

After two years of implementation, teachers are reporting the use of several devices and applications to support instruction and most commonly report using technology to support classroom planning and preparation and to engage students. Evaluation results also show that instructional strategies are emerging at RSD. The most common instructional strategy noted by both Cohort 1 and Cohort 2 teachers is the use of technology to differentiate instruction. Teachers also commented on the use of tools like OneNote and Schoology to communicate with students and given immediate feedback.

How are the new instructional strategies impacting student engagement?

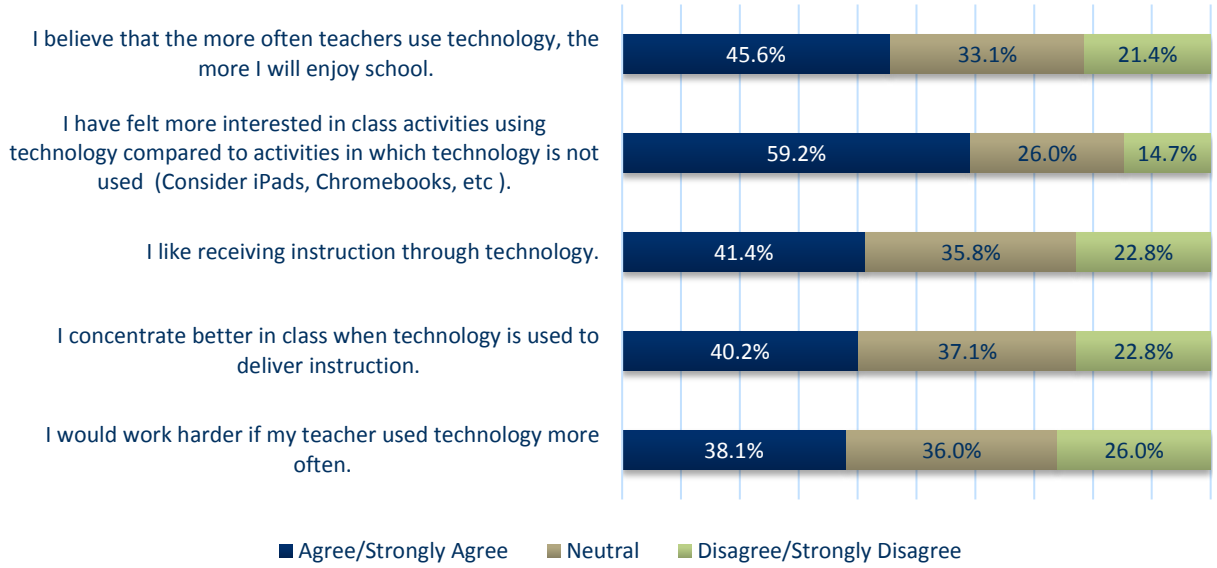
On the survey, students rated the effect of technology on their classroom engagement. Figure 16 illustrates over half of students (57.3%) enjoyed using more technology in their math class in the SY 16-17 which is a slight decrease from the SY 15-16 evaluation (64.1%).

Figure 16. Reynolds School District Students' Feelings about Technology Use this Year (n = 1,270)



For the most part, students were either positive or neutral about the impact of technology on their enjoyment and interest in classroom activities, as shown in Figure 17. Similar to the student responses from the SY 15-16 survey, nearly half of survey respondents reported that the more technology was used, the more they enjoyed school (45.6%), and 59.2% indicated that they have felt more interested in class activities using technology.

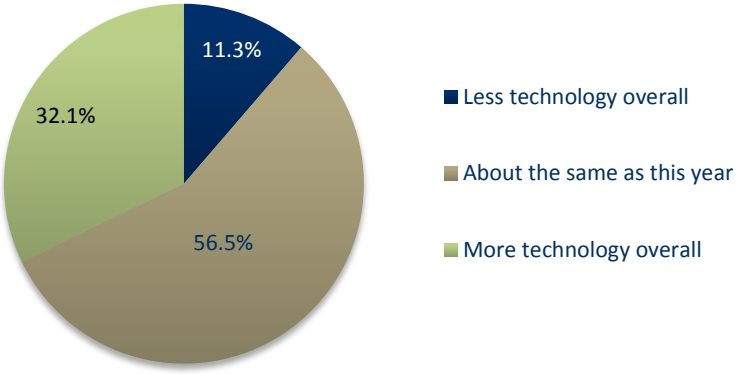
Figure 17. Reynolds School District Student Engagement (n = 1,270)



More than half of students (56.5%) indicated they would like to see the same amount of technology use in the classroom in the coming year, which provides evidence of student satisfaction with the technology integration in math classes (see Figure 18). About a third of students (32.1%) reported that they would like to see more technology use in the coming year. One student commented, "I hope my teacher would use technology for large groups as it would help me learn. There would be more than one person in the discussion so we're seeing multiple approaches to one problem." Another student commented on how a

specific application aids in learning: "I wish teachers would use more Kahoot because it helps me learn more things."

Figure 18. Reynolds School District Students' Desire for Technology Use Next Year (n = 1,270)



Students described whether their opinions had changed with regard to teachers incorporating more technology into their lessons. Students' opinions were primarily positive, and their comments described how they perceive technology as more enjoyable and interesting. Additionally, technology has been helpful in the areas of learning, focusing, working on assignments, and aiding in differentiation. Table 12. provides a sample of comments related to these five themes.

Table 12. Reynolds Students' Positive Opinions of Technology Integration

Theme	Sample Quotes
Technology is enjoyable/interesting (n = 185)	• *"It has been more fun and I enjoy it more."* • *"I think that it is more fun using technology in math."*
Helpful for learning (n = 137)	• *"Trying new types of technology really has helped me learn."* • *"Technology has really helped me learn new things. I get excited every time we do an activity that involves technology."*
Helpful for focusing (n = 30)	• *"The technology actually helped me become more focused in class."* • *"I feel like there were more students who were focused in class and paid attention."*
Helpful with work/assignments (n = 19)	• *"My opinions have changed because I thought my math assignments needed to be done on paper, but I was wrong. Now I can do almost all of my homework from anywhere and I can turn it in to be graded."* • *"It changed the fact that we finished our work faster because we are able to turn things in with the device."*
Helpful for differentiation (n = 8)	• *"My opinion has changed. Teachers help us more by focusing on each one of us and solving it at our own speed."*

Theme	Sample Quotes
	• *"I feel that technology does a better job at explaining things. Mostly because the explanation can be changed on the different needs of children."*

Several students expressed negative opinions regarding the technology integration. Specifically, the majority of students (n = 53) who expressed negative opinions reported preferring the previous mode of instruction (i.e., being physically helped by a teacher and using paper and pencil to take notes and complete assignments). Additional themes included distraction arising from the technology integration, a difficult time using the technology, and having a lack of resources. Table 13 provides a sample of comments related to these four themes.

Table 13. Reynolds Student's Negative Opinions of Technology Integration

Theme	Sample Quotes
Prefer previous mode of instruction (n = 53)	• *"I don't like all the technology they used this year. My opinion is that paper and pencil is a lot better."* • *"I think with the technology some of the physical teaching in front of a class has gone down, which is how I learn. We didn't get as much of that this year. Technology is helpful but I don't think it should replace teaching."*
Distraction (n = 31)	• *"I only like when my teacher is using technology to teach. I dislike technology when we use it because some people go off task and look at other websites."* • *"It's even more of a distracting environment. Before kids would use paper and pencil to pass notes with their friends but now they use technology. People are being cyber bullied."*
Difficult time using (n = 14)	• *"Sometimes technology gets confusing and then we fall behind and then are afraid to ask for help."* • *"My opinion is technology is kind of annoying because we had a lot of problems with the Wi-Fi."*
Lack of access to technology (n = 8)	• *"I think we should use less technology because some students don't have computers at home."* • *"I like it because you can go at your own pace or any pace you want. I just don't like it because I don't have access to technology every day. If my teacher does post a video and I can't watch it, then I'm going to be behind the next day."*

Similar to the SY 15-16 evaluation, student engagement was one of the most significant areas of impact that teachers and district leaders identified. In teacher interviews, they described how students are able to work at their own pace which provides them with a sense of autonomy and engages students in learning, as a Cohort 1 teacher mentioned, "Within my classroom I really focused on fostering three things within my students: their sense of autonomy, a sense of mastery, and a sense of purpose." A teacher gave an

example of how they are using flipped lessons to engage students in this way. In a flipped lesson, the teacher pre-records direct instruction such as a video lecture and students are able to engage with that content at their own pace. This Cohort 2 teacher commented:

> *"When I do a flipped lesson, kids who typically struggle with taking notes at my pace are totally engaged. They are able to stop the video and go at their own pace and they ask better questions, questions that blow my mind. As a whole, when I use technology for some part of the lesson, they are way more engaged and way more focused."*

Another teacher touched on the idea of a hybrid approach to using technology: "I do kind of a hybrid model. Sometimes I will do paper/pencil activities, and if I can think of an activity that will get the point across using technology, then I'll definitely create it. I find that when the students get the technology, they are more engaged."

The RSD leadership echoed the impact of the technology on student engagement. The high school assistant principal commented on how teachers' ability to give students more immediate feedback (an instructional practice that was not possible before the use of technology) has been engaging for students: "Our kids are much more engaged. It's incredible. We are using OneNote where the kids have Notebooks and the teachers are able to go into every student's notebook and provide that instant feedback, write notes, etc. That has been real important." The middle school principal echoed the importance of using technology for this generation of students: "Our kids have been and are growing up in a technology-rich world. Technology, if for no other benefit, is engaging kids, period. I think of my own three kids and just how their brains are wired differently than my wife or myself. And the engagement piece is huge."

Summary: How are the new instructional strategies impacting student engagement?

Results from the SY 16-17 evaluation provide evidence that the technology supported instruction is impacting student engagement. Student survey results showed that 185 students commented that technology supported instruction is fun or interesting and 137 students commented that it has been helpful for learning.

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

The Reynolds TechSmart grant focuses on improving student achievement in Math (as measured by 8th grade math state assessment and math credit attainment), 9th grade credit attainment, and English learners' progress. To explore whether instructional practices are showing promise for improving students' credit attainment, PRE examined math and overall credit attainment for the Treatment and historical Comparison Groups. Sixth grade credit attainment data were not available for the historical Comparison Group due to a change in the student information system at the end of the 2011-12 school year. Although 6th grade credit data were not available for the historical Comparison Group, Table 14 shows that Cohort 1 TechSmart students had significantly higher math credit attainment in 7th grade, t (901) = 9.27, p <.01 than the historical Comparison Group, and also had significantly higher cumulative math credits by the end of 7th grade, t (901) = 11.91, p <.01. This provides evidence that the new instructional strategies are showing promise for improving academic outcomes.

Table 14. Math Credit Attainment

Math Credits				
	Cohort 1		Historical Comparison Group	
	Attained	Cumulative	Attained	Cumulative
6h Grade	1.07 (n = 163)	1.07 (n = 163)	N/A	N/A
7th Grade	.921* (n = 149)	1.98* (n = 149)	.564 (n = 754)	1.47 (n = 754)
8th Grade			.95 (n = 666)	2.75 (n = 666)
9th Grade			.58 (n = 465)	1.02 (n = 465)

* Indicates a significant different

Similar to math credit attainment, Table 15 shows that Cohort 1 TechSmart students earned a significantly higher number of credits than the historical Comparison Group in 7th grade, t (901) = 8.76, p <.01.

Table 15. Overall Credit Attainment

Overall Credits				
	Cohort 1		Historical Comparison Group	
	Attained	Cumulative	Attained	Cumulative
6h Grade	5.58 (n = 132*)	5.58 (n = 132)	N/A	N/A
7th Grade	5.30** (n = 149)	10.85(n = 149)	4.12 (n = 754)	10.39 (n = 754)
8th Grade			6.69 (n = 666)	19.34 (n = 666)
9th Grade			5.28 (n = 465)	5.50 (n = 465)

*****Overall credit data were missing for 31 Cohort 1 students in 6th grade
**Indicates a significant difference

In addition to the student achievement data presented above, subjective data regarding the impact of technology on learning gathered from the student survey is presented below. The majority of students reported that technology had a neutral or positive impact on their learning. Slightly fewer than half of students reported that technology helped them learn more (46.3%) which was a decrease from 52.9% in the SY 15-16 evaluation. Only 6.9% of students reported that technology slowed their learning.

Figure 19. Reynolds School District - Effects of Technology on Learning (n = 1,270)

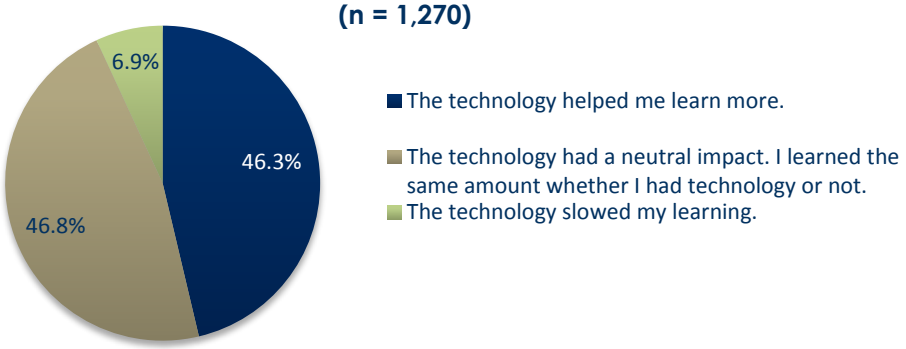
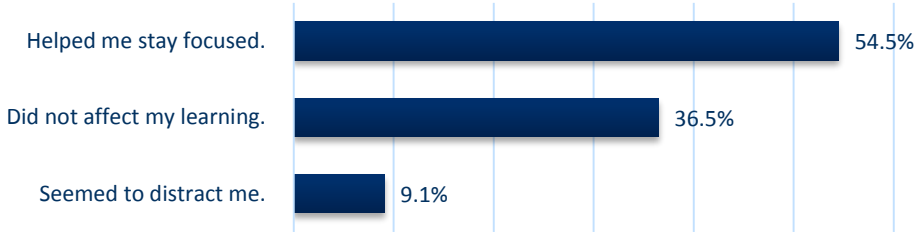


Figure 20 displays student responses regarding their experience with new technology in the classroom in Year 2 of the grant, and shows that 54.5% of students believed that technology positively affected their

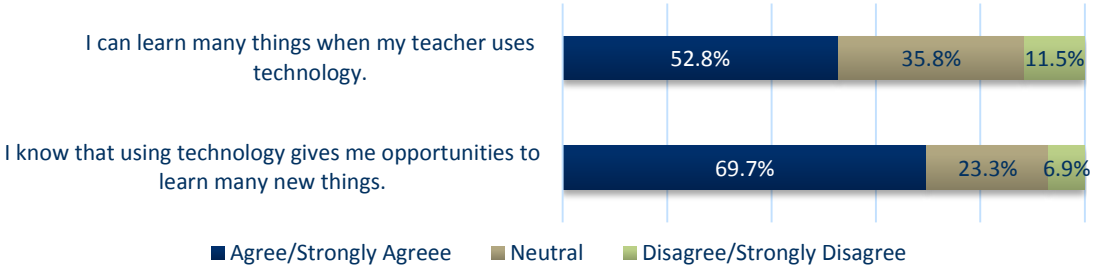
learning by helping them stay focused, as noted by one student, "I wish they would use computers more often because it keeps me focused." Fewer than 10% of students reported that the technology seemed to distract them (9.1%).

Figure 20. Reynolds School District - Impact of Technology on Classroom Focus (n = 1,270)



Slightly more than half the students reported that they can learn many things when their teachers use technology (52.8%). Additionally, 69.7% of students reported knowing that using technology provides opportunities to learn new things. These responses were similar to the SY 15-16 evaluation.

Figure 21. Reynolds School District Students' Perceptions of Technology Use in Instruction (n = 1,270)



Teachers who were interviewed commented on the promise for improving student academic outcomes through the use of technology supported instruction. Although teachers noted that it is hard to pinpoint the specific reason for student growth, one Cohort 1 teacher acknowledged the fact that the technology is making students more comfortable for state testing:

> *"My students who were comfortable with technology and working with computers had the greatest growth within the school on the state test last year. They showed about a year and a half's worth of growth over the course of the year. They can't attribute all of that to the technology, but I can certainly attest that the technology helped with the level of comfort, the feeling of mastery, and feeling they can be successful when it came time to working on that state test."*

Cohort 2 teachers also commented on the promise for improving student outcomes. One teacher suggested that students are putting more effort into their school work as a result of the technology: "I am not able to see actual academic outcomes. What I am seeing is that kids are more willing to do work.

They say things like, 'I can check the notes when I get home,' or, 'are the notes going to be online?'" Another Cohort 2 teacher mentioned gains in her classroom: "Yes. I think most of the kids are making gains. We can see it in their remediation programs where their background knowledge is advancing really rapidly. It's visible and you can see it from week to week. Many are also able to do homework without help." One middle school principal commented on how technology is breaking down a barrier often faced by reluctant math learners:

"Thus far, pre-grades on Smarter Balanced test are showing a pretty big jump on scores. For sixth grade, if we look at where they started, we're talking about a 28 percent increase. There is a stereotype of the reluctant learner related to the fear and inaccessibility of math. I feel like with one-to-one technology, which is what we're talking about, it breaks down that barrier."

Summary: Are the new instructional practices showing promise for improving academic outcomes?

The SY 16-17 evaluation provides evidence that the new instructional strategies are showing promise for improving academic outcomes. Cohort 1 TechSmart students had significantly higher math credit attainment in 7th grade and significantly higher cumulative math credits than the historical Comparison Group. Further, 46.3% of student survey respondents reported technology is helping them learn more.

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

In order to gain insight into whether instructional practices are showing promise for improving academic outcomes with at-risk student subgroups, math credit attainment was examined by subgroup for treatment and comparison group students. The table below presents 7th grade math credit attainment data for Cohort 1 and the historical Cohort as well as the four at-risk subgroups for each cohort. For average math credits attained during 7th grade, after two years of implementation, Cohort 1 students were showing higher math credit attainment across all subgroups relative to the historical Comparison Group. An independent samples t-test revealed that this difference was significant for the LEP (ELL) subgroup, t (315) = 11.32, p <.01, the economically disadvantaged subgroup, t (732) = 11.69, p <.01 and students of color t (583) = 11.01, p <.01. Similarly, for average cumulative math credits, Cohort 1 students were showing higher averages across subgroups than the historical Comparison Group. An independent samples t-test revealed that this difference was significant for the LEP subgroup, t (315) = 9.50, p <.01, the economically disadvantaged subgroup, t (732) = 9.11, p <.01 and students of color, t (583) = 7.73, p <.01. These results are promising and provide preliminary evidence that instructional practices are improving academic outcomes with at-risk student subgroups.

Figure 16. 7th Grade Math Credit Attainment for Treatment and Comparison At-Risk Subgroups

	Cohort 1		Historical Comparison Group	
	Average Math Credits Attained	Average Cumulative Math Credits	Average Math Credits Attained	Average Cumulative Math Credits
All Students	.921* (n = 149)	1.98 (n = 149)	.564 (n = 754)	1.47 (n = 754)
LEP Students	1.24* (n = 32)	2.52* (n = 32)	.54 (n = 285)	1.49 (n = 258)
SPED	.63 (n = 12)	1.40 (n = 12)	.52 (n = 139)	1.31 (n = 139)
Free/Reduced Lunch	.92* (n = 149)	1.98* (n = 149)	.55 (n = 585)	1.45 (n = 585)
Students of Color	.95* (n = 115)	2.01* (n = 115)	.55 (n = 470)	1.50 (n = 470)

*Indicates a significant difference

ELPA Assessment

Table 17 below presents the ELPA21 results for Cohort 1 students in 6th grade. In future years of the evaluation, we will be able to examine changes in ELPA21 proficiency levels across years in order to detect growth within the treatment cohorts. The scores presented in Table 17 are only descriptive in nature and do not assist in answering the evaluation question regarding whether new instructional practices are showing promise for improving student academic outcomes with at-risk student subgroups.

Table 17. ELPA21 Results (SY 15-16)

Proficiency Determination	Cohort 1 6th Grade (n = 34)
Emerging	--
Progressing	82.4% (n = 28)
Proficient	17.6% (n = 6)

In addition to the promising student achievement outcomes, several teachers provided examples of how technology supported instruction is showing promise for improving student academic outcomes for at-risk subgroups. A Cohort 2 teacher emphasized how the grant has provided access to all students including the at-risk subgroups and given him/her the opportunity to provide more individualized instruction to all students:

"When we first started school, I asked each student individually whether they have a device and access at home and100% said yes. I have flipped the classroom and I expect students to receive instruction from home and to work problems in class. Students all have the opportunity to receive the instruction at their own pace, to have me on repeat, and then to talk to me one-on-one during the extra class time that has been allocated away from instruction to problem-solve. This has been really good for my relationships with students, my ability to assess individuals, and their ability to ask me more individualized questions. All of this is really good news for at-risk subgroups. With technology, the fear at the beginning was imbalance due to wealth

but the effect of implementation has been to increase access for all students to both the content and to me."

Additional teacher comments related to technology supported instruction for at-risk subgroups are included in Table 18 below. Teachers commented on how they are using programs such as OneNote or IXL and also recording lessons so that students can engage with content at their own pace.

Table 18. Teachers' Use of Technology Supported Instruction with At-Risk Subgroups

"My entire class is mostly made of at-risk subgroups so my class plans are based on that fact. I am still expanding my repertoire of activities that are created to be responsive to the individual student, but I have easily linked information within lessons so that students who need it can find support immediately. IXL is not my favorite program, but it is easy for each student to practice math skills that they particularly need." (Cohort 2)
"We use technology to offer the students individualized instruction through online math programs. It also allows the students to research materials at all levels." (Cohort 2)
"When students are absent or just need to review what we did in class they can go to the content library in their OneNote and see my notes and worked out examples. I also sometimes post videos for students to view for extra help." (Cohort 2)
"Since the lessons are provided both in person, on video, and other methods where students can engage, the content is naturally differentiated." (Cohort 1)
"I have every lesson from the year recorded and archived so students can access them anywhere/anytime. They are required to take notes for 'homework' on these videos. I can spend more time in class targeting students who need further instruction, and they have become used to using each other as resources through collaborative assignments and tasks. I have a very technology dependent classroom, and it is a simple, yet effective method of organizing and maintaining balance in the room." (Cohort 1)
"Yeah, so, half of my day I teach a class called math support, which is kids that are struggling in math. So, for those kids, having the technology in the room means that if I get them set up on Kahn Academy or something like that, they could do individualized lessons. It also means that they can have access to notes. So, if their regular teacher is posting notes online, they can have access to that." (Cohort 1)

A couple of Cohort 1 teachers highlighted the importance of the resources technology provides to English Language Learners: "Our English Language Learners are able to access the curriculum a little better because of all the visual help the technology gives them." Another teacher echoed this:

"It allows the individual student to get the differentiated instruction that they need. This is true for English Language Learners who have access to so many more videos and resources and are able to pause the videos. It doesn't work to pause me when I'm trying to teach but they can pause a video. They can rewind and watch a little bit more of it and get that instruction that they need."

As noted previously, on the leadership rubric, principals commented on how teachers have used technology to support instruction for at-risk subgroups (students of color, ELL, SPED, low SES) in various areas of instruction. All three principals commented on the fact that teachers can differentiate

instruction for at-risk subgroups using the technology. Both the high school and a middle school principal commented on the use of technology to engage student subgroups:

> *"I think it kind of goes back to engagement. The more engaged they are the better they're going to do academically. For those kids, it can be a challenge to engage them. When you've got a skilled teacher who knows what they're doing with technology and is able to present it in a structured manner, you are able to hook them. Once they're hooked it's pretty powerful. And they've made a lot of progress."*

The grants and partnership administrator at RSD commented on how the TechSmart grant as a whole has brought capacity for teachers to refine instructional practices for subgroups, particularly second language learners: "The TechSmart Initiative has brought the capacity for teachers to, by grade level or by building and other different combinations, come together to test and explore new ways of leading instruction. They are reforming their practice to accommodate, specifically, the second language learner… populations within their classes." The year-end status report also provided a unique example of how the technology has been able to support migrant students to complete course work and final exams from their home country:

"An example of this supports the engagement of migrant students whose families move back and forth between their home country and Multnomah County. Typically, the displacement of students mid-semester results in the students earning no credit for their progress toward standards and course completion. In May and June of this reporting period, students moved back to Mexico and Eastern Europe. Through Schoology, TechSmart students in 9th grade completed their classwork and final exams in their home country. The opportunity for students to earn credit has significant consequences for their capacity to remain on track to graduate upon their return to Reynolds or another US-based high school."

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

The results of the subgroup analysis are promising and provide preliminary evidence that instructional practices are improving academic outcomes for at-risk student subgroups. After two years of implementation, several at-risk subgroups within Cohort 1 were showing significantly higher math credit attainment and cumulative math credits in 7th grade relative to the historical Comparison Group, including students of color, LEP students, and those on Free and Reduced Lunch. Teachers also provided several contextual examples of how technology supported instruction is showing promise for improving student academic outcomes for at-risk subgroups.

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

PRE examined math credit attainment data to assess how student progress may differ for at-risk subgroups as compared to non-at-risk subgroups within Cohort 1. Results are presented below for Cohort 1 students at 6th and 7th grade.

As shown in Figure 22 below, LEP TechSmart students earned significantly more Math credits in 6th, t (161) = 2.95, p <.05, and 7th grade, t (147) = 4.93, p <.01, than non-LEP TechSmart students. This finding provides promising evidence of closing the achievement gap for LEP students.

Figure 22. Math Credit Attainment for LEP Subgroup

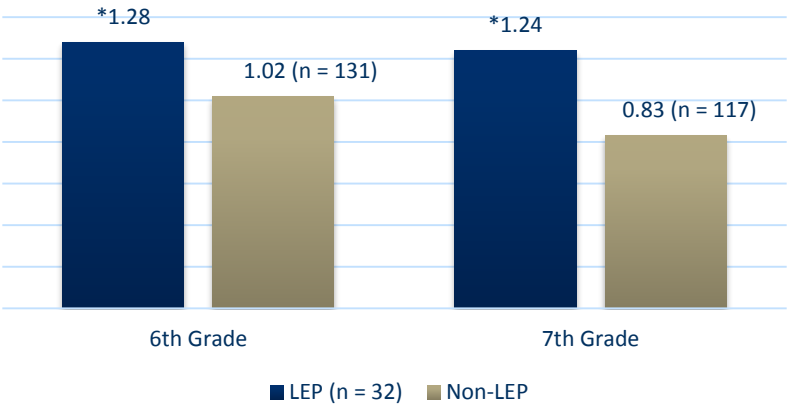


Figure 23 shows math credit attainment for SPED TechSmart students and non-SPED TechSmart students. In both 6th and 7th grade, non-SPED students earned a higher number of math credits on average.

Figure 23. Math Credit Attainment for SPED Subgroup

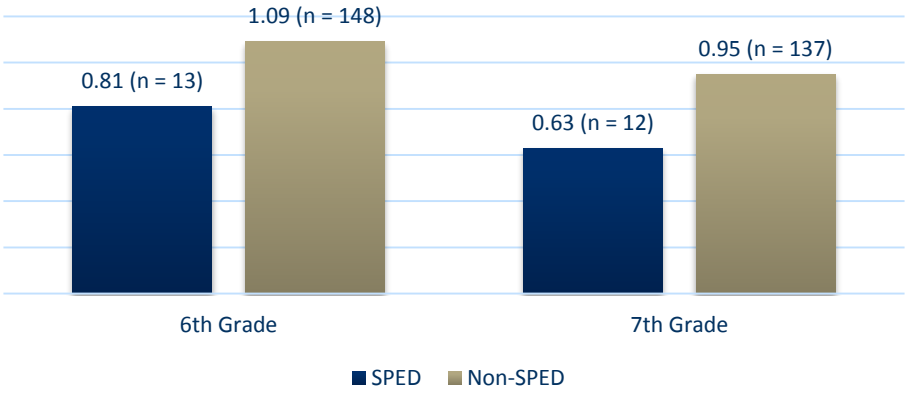
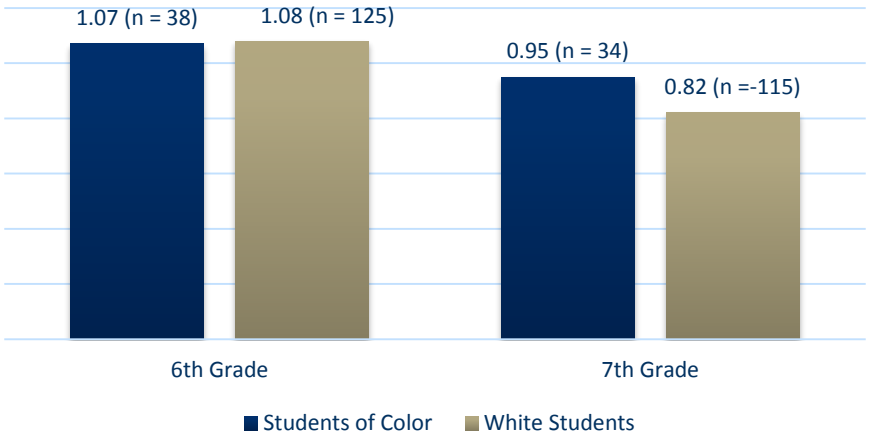


Figure 24 shows math credit attainment for TechSmart students of color and all other students in 6th and 7th grade. There were no significant differences between these two groups in 6th or 7th grade.

Figure 24. Math Credit Attainment for Students of Color



Finally, there were only two students in Cohort 1 who were not in the free/reduced lunch subgroup and as a result, comparisons were not made for this subgroup.

Summary: 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, special education (or those with an IEP) and those not on track to meet academic standards).

Upon examining math credit attainment within Cohort 1, there is promising evidence that the rate of 6th and 7th grade math credit attainment is significantly greater for LEP students than non LEP students. In addition, 7th grade math credit attainment is greater for students of color within the Cohort 1 Treatment Group. As we gain access to additional longitudinal data in future years, we will be able to examine the rate of growth over more time points.

Digital Age Learning Culture

Districts embrace a cultural shift and view technology as positive.

Has the use of technology to support instructional practices increased?

Figure 25 illustrates the frequency of technology integration at the beginning and end of the school year for Cohort 1 teachers. The frequency of teachers incorporating technology into lesson plans remained steady for Cohort 1 teachers, but the frequency of teachers using technology to deliver instruction and the frequency at which students worked in groups using technology decreased slightly over the course of the year. In contrast, the frequency with which teachers reported adapting an activity to individual students, and having students work with technology individually increased slightly over the course of the year. All of these results should be interpreted cautiously, however, due to the lower response rate for the Cohort 1 year-end teacher survey. The frequency of technology integration among Cohort 1 teachers is slightly lower than in the SY 15-16 evaluation across all items.

Figure 25. Frequency of Technology Integration Among RSD Cohort 1 Teachers (% responding "A moderate amount/A great deal")

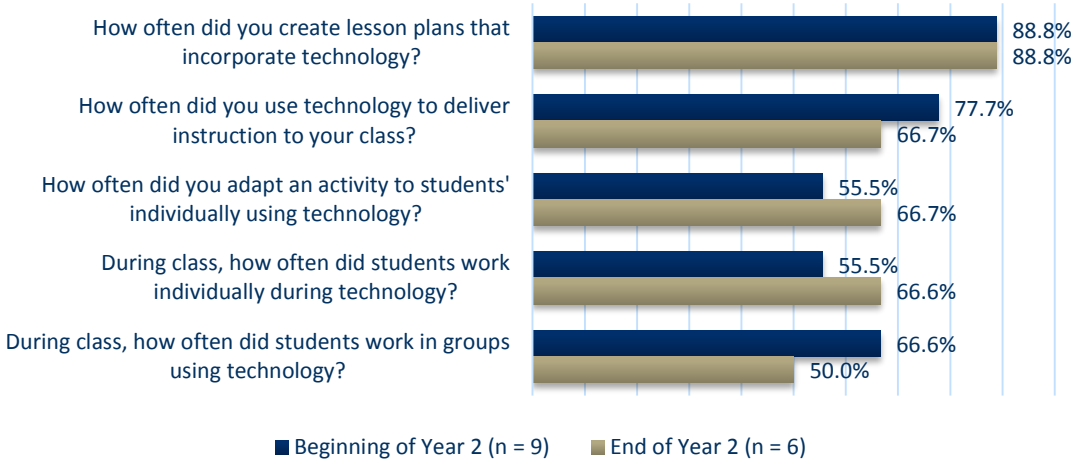
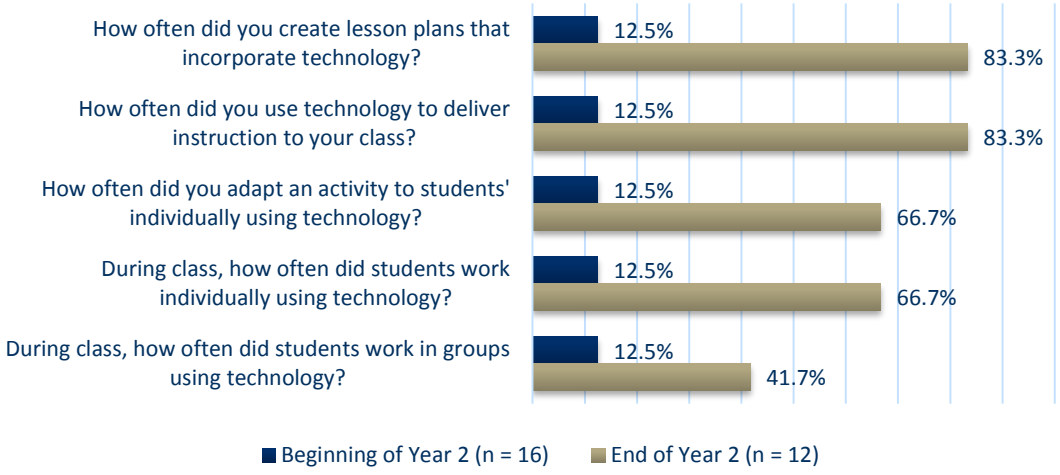


Figure 26 presents the frequency of technology integration for Cohort 2 teachers, and shows that this group of teachers increased their use of technology substantially over the course of the year. By the end of their first year of implementation, 83.3% of Cohort 2 teachers were creating lesson plans that incorporate technology, as well as using technology to deliver instruction “a moderate amount” or “a great deal” of the time.

Figure 26. Frequency of Technology Integration Among RSD Cohort 2 Teachers (% responding "A moderate amount/A great deal")



Summary: Has the use of technology to support instructional practices increased?

Teacher survey results provide evidence that the use of technology to support instruction increased from beginning to end of SY 16-17 for Cohort 2. The frequency of technology integration among Cohort 1 teachers is slightly lower than in the SY 15-16 evaluation across all survey items.

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

As reported in the SY 15-16 evaluation report, before the implementation of the grant, RSD piloted a free, limited version of Schoology and adopted it districtwide starting in the SY 15-16. The mid-year status report provided an update on the use of Schoology and noted that the use of the Schoology system continues to expand among the TechSmart teachers and instructional staff at large across the district. In the first half of the SY 16-17, more than 2.6 million page views had been conducted by Reynolds students and staff. From the TechSmart classrooms, there had been 52,535 submissions, 29,801 either student-to-student or student-to-teacher comments, and 34,455 total files uploaded from instructors. The year-end status report provided similar statistics regarding the use of Schoology. It was reported that as of May, 2017 257 Schoology had 18,492 users, 33,818 comments posted, and 57,453 files uploaded. It was also reported that 80,228 digital assignments were submitted and 257 Schoology groups had been created. The mid-year status report also provided an update on the use of Schoology to access formative assessments: "The transition to GO!Math and the work that staff are conducting to incorporate it into the Schoology system has temporarily stalled the capacity of students to access formative assessment tasks through the LMS until they are integrated across participating teachers. The goal is to move the common assessments for immediate student feedback to fall 2017."

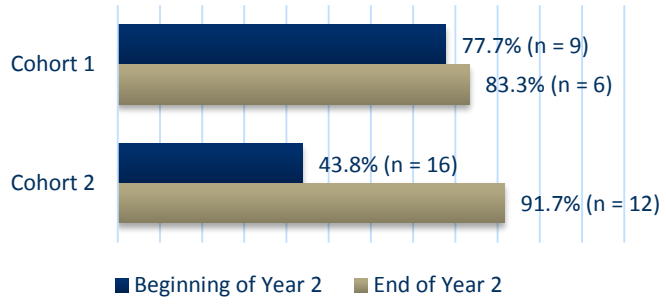
Summary: Is the learning management system useful for identifying effective instructional practices (more efficient, easier, data driven)?

Evaluation results show that the Schoology learning management system adopted by RSD has been useful for increasing student access to classroom resources and communicating with students.

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

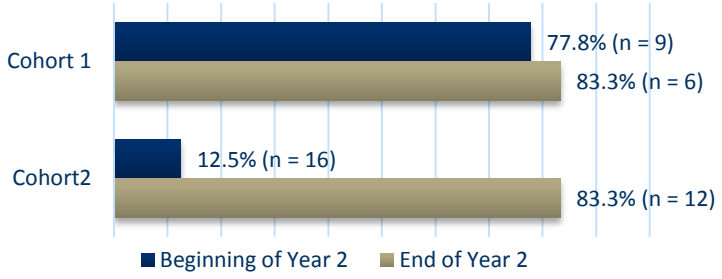
Math teachers reported an increase in access to and use of digital content and resources in their instruction. By the end of the SY 16-17, 83.3% of Cohort 1 teachers had used digital content and resources in their instruction, which is consistent with their rate of use at the end of their first year of implementation. Cohort 2 teachers showed a 48 percentage point increase with 91.7% of teachers reporting they use digital content and resources "a moderate amount" to "a great deal" of the time in their classrooms.

Figure 27. Use of Digital Content and Resources (% responding "A moderate amount/A great deal")



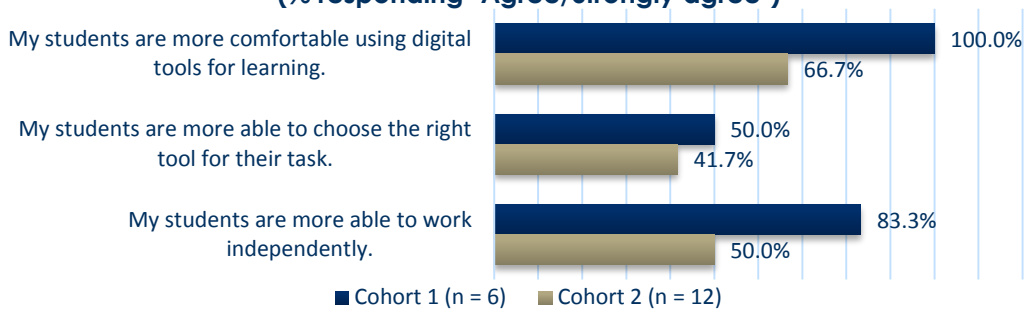
In terms of access to technology resources, Figure 28 shows that by the end of the year, 83% of Cohort 1 and Cohort 2 teachers reported that students have adequate access to these resources in their classrooms.

Figure 28. Students Have Adequate Access to Technology Resources in My Classroom (% responding "True of me/Very true of me")



Finally, teachers were asked to rate a series of statements comparing their current students to those during their previous year of teaching. As shown in Figure 29 below, 100% of Cohort 1 and 66.7% of Cohort 2 teachers indicated their current students are more comfortable using digital tools for learning.

Figure 29. Reynolds School District Year-End Student Technology (% responding "Agree/Strongly agree")



Teachers provided examples of digital content and resources that they have access to because of the TechSmart grant. Teachers highlighted their use of Desmos, Schoology, OneNote, and other online resources (see Table 19).

Table 19. Reynolds School District Teachers' Use of Digital Content

Digital Content	Teachers' Application of the Technology
Desmos	• "Students use desmos.com to graph and then interpret equations."
Schoology	• "Students use Schoology on our devices to access notes from class and to take short quizzes for formative assessments."
OneNote	• "I use OneNote every day in my classes. Students' assignments are posted on OneNote and can be completed and turned in that way. My notes and examples are all on OneNote for students to access."
Short-throw projector	• "I always use my short-throw projector. Now that it's finally set-up, I can show a PowerPoint presentation that includes text, pictures, videos, and examples to aid my lesson.
Computer/TV monitor	• "I use a blended/flipped classroom model. Students can be doing various things on any given day, and are taught to time manage and take responsibility for their learning. Also, I have group settings where students collaborate through a computer/TV monitor to accomplish assignments and other tasks."
Other online resources	• "Khan academy allows students to work at their own level and communicates progress to the students and teachers in a meaningful way."

Students had the opportunity to provide suggestions for devices that they wish their teachers would use. There was a strong desire from the students (n = 386) to have teachers use laptops rather than tablets. Students also expressed an interest in iPads as well as a desire to use their phones to access apps and complete assignments (see Table 20).

Table 20. Technology Students Wish Teachers Would Use

Theme	Sample Quotes
Laptops/Computers (n = 386)	• *"I wish teachers would use computers instead of tablets because on PowerPoint when you use a computer it does not mess up when you move a slide or try to make the picture bigger, but on tablets it messes up more."* • *"Teachers should use more laptops or computers because they help me with my homework and I can research things online. It's very useful."* • *"I like the computers rather than an iPad because it makes me feel more independent and helps me concentrate on what we are learning."*
iPads (n = 159)	• *"I think my teacher should have used iPads and not tablets. Only because the iPads are easier to use".* • *"I wish that we used iPads or tablets because it is easier to use. They should also come with an external keyboard".* • *"I wish my teachers used iPads because you can download more math-related content to help you."*
Phones (n = 95)	• *"I wish my teachers would let us use our phones and have laptops to record our notes. It would be much easier".* • *"I would rather use phones because even though people will slack off, it'd be easier to just pull it out of your pocket and search it up and put it away. We should keep our phones on our desk so the teacher knows you aren't off task using your phone."* • *"It would be cool if you can use your phones in class to do assignments and math games that can be helpful and improve your grades."*

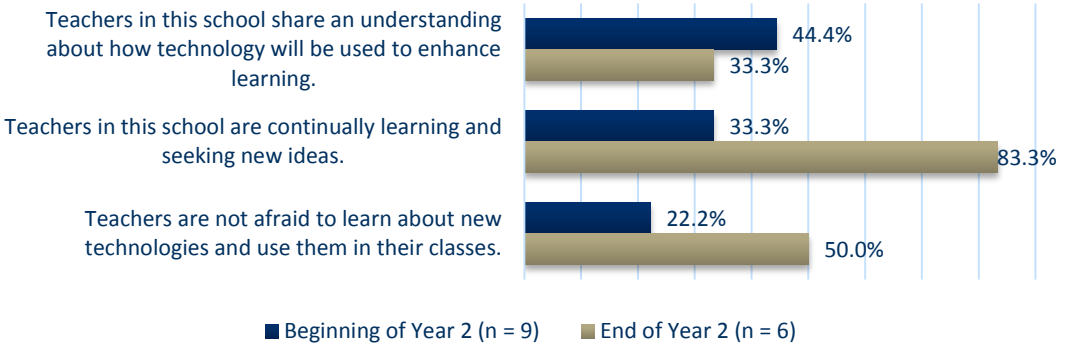
Summary: Do teachers have increased access to and use digital content and resources?

This report provides evidence that teachers have increased access to digital content and resources. More than 80% of Cohort 1 teachers had used digital content and resources in their instruction, which is consistent with their rate of use at the end of their first year of implementation. By the end of SY 16-17, 91.7% of Cohort 2 teachers reported they use digital content and resources "a moderate amount" to "a great deal" of the time in their classrooms. Teachers gave several examples of digital content being used including Desmos, Schoology, OneNote, and the short-throw projector.

Is there evidence of district wide support for technology integration?

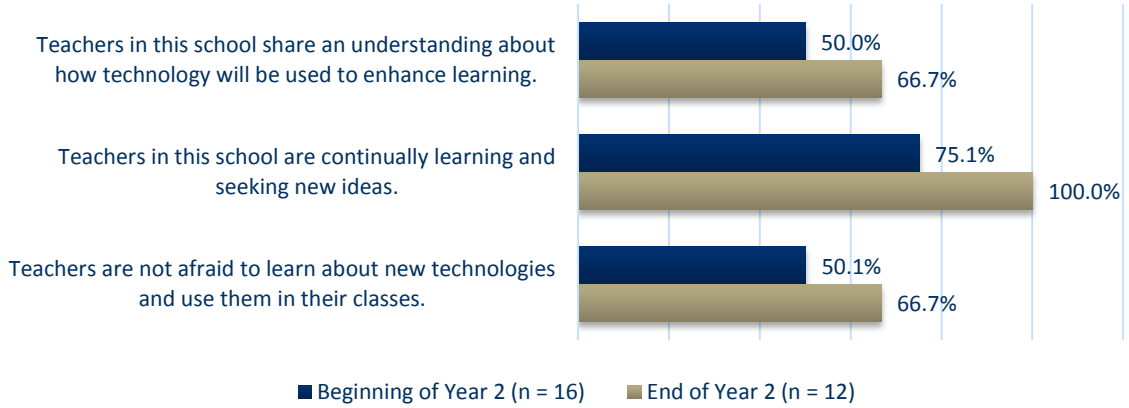
Consistent with the evaluation results from SY 15-16, the majority of Cohort 1 teachers do not believe that teachers in their schools share an understanding for how technology will be used to enhance learning. By the end of the year, the majority of Cohort 1 teachers did feel that fellow teachers are continually learning and seeking new ideas, although this is not specific to technology (see Figure 30).

Figure 30. Reynolds School District Teacher Perceptions of a Culture of Support for Technology Integration - Cohort 1 (% responding "Agree/Strongly agree")



Cohort 2 teachers reported higher perceptions of a culture of support for technology integration than Cohort 1 teachers as shown in Figure 31 below.

Figure 31. Reynolds School District Teacher Perceptions of a Culture of Support for Technology Integration - Cohort 2 (% responding "Agree/Strongly agree")



The mid-year status report provided examples of how RSD is creating a district wide culture of support for technology integration. Specifically, the district offered two days of PD for all teachers in the district (K-12) via the Pre-Instructional Conference (PIC) during the week before students returned to class. Teachers selected which sessions to attend and were required to participate in at least eight 90-minute sessions spread over two days. Sessions were taught by a variety of administrator and teacher specialists from within and outside the district. The following PIC sessions were led by Cohort 1 teachers to disseminate their learnings from participation in the TechSmart Initiative, and were attended by fellow teachers from all content areas and levels in the district:

- Finding the Right Tool for the Job
- Leveraging Technology for Formative Classroom Assessment
- Using Schoology to Link SBAC and IRLA
- OneDrive and Windows Basics

- Digital Citizenship
- Teaching your students use Digital Tools and Mobile Apps in Office365
- Flipped Classroom Basics
- Making it come to life -- 3D printing
- Mobile Apps for Office365"

According to the year-end status report, "TechSmart teachers are again scheduled to lead PD training sessions to their certified peers during the district wide Pre-Instructional Conference that is scheduled in late August, 2017." One administrator commented on other PD offered at RSD to support a culture of technology integration:

"We've done a lot of different trainings. We have kind of this, 'choose your own professional development' that we started doing in this district a couple of years ago. We'll have topics on OneNote, how to use Schoology, all kinds of different things. But the bulk have been around OneNote and Schoology because those are the two major things that they're using these Surface Pros with when giving instruction and they have been the two most beneficial."

The IT TOSA praised the building principals for being engaged in the technology integration: "All of the building principals are really supportive in that they encourage teachers to participate and provide time. One of the building principals at a middle school had additional funding left over so she paid for subs for all of the teachers in her 7th and 8th grade department which are all in the grant, to plan a date where they could share resources." Similarly, one building principal commented on the support they've received from the district office and said, "They have always been there to help us troubleshoot things and problem solve. I think they've been rock solid."

Summary: Is there evidence of districtwide support for technology integration?

There is not yet evidence of districtwide support for technology integration at RSD. Consistent with the evaluation results from SY 15-16, the majority of Cohort 1 teachers completing the survey do not believe that teachers in their schools share an understanding for how technology will be used to enhance learning. Agreement was higher for Cohort 2 teachers taking the survey (66.7%). As suggested last year, it is possible that this perceived lack of a culture of support for technology integration is related to the cohort model of technology integration as opposed to school-wide integration.

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

Some teachers provided examples of how they are utilizing the technology to engage with parents. Parents can access Schoology to keep up to date on what their student is doing in class or catch up on what was missed when he/she was absent. One Cohort 1 teacher commented, "Yes, I am using the technology to engage with parents a lot. Assuming they have access to a computer at home or at work, they're able to follow along with their student's progress to a greater extent than they've ever been able to."

One theme that emerged from teacher and leader interviews is making parents more aware of what is happening in the district with technology as highlighted by one building principal, "It is a work in progress. I would say at this point, we are making our parent group more aware of what we're doing." The Director of Grants and Partnerships echoed this: "We are conducting outreach to inform our families as to how instruction is changing in the district and that's led by our teacher leaders as well as building leadership." A Cohort 2 teacher explained how they shared technology with parents at parent-teacher conferences: "At parent conferences I've shown them the Note Book, how kids can access it, and that they have access to my notes." One teacher had a good suggestion for engaging parents in the happenings of the TechSmart grants:

> *"I want at least our district or maybe other districts that are using the Tech grant to have an information session for parents so that parents know what's going on. Because I talk to parents at open house and at conferences, and then I have students show their parents what they're working on and how they're using technology. But the way the world is changing at such a rapid pace, all kids need to know these skills because I don't know what it's going to be like by the time they graduate high school."*

Finally, when asked on the year-end status report to indicate the number of activities/meetings/events over the past school year focused on increasing parents' ability to use and/or support student learning using technology, 80 total events were reported which included an average of 75 parents/guardians per event. This report detailed how parent-teacher conferences are a great time to engage parents with the technology: "The space specifically dedicated for the TechSmart Initiative remains reserved for the student-led conferences at the middle school level. This is the arena for students, in the presence of their teacher and parent simultaneously, to highlight some of their learning from the digital portfolios or ongoing TechSmart work. The parent community may also access updates to the assets brought by TechSmart through ongoing principal communication (i.e., via parent newsletters, updates at coffee chats, site council, and PTA meetings)."

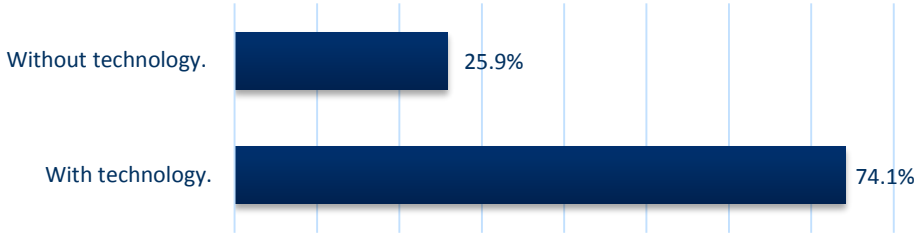
Summary: Do parents have an increased understanding and utilization of districts' technology assets?

There is some evidence that parents are receiving opportunities to increase their understanding of the districts' technology assets. Parents are being engaged through student led conferences, organized events, and enhanced communication from teachers and principals using technology.

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

As mentioned in previous sections, student engagement has increased because of the new technology. Figure 32 shows that three quarters of the students would prefer to complete an assignment with technology rather than without, reinforcing the finding that students are interested in and engaging with classroom activities that involve the new technology. This is consistent with the student response from the SY 15-16 evaluation.

Figure 32. Reynolds School District Student Preferences for Completing Assignments (n = 1,270)



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

Consistent with the SY 15-16 evaluation, about three-quarters of students would prefer to complete an assignment with technology. Since there was a significant increase in the number of students completing the survey in SY 16-17, data point to an increased number of students utilizing and engaging with new technology.

Visible Leadership

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

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

After two years of implementation RSD is finding time and opportunities to disseminate learnings to other districts, as described by one administrator: "I've shared how we're using the technology in math with Centennial. I'm part of the East Metro STEM Partnership out here in East County and I've shared with them what we're doing with the technology." The IT TOSA commented on sharing learnings with other Multnomah county school districts including Gresham-Barlow: "It was their K-8 library media coordinator and one of the teachers that is involved in the grant that they received. They came and looked at a middle and a high school class and their use of Schoology, the learning management system." One principal also commented on shared learnings with other districts, particularly with regard to the learning management system: "I was talking to our district tech guy about a week ago and he has been working with Gresham-Barlow. They were asking a lot of questions about how we're using technology and how we're using Schoology and how that's all working together. I think they were talking about shadowing or coming in to visit, seeing some of the things that we're doing." The IT TOSA discussed the opportunity to present to the business school at Gonzaga University:

"I was asked by the Dean of the business school at Gonzaga to share with him how technology is being used in K-12 because he recognizes that we currently have the students that the college is going to be getting and they want to be prepared for how students learn. He asked me to present to his entire department which was about 150 faculty about what we were doing with the grant and the use of technology in general in the K-12 classrooms."

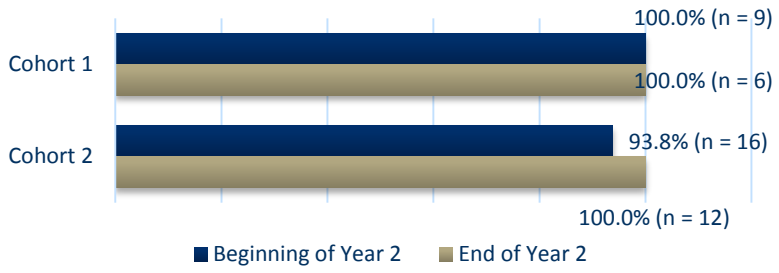
Summary: Are districts identifying effective instructional practices and disseminating information and results to other districts?

The SY 16-17 evaluation showed that RSD has disseminated best practices to other East County school districts in efforts to work towards community wide change .

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

By the end of Year 2 of implementation, 100% of Cohort 1 and Cohort 2 teachers agreed that administrators support technology integration efforts. This confirms that teachers have experienced a high level of support from district leaders for technology integration (see Figure 33).

Figure 33. Perception of Administrators' Support of Technology Integration (% responding "Agree/Strongly agree")



In terms of the support for technology integration teachers are receiving from the district, a couple of teachers mentioned the IT person as a good source of support. One teacher noted, "Our IT person has created what they call the Star program. So, they've got high school students that will actually come and do repairs on laptops that we have." Another teacher echoed this support from IT: "The district really wants to encourage more technology use. We have an IT guy that they place in our school now, so he's really fast. If I have a problem I can just put in a tech ticket and he comes and fixes it right away." Other teachers commented on the support received from the IT TOSA as noted by one teacher, "In my personal opinion, he's providing an adequate amount of support." Another teacher commented on support received from the IT TOSA as well:

"Yeah, I've never experienced anything like the push and the support. I've been pushed a lot in different places but the support never seems to follow, and here, it's kind of the opposite. You get pushed and then there is more support than you can handle, almost."

Consistent with the SY 15-16 evaluation findings, teachers at RSD commented on how they have supported one another as emphasized by one teacher, "It is primarily through collaboration with other teachers that I'm learning most of the stuff I'm learning. The IT TOSA does a good job of facilitating those spaces. Some of the teachers are from Cohort 1 and some are from Cohort 2. Some teachers are just better at trying new things and quicker than I am." Another Cohort 2 teacher commented on the support received from the Cohort 1 teachers: "We've been part of a lab cycle so there has been some training and some experience doing observations in another classroom and then taking part in co-teaching using technology in the classroom. It has been great co-teaching and seeing what other teachers are doing and how they're using it."

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

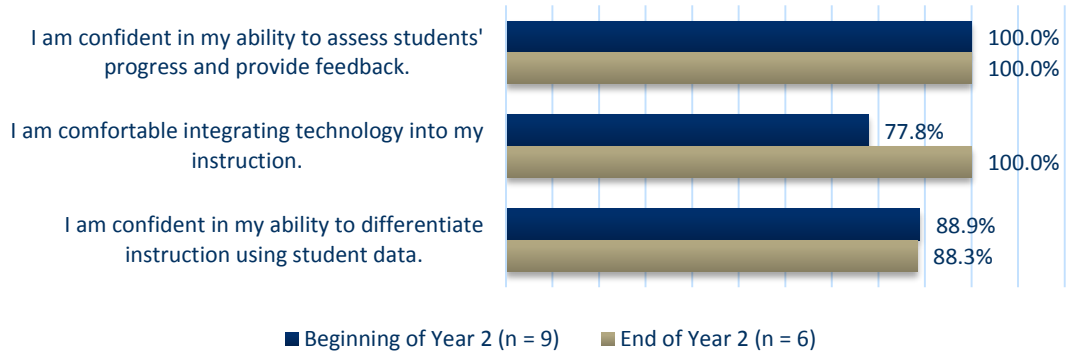
By the end of SY 16-17, 100% of Cohort 1 and Cohort 2 teachers indicated that administrators were generally supportive of technology integration efforts. Consistent with the SY 15-16 evaluation, those teachers interviewed commented on the value of support received from other teachers.

Data Driven Improvement

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

As highlighted in the previous section on teaching effectiveness, math teachers have been increasing their use of data-driven instructional strategies. Figure 34 shows that at both the beginning and the end of the year, 100% of Cohort 1 teachers felt confident in their ability to assess students' progress and provide feedback, and that 88% felt confident in their ability to differentiate instruction using student data.

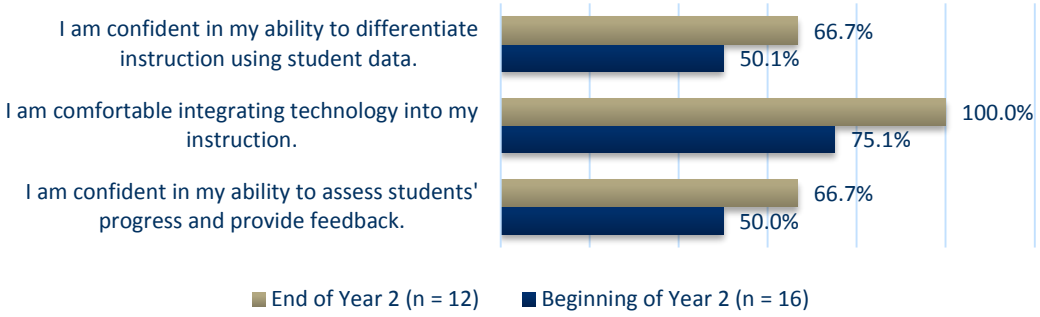
Figure 34. Reynolds School District Data Driven Improvement - Cohort 1 (% responding "Agree/Strongly agree")



An additional survey question asked teachers to report the extent to which they are using formative assessments. Results showed that at the beginning of SY 16-17, 88.9% (n = 9) of Cohort 1 teachers indicated they use formative assessments at a "moderate amount" to a "great deal" to identify instructional practices, while at the end of the year only 66.7% (n = 6) reported this level of use. At the beginning of SY 16-17, 62.5% of Cohort 2 teachers (n = 16) indicated they use formative assessments a "moderate amount" to a "great deal" to identify instructional practices which increased to 91.7% (n = 12) by the end of their first year of implementation.

Figure 35 shows that by the end of their first year of implementation, 100% of Cohort 2 teachers felt confident in their ability to assess students' progress and provide feedback and 91.6% felt confident in their ability to differentiate instruction using student data.

Figure 35. Reynolds School District Data Driven Improvement - Cohort 2 (% responding "Agree/Strongly agree")



The mid-year status report provided an example of how teachers are using student data to differentiate instruction for language: "Teachers gauge student application of language routines and protocols as an example of formative assessments of their students. They gather and review evidence of students speaking and writing, and then reflect on the lesson taught to inform the design of lesson improvements. An example of a teacher device to assess student language use is the Conversation Analysis Tool." The year-end status report elaborated on the use of the Conversation Analysis Tool: "During the classroom observation portion of the lab cycle process, the teachers complete the Conversation Analysis Tool, observing teachers apply this when watching students only. Specifically, they are collecting data on type, frequency and depth of student dialogue about math. After the student observation, teachers reconvene to compare their analysis and co-plan lessons that leverage the areas of student strengths and fill gaps in the student math-based dialogues."

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

Although there is preliminary evidence that teachers are engaged in data driven instruction, an increased focus on formative assessments in the SY 17-18 evaluation will more accurately assess this outcome. In terms of data driven improvement for grant activities, this is an area for continued focus in SY 17-18. Although RSD had a very high response rate on the student survey, the response rate on the teacher post-survey was somewhat low, particularly with regard to Cohort 1. PRE also experienced barriers gaining access to student outcome data from RSD in a timely manner.

Funding & Budget

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

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

Administrators provided examples of how resources have been repurposed to support technology integration. For example, one principal commented on how they have been able to repurpose devices to other departments: "We've been able to repurpose devices for other departments towards that goal of one-to-one technology. We're much closer to that now because of the TechSmart grant than we were before. For example, the science and language arts departments are going to have their own iPad carts."

The Director of Grants and Partnerships commented on the matching support from the district with regard to the learning management system associated with the TechSmart grant: "It increases access for TechSmart teachers and their students to be able to communicate and maintain connection through a learning management system. The LMS is also available and being utilized by K-5 teachers and other high school and middle school teachers outside of math."

The Director of Secondary Education also commented on how the grant has the potential to impact district spending as teachers and leadership who have been exposed to the technology are seeing curricula through a different lens:

> *"We just finished a science adoption for grades 6-8 and a lot of our teachers in middle school are math and science teachers. More and more curricula that are coming out from publishers are still a paper text, in combination with that text online or providing some sort of online access. This year in our science adoption, one of the companies is all online and it was interesting to see the conversation…teachers who are part of the math grant are looking at curricula through a different lens."*

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

The SY 16-17 evaluation provides evidence that RSD is beginning to reframe the way they think about resources to support technology integration. Devices have been repurposed to other departments to support the goal of one-to-one technology and administrators are considering online curriculum options.

Strategic Planning

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

District leaders discussed how the work regarding technology supported instruction aligns directly with the district's strategic plan. One administrator described the district's goal of "a world yet to be imagined" and sub goals related to integrating technology in the classroom and getting technology into the hands of every student in the district. The grants and partnership administrator echoed how the district is preparing students for modern society:

"We are acknowledging that not only the changes in our demographics but also the evolution of best practices in education guides the preparation of students for the needs of modern society. Technology is woven throughout in order to provide access to increase speed and efficiency and to diversify the methods in which kids can access the content outside of traditional paper and pencil or other materials."

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

SY 16-17 evaluation results showed that RSD is committed to improving outcomes for students and recognizes student access to technology as an important piece of this. One RSD administrator described the district's goal of "a world yet to be imagined" and sub goals related to integrating technology in the classroom and getting technology into the hands of every student in the district.

Engaged Communities & Partners

Parents, stakeholders, community groups and others are actively and systemically involved in helping students develop, learn, and achieve.

Do district leaders demonstrate increased communication with and among outside stakeholders regarding technology integration?

The Director of Grants and Partnerships commented on the fact that district technology leaders are participating in networks of community professionals to stay up to speed on complementary initiatives: "Our technology leaders participate in networks of like professionals in and around the community to stay apprised of initiatives that are complementary to the TechSmart Initiative internally, digital access being one, for example."

Summary: Do district leaders demonstrate increased communication with and among outside stakeholders regarding technology integration?

As reported by one administrator, RSD leaders are taking preliminary steps to engage outside stakeholders in discussions of technology integration.

Evaluation Insights

The SY 16-17 evaluation at RSD produced the following insights:

- Student achievement data were examined for RSD students in the SY 16-17 evaluation and revealed promising findings. Results showed that by 7th grade the TechSmart Treatment Cohort had earned on average a significantly higher number of math credits and overall credits when compared to a historical Comparison Group. Subgroup analyses were conducted and Cohort 1 students were showing higher math credit attainment across all subgroups than the historical Comparison Group. This difference was significant for the LEP subgroup, students on Free and Reduced Lunch, and students of color. Another noteworthy finding was that within the Treatment Cohort, LEP students were earning a higher number of math credits on average in 6th and 7th grade than non-LEP students.

- Cohort 2 teachers in RSD had mixed opinions about the PD model. Some Cohort 2 teachers had criticisms of the Lab Cycle and the monthly meetings. Further, Cohort 2 teachers at RSD reported much lower ratings of the usefulness of the individual PD. Compared to 100% of Cohort 1 teachers that rated individual PD as very or extremely useful, only 58.4% of Cohort 2 teachers rated it this way. This may be related to the fact that the TechSmart TOSA was only part-time during SY 16-17. The grant is funding a full time TechSmart TOSA in SY 17-18, which will hopefully result in more favorable teacher perceptions regarding the utility of individual PD.I It is important to note, however, that as more reluctant teachers are onboarded during years three and four of the grant, the need for one-on-one coaching may increase.

- The SY 16-17 evaluation revealed a shift from teachers' discussion about technology devices to support instruction to the use of different resources, applications, and strategies. When teachers were asked to report instructional strategies that have been effective in their classroom, the majority of teachers reported instructional techniques as opposed to tools such as OneNote, Schoology, and Kahoot which were reported last year. This provides evidence of a shift in the way that teachers are thinking about how technology can be used to support instruction.

- Results from the student survey showed that students are becoming more engaged through the use of technology to support math instruction at RSD. Similar to the student responses from the SY 15-16 evaluation, nearly half of survey respondents reported that the more technology was used, the more they enjoyed school (45.6%), and 59.2% indicated that they have felt more interested in class activities using technology. These findings suggest a growing student interest in the technology integration in math classes.

- Similar to the SY 15-16 evaluation, teachers reported high levels of support from district leaders regarding technology integration, but did not report high levels of agreement with statements regarding the presence of a culture of support throughout their school. This was particularly true for Cohort 1 teachers, as Cohort 2 teachers reported slightly higher ratings of a culture of support. As suggested last year, this may be due to the fact that the grant is targeting a specific curriculum within the 7th -9th grade band, with changes being made across schools rather than targeting an entire school.

Project Summary

Portland Public School District (PPS) is highly invested in improving literacy outcomes and closing the achievement gap for underserved students. During the school year 2016-17 (SY 16-17), PPS launched the K-5 Equity-Based Balanced Literacy (EBBL) framework adoption. This approach to literacy 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 the district the resources to implement and evaluate blended learning models of instruction to support the adoption of the EBBL framework. PPS has three goals for the implementation of the TechSmart grant and an intention to achieve these goals by 2020. The goals are: (1) 3rd grade students in PPS pilot classrooms will demonstrate grade-level proficiency in reading and the achievement gap between typical and underserved students will be eliminated, (2) PPS will understand and implement instructional strategies and practices that leverage technology to provide culturally and linguistically relevant personalized learning, (3) PPS will validate and disseminate effective instructional strategies and practices that use technology. Implementation began in SY 16-17 within kindergarten through 3rd grade classrooms in five schools including: Vernon, Sitton, Grout, Lewis, and Bridger. By the end of the grant, 20 schools across the district will receive professional development (PD) and pilot the technology infrastructure provided by the funding. PPS's progress after one year of implementation is presented below in terms of seven essential factors for effective transformation to a technology-rich teaching and learning environment.

Methods

A general description of the methods included in the TechSmart evaluation are included in the introduction to the full report. Data collection efforts for the SY 16-17 evaluation in PPS are summarized below.

Teacher Survey

The district administers a teacher technology survey at two time points during the school year as part of its internal TechSmart project evaluation (beginning and end of year). PRE worked with internal staff to add questions to these planned teacher surveys at the end of the year and received access to the resulting data. Fifty teachers involved in the project completed the beginning of year survey, and 40 teachers completed the year-end survey.

Teacher Interviews

PRE conducted interviews with eight teachers involved in the TechSmart grant in Portland Public School District. Interviews were conducted with 1-2 teachers from each of the five TechSmart schools including: Lewis, Grout, Bridger, Vernon, & Sitton.

District Leader Interviews

In spring 2017 PRE interviewed five district leaders from the Portland Public School District: principals from both Sitton and Lewis, and technology coaches from Bridger, Lewis, and Vernon, and the district TechSmart TOSA.

Leadership Rubric

The leadership rubric was completed by two principals and two technology coaches at PPS.

Findings

The evaluation findings from the SY 16-17 evaluation in Portland Public School District are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

Teaching Effectiveness

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

PPS offered a combination of PD opportunities to TechSmart schools throughout the first year of implementation. During the August training offered for the EBBL adoption, teachers were provided with two additional days of training led by teachers and technology vendors. The training focused on creating the necessary foundation for successful technology implementation and included sessions on creating blogs using Symbaloo, embedding html, and using myOn, Lexia, and Hapara. The training also provided background on the purpose of the grant and the connection to Equity Based Balanced Literacy, basics of using Chrome and Chromebooks and setting student expectations and routines about devices. Finally, breakout sessions were offered which included: Chrome/Google for beginners, technology issues/concerns specific to kindergarten/early learners, using Google slides and forms; using Newsela to provide nonfiction, leveled content; using Zaption.

In addition to the summer training, building-based after school PD was offered at each school 1-2 times throughout SY 16-17. Teachers were surveyed to assess needs and differentiated mini-lessons were built accordingly for each school. School-based sessions were led by teachers, a librarian, a technology integration coach, and the district level TechSmart coach. Topics for these mini-lessons are detailed in Table 1 below by school.

Table 1. Building Based After School PD

Bridger Session 1	Topics included sessions on: Hapara, Lexia, MyOn, Kids A to Z, Symbaloo/Weebly/Blogging, and integrating tech and Equity Based Balanced Literacy.
Vernon Session 1	Damaged device protocols, creating teacher home pages, managing student logins, and how to address students who are stuck on a Lexia skill
Vernon Session 2	Lexia – differentiation, printing reports and using data
Grout Session 1	Symbaloo, Lexia, myOn projects
Sitton Session 1	Lexia, Chrome 101, Kids A to Z, Seesaw, Symbaloo/Blogging, Hapara, Focus group on setting up a classroom technology agreement
Sitton Session 2	technology agreements in the classroom, using Lexia, dual language myOn projects and RazKids, lesson planning
Lewis Session 1	Looking at Lexia data

There was also a TechSmart summit on May 26, 2017 which was a two-hour year-end celebration where teachers and administrators from Cohort 1 gathered at Vernon elementary. The celebration included a lesson demonstration along with small group discussion and sharing on a range of topics.

The district supported individualized PD for teachers through a half-time onsite technology coach at each TechSmart school. Table 2 below provides detail on the technology coach at each school and whether this coach had another role in the school.

Table 2. Technology Coach Details

School	Additional Role
Bridger	Teacher Librarian
Grout	0.5 TechSmart Technology Coach Only (Serving 4-5 also, not just K-3)
Lewis	3rd Grade Classroom Teacher
Sitton	0.5 TechSmart Technology Coach Only
Vernon	IB Curriculum Coordinator

The onsite technology coaches also participated in PD efforts including weekly virtual meetings using Google Hangouts and Classroom, monthly half-day technology coach professional learning communities, learning walks, monthly Lexia check-ins, and co-planning. Technology coaches (and one principal) also attended the 3-day Digital Media Institute at Teachers College at Columbia University, focusing on media literacy, multimodal reading skills, and flipped learning. The district also organized a Cohort 1 and Cohort 2 reflection and orientation half-day meeting.

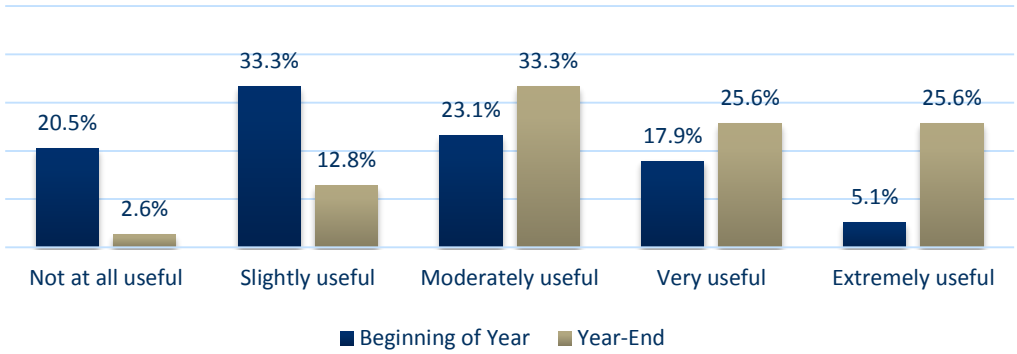
Table 3 shows that by the end of the first year of implementation, a majority of teachers reported taking advantage of the individual PD through the onsite technology coach (78.0%).

Table 3. PPS Teachers' Hours of PD during SY 16-17

Hours of PD	Beginning of Year 1		End of Year 1	
	Group PD (n = 50)	Individual PD (n = 47)	Group PD (n = 40)	Individual PD (n = 40)
0 hours	32.0%	51.1%	0.0%	22.5%
1-8 hours	48.0%	38.3%	47.5%	60.0%
9–16 hours	10.0%	6.4%	30.0%	10.0%
17–32 hours	2.0%	4.3%	12.5%	2.5%
33+ hours	8.0%	0.0%	10.0%	5.0%

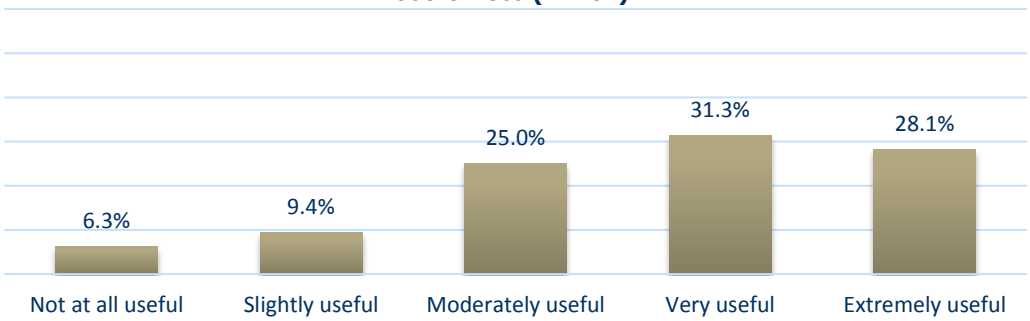
The beginning and year-end surveys asked teachers to rate the usefulness of the group and individualized PD (see Figures 1 and 2). An increased percentage of teachers rated the group PD as very or extremely useful by the end of the first year of implementation. These changes are likely a result of the differentiated after school PD provided throughout the year.

Figure 1. PPS Teachers' Ratings of Group PD Usefulness (n = 39)



On the year-end survey nearly 60% (59.4%) of teachers rated individualized PD as very or extremely useful.

Figure 2. PPS Teachers' Year-End Ratings of Individualized PD Usefulness (n = 32)



Teachers who participated in the surveys and interviews expressed some initial confusion around the PD as noted by one teacher, "As far as the initial training, it was fine. Everything was very confusing at the beginning but the coach has been knowledgeable and helpful. We have been able to call on them for questions." Another teacher noted that the combination of the TechSmart PD with the EBBL PD was a lot of information and confusing in terms of the expectations of teachers for utilizing technology:

> *"Over the summer we had one week of PD which was focused on TechSmart and literacy... I was left a lot in the dark. Getting into the school year and getting kids with devices and talking to coaches on how to bring in other pieces to make it more beneficial to students…We have the TechSmart adoption and literacy coaches, and they are spread out. The PD is few and far in between. They are doing the best they can with the resources they have but budget cuts are a concern."*

Teachers suggested that the PD provided during the summer be differentiated for varied technology skill levels: "It was difficult for some of the individuals who attended the training because of the timing and they were not in the right mindset. There weren't different degrees on the continuum for teachers who were slower or more advanced."

In terms of the individualized PD, teachers who were interviewed acknowledged the benefits and availability of the onsite technology coaches, as noted by one teacher, “The PD has been helpful and I needed it. Our coach is always willing to help us when we need it.” Another teacher added, “I have received plenty of what I would call coaching. As a result of the grant I have someone who is extremely knowledgeable regarding what we are doing and how to problem solve.” Another teacher expressed gratitude for the availability of the technology coach but suggested they may not be the best person for the job: “Our technology coach is a wonderful individual but they are not a technology heavy individual. I know about Google Classroom and our technology coach is willing to learn more, but it was thrown together last minute. Our technology coach has been great at going to people individually and helping them at their own pace.” Finally, the mid-year status report highlighted the importance of having technology coaches available, especially at the beginning of the TechSmart grant implementation.

How is the professional development impacting teacher instruction?

The year-end survey asked teachers to discuss how effective the PD model has been in impacting their instruction. Teachers offered a variety of positive comments regarding the effectiveness of the PD model, including the benefits of the new tools, the technology coaches, and the opportunity for students to work independently using technology (see Table 4).

Table 4. Effectiveness of the PD Model at PPS

“It is invaluable to have a technology coach in the building! I'd like to know how to go further with technology in the 2nd grade classroom.”
“Highly effective since I'm able to streamline everything well (Symbaloo with myON, Lexia, etc.) on Chromebooks.”
“It has been very effective. I appreciate the PD which has been focused, efficient, and useful. I have a good overall idea of how to use the new tools available to me. What I need now is time to explore, look at data, etc. An ideal PD for me at this point would be sort of a "study hall" model where I can work on my own projects with roving TOSAs available to help me troubleshoot and answer questions.”
“The Technology PD has been helpful. Especially because I am not familiar with all the reading programs the district is using.”
“It has been very effective and has made things possible for my students that wouldn't have been previously, especially pertaining to independent work opportunities!”
“Yes, highly effective! We need to see what different models are and examples of how people are using the technology in their classrooms.”

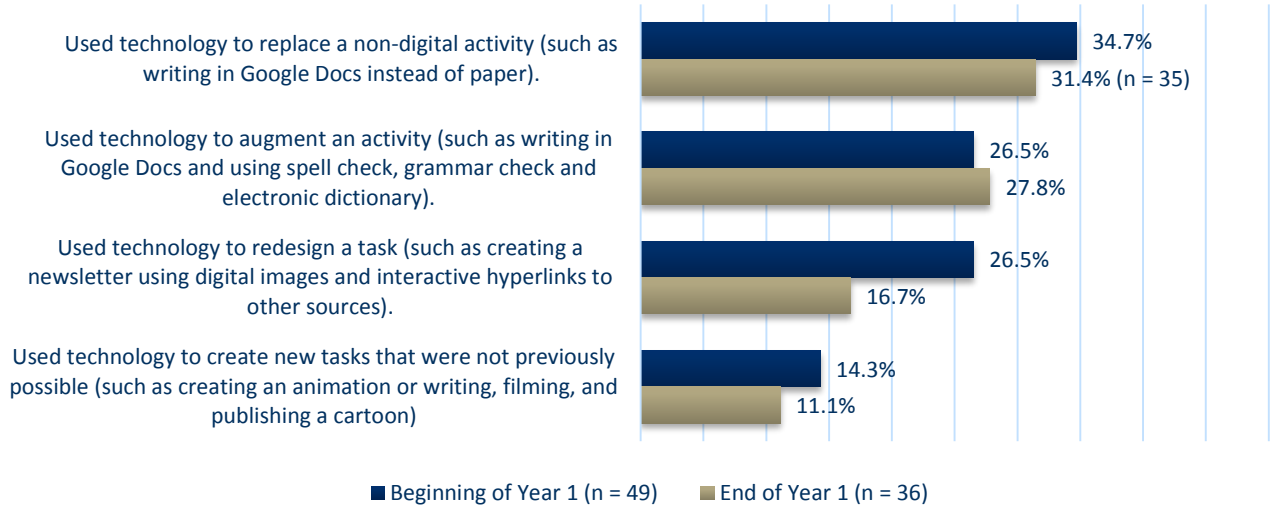
PRE interviewed teachers and leaders (principals and coaches) to assess the impact of the PD on teachers’ instruction. Both teachers and leaders noted an increased use of technology as a result of PD activities. Positive comments were made regarding the impact the PD has had on small group instruction, as mentioned by the district TechSmart TOSA: “As far as instructional strategies, one of the things that technology supports is the idea of teachers spending less time with the whole group and instead spending quality time by differentiating instruction in smaller groups.” Another teacher also discussed the use of technology for small group instruction:

"Yes, it has especially impacted my instruction as I have a large class. Being able to run a large classroom with Chromebooks has been helpful because students can work in small groups and be engaged. For example, we are using the Chromebooks during reading groups where kids are on Lexia and myON. I am able to follow-up on the kids work through Lexia and it has helped me inform instruction."

Another teacher echoed an appreciation for the use of the technology for small group instruction and explained how she went from being afraid of the integration to really understanding the benefits of using technology for classroom instruction: "At the beginning it was scary. To understand technology you need to have training and the ability to play with the technology. Later on I saw the benefit. The books that children write while in school are being shared at home with the parents. They read to their parents and they are able to play math games on the iPad at home. Now that I have the technology I can have more small group instruction."

The beginning and year-end surveys asked teachers to rate the extent to which they are using technology to support new methods of instruction in their classrooms according to the SAMR model.
The **S**ubstitution **A**ugmentation **M**odification **R**edefinition (SAMR) model offers a method of seeing how computer technology might impact teaching and learning. It also shows a progression that adopters of educational technology often follow as they progress through teaching and learning with technology. Figure 3 shows that by year-end, there were only a slight changes in the number of teachers reporting their use of technology to replace or augment an activity. There were slight decreases in the percentages of teachers reporting their use of technology to modify or redefine as shown below.

Figure 3. PPS Technology Integration According to SAMR Model (% responding "At least once per week/Less than once per day")



One PPS technology coach described the increase in teachers' use of technology, emphasizing that teachers were learning a lot for both the literacy adoption and the TechSmart adoption:

"This year it was a great learning opportunity for teachers. We had a lot going on with both the literacy adoption and the TechSmart adoption. They have learned new ways to integrate both adoptions and procedures for implementing technology in the classroom. Additionally, they have learned best practices for the use of technology to support literacy. We have explored what has and hasn't worked. Most of the teachers have become comfortable with both myON and Lexia, while others have branched out in implementing other applications like Google."

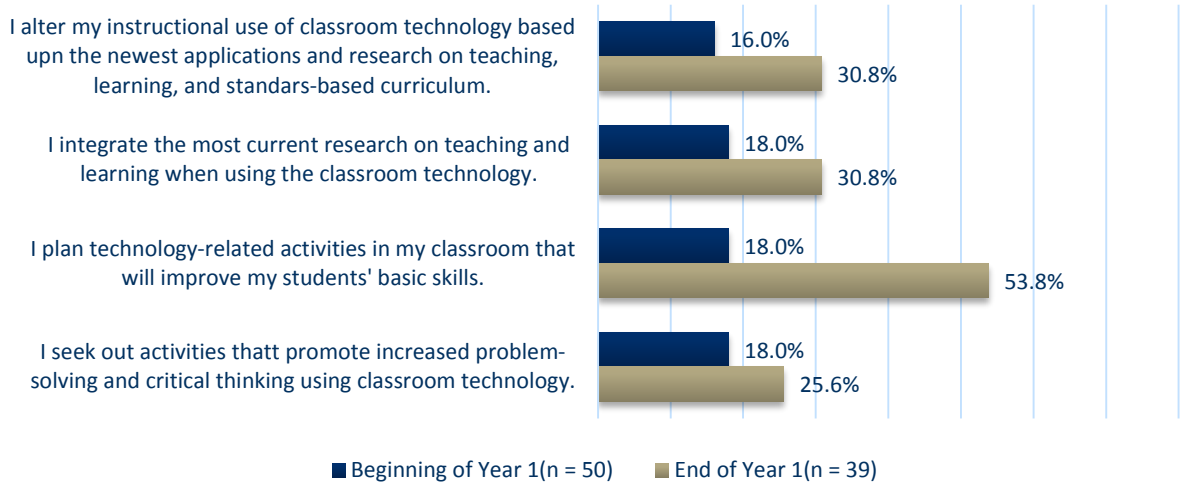
Additionally, on the year-end survey teachers could provide suggestions for improving the PD model. Table 5 lists teachers' suggestions which centered around providing modeling opportunities and additional training on the foundational concepts learned at the Summer PD sessions.

Table 5. Teachers' Suggestions for Improving the PD Model

"The PD I have received was enough to get my students onto Chromebooks for the programs provided by the district (myON and Lexia), but using it more than that has been limited for me. It is invaluable to have a technology coach in the building! I'd like to know how to go further with technology in the 2nd grade classrooms I'd also like to know more about standards for 2nd and 3rd grade in terms of technology. Are we even supposed to be teaching it?"
"Yes, my instruction has changed. We need to see what different models there are for integration and examples of how teachers use technology in the classroom. We were given two new programs to use, but we were not shown how to integrate them into our routines and structures."
"We haven't had any Tech Smart PD since last summer other than a few of us that met with a district person for a few hours one night. I would love to know new apps to add to my Symbaloo that are educational."
"It was helpful and I'm looking forward to learning more. I would like more collaboration time to learn from other teachers, how to assign independent projects and how to create and give the students assignment options."

Figure 4 presents a series of survey items related to technology integration and shows that by the end of the first year of implementation, the percentage of teachers responding "true of me" or "very true of me" had increased. Most notably, the number of teachers who reported that they plan technology-related activities in their classroom to improve their students' basic skills increased by 35 percentage points.

Figure 4. PPS District Teaching Instruction (% responding "True of me/Very true of me")



Teachers rated their technology skill level on the beginning and year-end surveys according to the following five levels:

Level 1: I get someone else to do technology-based tasks for me.

Level 2: I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.

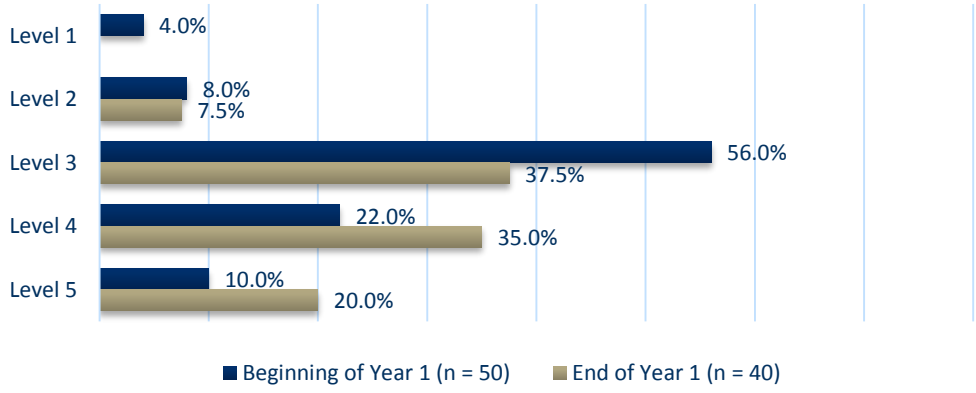
Level 3: I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.

Level 4: I use a variety of technology tools and I use them efficiently for all aspects of my job.

Level 5: I use technology efficiently, effectively, and in creative ways to accomplish my job.

As shown in Figure 5, a change occurred in technology skill level during the first year of implementation, with teachers moving from Level 3 to Level 4 or 5. By the end of Year 1, 55% of teachers completing the survey rated themselves at Level 4 or 5 and no teachers rated themselves at Level 1.

Figure 5. PPS Teacher Technology Skill Levels



How is the professional development impacting teacher instruction?

The primary instructional changes have taken place through the use of Lexia and myON, the applications used with the Chromebooks as described by one technology coach:

> *"The TechSmart adoption has been a conduit to our new literacy adoption and so we purchased a few language arts programs to assist with that. We have been utilizing them in grades K-3. We have a program called myON which is pretty much a virtual library that the kids use during their independent reading time. We also have a program called Lexia which is an individualized program for language arts and we've seen a lot of improvement in the lower levels."*

Lexia Reading Core5 supports educators in providing differentiated literacy instruction for students of all abilities in grades pre-K–5. Lexia's program provides explicit, systematic, personalized learning in the six areas of reading instruction, targeting skill gaps as they emerge, and providing teachers with the data and student-specific resources they need for individual or small-group instruction. myONs is a personalized literacy environment that incorporates: 1) A state-of-the art learning platform, 2) Enhanced digital reading content, 3) Daily news articles written for students, 4) The Lexile® Framework for Reading, 5) Cutting-edge literacy tool, 6) Embedded metrics to monitor activity and growth.

When asked on the survey whether Lexia and myON were used during the school year, 74.4% of teachers reported using Lexia while 89.7% of teachers reported using myON. Teachers who reported using either of these applications were asked to rate their agreement with a series of items relating to the benefits of the new instructional tools as shown in Table 6 below. Teachers were asked to rate the items on a Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. Teachers rated Lexia higher than myON on all items with the exception of the interface being culturally relevant. Both tools received high ratings on their alignment with Common Core State Standards and having a student-friendly interface.

Table 6. Teacher Ratings of Lexia and myON

	Lexia (n = 28-29)	myON (n = 33-35)
The program is aligned with Common Core State Standards.	6.10	5.14
Use of The program supported student growth and advanced equity work (closing achievement/opportunity gaps).	5.69	4.80
The program integrates with current core curriculum or provides a compatible progression from current content to new content.	5.86	4.71
The program integrates with current core curriculum or provides a compatible progression from current content to new content.	5.76	4.67
The program interface is student-friendly.	6.10	5.51
The program interface is culturally relevant.	4.86	5.21
The program supports personalized and proficiency based learning for all students.	6.21	4.63
The program cultivates digital literacy and digital citizenship.	5.34	4.94

	Lexia (n = 28-29)	myON (n = 33-35)
Differentiated supports are evident in the program for Emerging Bilingual, Special Ed, and TAG students.	**5.66**	**4.57**
In the program, students are supported in independent practice to meet or exceed grade level standards with scaffolds and a gradual release model.	**6.03**	**4.51**
The program generates teacher friendly whole class and individual student data.	**5.71**	**4.35**
The program facilitates teacher planning and implementation of instruction and interventions.	**5.14**	**4.32**
The program is supported by facilitated and/or self-directed PD that is teacher-friendly.	**4.86**	**4.62**
The program assessments elicit direct, observable evidence of the degree to which a student can independently demonstrate the grade level standard.	**5.11**	**4.09**
The program assesses student proficiency using methods that are unbiased and accessible to all students.	**5.29**	**4.15**
The program uses varied modes of assessment (e.g., selected, constructed, extended response items, self-assessments, and performance tasks) to provide teachers with a range of formative and summative data to inform instruction.	**5.29**	**4.06**

Teachers provided examples of the integration of Lexia into their classroom, as noted by one teacher, "I use the technology every day. I love the Lexia program. The kids are all working according to their level and their needs." A principal also noted the daily use of Lexia: "As a result of the TechSmart grant, all of our children in K-3 have a 1:1 device that they are using to implement literacy instruction every day. Teachers are engaging students through a phonics program called Lexia."

Teachers provided some suggestions for improvement regarding the Lexia application, including that it could be more user-friendly, it is not useful for assessments, and it is lacking in materials needed for Spanish immersion classrooms. One teacher commented, "I teach in a Spanish Immersion classroom and the materials in Lexia are not in the target language." The mid-year status report mentioned the difficulties of using both Lexia and myON for Spanish immersion: "In the next reporting period, identification of Spanish language equivalents of Lexia/myON have been prioritized and so far, one meeting with a vendor has been scheduled." The year-end status reported provided an update on these efforts and noted that "After some deliberation among TechSmart and Spanish Dual Language staff, the group adopted a program called 'Istation' to be implemented in all four Spanish DL TechSmart schools." The status report also detailed research on the possibility of replacing myON in Spanish Dual Language classrooms. myON has Spanish materials in its library, but it lacks tools to assess Spanish reading level and to suggest materials based on reading level. Research resulted in no viable replacement at this time for myON Spanish content, and while several Spanish DL TechSmart schools are independently using RAZ Kids for Spanish content, they elected not to adopt it as a core program.

The survey results showed that teachers were neutral in their responses to the question of whether Lexia's assessments elicit direct, observable evidence of the degree to which a student can independently

demonstrate the grade level standard. One teacher commented that Lexia was not placing students of color accurately:

"My students of color have not connected to Lexia. Unlike the majority of my White students, Lexia's data does not match what the reading ability of my students of color really is. For example, I have three Black students who are above grade level in reading but Lexia shows them in Kinder or beginning first grade. I can't help but think my students of color are not connecting to the program."

Another teacher noted that both Lexia and myON were placing students at a different reading level than the Bass Assessment which is a tool that has been introduced through the EBBL adoption:

"We use Lexia the most because it came with the literacy adoption. I use Lexia during the Words Their Way rotations daily. I have found that useful as a rotation piece. I haven't found it useful as an assessment piece, even though they pitched it that way. When I gave a reading test of Bass Assessment, student was level R, which is a good solid reader. On myON, she came out as a 90, Kindergarten level, while Lexia placed her in grade level 1-2."

Several teachers made positive comments about myON with regard to the amount of English text available through the program, as highlighted by one teacher, "myON opened up new worlds for some of my students! I appreciated the variety of texts available and the format was very easy for students to use." Teachers also expressed complaints about the myON program similar to those made about Lexia. Teachers commented that myON is not user-friendly. One teacher noted, "We did not find the assessment, data, or reports user friendly or helpful. To see a report I could only look at one student at a time. With STAR I could see class reports, rank students, group students, see individual reports, and parent-friendly reports." Teachers also commented on the limited selection of myON books in Spanish, as noted by one teacher, "The Spanish book selection is very limited. My students often complained that the books are "baby books."

Teachers requested additional PD for using both Lexia and myON, as noted by one teacher, "This year myON was used in my classroom as a way for students to have access to more books, but I was not involved in what they are reading. It is only recently that I've looked at reports and settings for my students. There are a lot of aspects of myON that I am still not clear on. I need more PD."

Table 7 below presents the aggregate ratings for the teacher self-assessment rubric and the aggregate leadership ratings for the two principals and the two technology coaches who completed the leadership rubric "thinking about TechSmart teachers as a whole". The element of the rubric with the highest rating for teachers was "engaging students in learning" followed by "planning and preparation." Leaders rated teachers higher on all the elements except for "planning and preparation," and "managing classroom procedures." Leaders provided the highest ratings in the area of using technology to support "demonstrating flexibility and responsiveness."

Table 7. Technology Used for Supporting Instructional Practices

	Teacher Survey (n = 36-37)	Leadership Rubric Survey (n = 4)
Planning and Preparation	3.19	3.00
Managing Classroom Procedures	3.06	3.00
Organizing Physical Space	2.65	3.25
Communicating with Students	2.97	3.75
Using Questioning and Discussion Techniques	2.76	3.25
Engaging Students in Learning	3.27	3.75
Using Assessment in Instruction	3.03	3.50
Demonstrating Flexibility and Responsiveness	3.08	4.00

Additionally, leaders commented on how teachers are using technology to support new instructional practices. Specifically, leaders reported that teachers are using technology to differentiate learning for small groups, organize and design content, and give students more choices. One leader commented:

"Teachers are using technology to give students choice and amplify their voice in assignments. With the opportunity to frequently choose their mode of inquiry and presentation, student engagement has risen. For instance, staff have used digital presentation tools (e.g. Google Slides) as a possible way to plan a written assignment and publish it. Also, students are able to share their work with peers and seek out feedback and direct the pace of their learning."

During interviews, teachers discussed barriers to integrating technology into their classroom instruction and some pointed to being overwhelmed by an abundant amount of new information that is being adopted in the district. One teacher commented, "We have all new adoptions in every single subject. You cannot do quality work in everything at the same time."

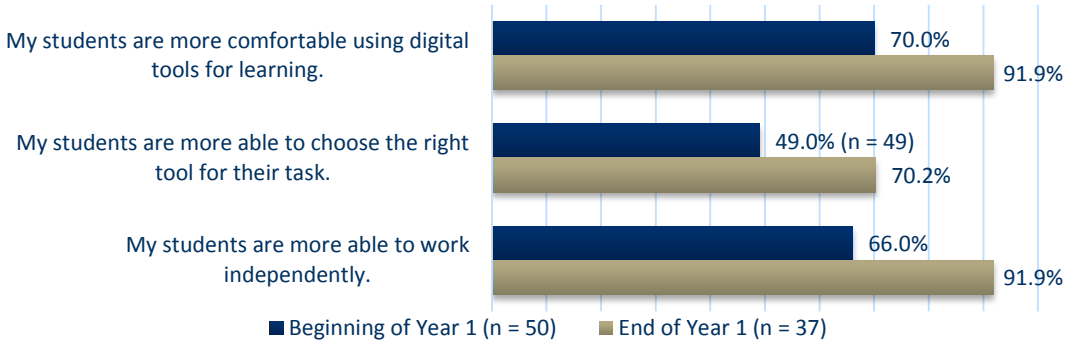
How are the new instructional strategies impacting student engagement?

Teachers and leaders (principals and coaches) at PPS described how technology is positively impacting student engagement. One teacher remarked that students are engaged by learning and using new programs: "They love it. It is completely engaging to them. I don't use it all day long but they are motivated and exited to learn new programs." One of the principals commented on the positive engagement of first graders using Chromebooks: "We were showing first grade students how to use their Chromebooks to create books. There was a lot of engagement from kids. In doing that they were able to be expressive and really thoughtful about their choices, presentations and language." Another teacher discussed how students view the technology as a reward:

"When they are doing independent work they are excited about doing the work. Some of my kids have higher behavior issues. Being in a small group with a teacher, we frame it like a reward when they are having a challenging day with behavior. They are excited about using it."

Figure 6 presents a series of items relating to students' technology use after this first year of implementation. Teachers were asked to rate students' comfort with using digital tools for learning, their ability to choose the right tool for their task, and whether students are able to work independently. Over 90% of teachers at the end of Year 1 agreed that their students are more comfortable using digital tools for learning and are able to work more independently. There was an increase of 20 percentage points in the number of teachers that reported their students are able to choose the right tool for their task.

Figure 6. PPS Year-End Student Technology Use (% responding Agree/Strongly agree)



One of the technology coaches discussed how younger students are positively engaged with technology: "Our students mainly use technology in the upper grades but with the younger students, it is a great engagement tool." Another technology coach discussed younger students' success with using Chromebooks:

"We showed first grade students how to use Chromebooks to create books. There was a lot of engagement from kids who had been able to do stuff with pencil and paper but not to their full potential. We had the kids write about their partner in class and in doing that they were able to be expressive and thoughtful in presentation and in language. The expressive and thoughtfulness in kids deepened when they realized they could use the drafts on the Chromebook to publish on paper and pencil."

The mid-year status report provided information regarding how student engagement through technology has positively impacted learning for student subgroups: "Teachers report home computer and internet access is limited among students from lower SES backgrounds. This grant has enabled students to interact with this technology on a daily basis and learn essential digital literacy skills, from physically typing to understanding what the "enter" key is, to navigating windows and menus, and problem-solving technology issues."

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

Teachers and leaders were asked whether the new instructional practices were showing promise for improving academic outcomes. A majority of teachers interviewed felt that the new practices positively impacted student outcomes in their classrooms. One teacher noted an increase in student motivation: "I believe the technology motivates kids to get to a new level on the online programs. My higher level kids want to be at a new level, especially since they can see their older sibling's scores." Another teacher highlighted the impact that Lexia and Read With Me have had on student confidence: "I just did the Words Their Way spelling assessments. One of the most impressive assessments is one from one of my students of color. He is so proud of what he has done. He is on the same level as his peers, where before he came in at a kindergarten level." The same teacher made another positive comment:

> *"Words Their Way has an inventory and I circle if they have their beginning consonants, their final, short vowels, and digraphs. You can see students really fall off with the long vowels. You total these up to obtain feature points. On August 29, one of my kids who is on an IEP had four words correct with total of 25 feature points, which totaled 29 feature points. This is really low. After 97 days of doing Lexia and Read With Me, her hand writing has gotten better and she got double the words correct for a total of 47 feature points."*

This teacher was asked a follow up question about whether these examples of growth are due to the combination of the resources provided by the grant and the literacy adoption or by the resources provided by the grant alone. The teacher responded, "I use some of the new literacy adoption but this impact is due to being able to use the technology."

PPS leadership had positive feedback regarding the impact of the new instructional strategies on student academic outcomes. Although they did not reference a specific assessment, one technology coach noted, "We have data that show that the instructional practices are promising. We have seen an increase in our data points. With regard to the benchmark points that are mandated by the district, those have been increasing significantly." One principal suggested that it has been challenging for teachers to adopt the technology along with the new literacy curriculum but is hopeful to see the combined impact on student outcomes in the coming year:

> *"It is definitely showing promise, as in the first year of anything new there is a pretty steep learning curve of understanding the resources and how best to use them to support students. Laying this in with the new literacy adoption was a lot of new activities for the teachers. Even though our teachers were on board there was a lot that was new. We've seen some achievement changes this year but I expect to see the benefit next year."*

Student Achievement Data

Due to the fact that there is a one year time lag in receiving student achievement data from ODE, these results are not included in this version of the report. PRE has received some data from directly from PPS and is open to including a preliminary analysis of this data to both the MHCRC and the district in a follow up report.

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

Teachers and leaders provided several examples of how using technology to support new instructional practices is showing promise for improving academic outcomes with at-risk subgroups. One teacher noted, "Being in a low-income school, this is the only technology the child has touched all day. The only other type of technology they are aware of is their parents' cell phones. This is doing stuff that is helping them learn and they are having fun with the technology. It is effortless learning. They are highly motivated to get on and play the different things and they are learning without even knowing it. With regard to ELL I can definitely say it reinforces the language piece and literacy in general." Another teacher discussed the positive impact that technology has had on ELL students:

> *"I use technology as a tool and not a toy. So that I know what they are working on will help them in some way. I have seen students who came in struggling in reading that their understanding has improved through Lexia and through everyday reading we do because of their ability to decode and sound out words. We have ELL students who are trying to spell l-a-u-g-h and it's such a bizarre word but it's something they have to see. When the words are floating down their screen they can spot the correct spelling. Otherwise how often will they interact with that word? No longer do they need to read over and over again because the program shows countless ways for them to get the information."*

The leadership rubric asked both teachers and leaders to "Provide examples of how teachers used technology to support instruction for at risk sub-groups (students of color, ELL, SPED, low SES)." Leaders commented that technology is being used specifically for differentiating instruction for student subgroups. One leader gave an example of learning differentiation from a classroom observation they conducted: "Teachers have been using Lexia to supplement reading instruction for intensive and strategic level learners. They have used language options in Lexia, which give students the ability to receive directions in their native language. Students of color have been able to access texts through myON that reflect their cultural identities. Specifically, students in our Spanish program have been able to access text in Spanish through RAZ kids and myON." Teachers who completed the year-end survey provided examples of technology they used to support their instruction of at risk student subgroups. One teacher noted, "Lexia has been an incredible resource to differentiate for the varying needs of all my students." Additional tools that were reported by teachers included Front Row, Newsela, RazKids, ST Math, Zearn, and Learning Ally. One teacher described using these tools:

"The majority of my students fall into all of those categories, with some fitting ¾ of the categories. Technology has been utilized for core academic instruction (lessons introduced on Lexia and Zearn) and for independent skill practice (typing and Front Row). It has opened up access to fluent reading through the use of myON, Learning Ally, and RazKids. Some of my students with more significant physical disabilities, who require significant adult support in other areas have learned to use technology in order to work independently. This allows staff to deliver more 1:1 instruction to other students, knowing that they are engaged in learning appropriately."

The year-end status report provided a description of how at-risk student subgroups are being engaged through personalized learning opportunities using technology:

"This engagement has many positive student impacts including personalizing learning bolstered by technology. TechSmart has facilitated the creation of a learning experience optimized for early learners, many of whom are new to digital devices. Digital skills are being fostered for all of our students including our most underserved. By enabling students to develop digital, literate identities, students are empowered to write, read, and share their stories and digital skills. By creating digital stories and tackling literacy skills at their own pace, they are given opportunities to live their expertise. This empowerment is especially critical for our underserved students including students of color and ELL students."

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

The year-end status report provided several examples of how the PD and resources provided through the grant are supporting efforts to close the achievement gap including the use of multimedia project-based learning, differentiation through reader's workshop, and access and exposure to technology. With regard to multimedia projects, the status report provided a description about how teachers and coaches are working to support ELL students:

"Teachers and coaches in multiple Cohort 1 schools identified project-based activities as having potential for supporting underserved students, in particular students of color and English language learners. Multimedia projects enable students to build their literate (and digitally literate) identities and to co-construct knowledge as they develop subject matter expertise and digital skills. In one DLI classroom, for example, approximately half of the students are ELL's. The students were observed creating non-fiction Google Slide presentations and Google Doc reports. They were integrating text, photos, and videos and using embedded scaffolds (e.g. spell check). The teacher described how students quickly learned the digital skills to create these presentations."

Digital Age Learning Culture

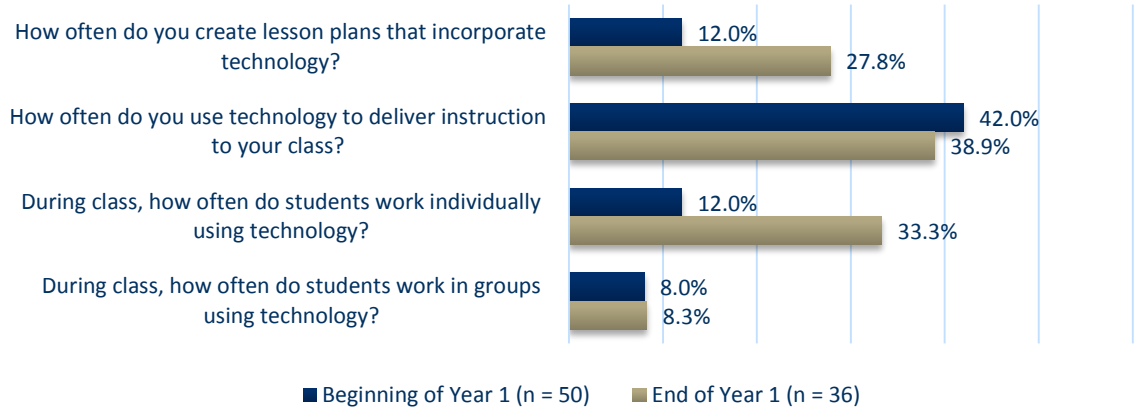
Districts embrace a cultural shift and view technology as positive.

Has the use of technology to support instructional practices increased?

As reported in the previous section on teaching effectiveness, teachers provided many examples of how they have increased their use of technology to support instructional practices. For example, teachers are utilizing the myON program to support culturally relevant instruction. As stated previously, although myON does not have adequate tools to assess Spanish reading level, it has a wide variety of Spanish materials in its library.

Figure 7 presents self-reported frequency of technology integration for teachers at the beginning and end of the first year of implementation. The number of teachers who reported creating lesson plans that incorporate technology "a great deal" increased by 15.8 percentage points, and the number of teachers reporting that students work individually using technology "a great deal" increased by 21.3 percentage points. While the graph shows that teachers most frequently used technology to deliver instruction to their classes, that number dropped slightly by the end of the year. Overall, the data show that a minority of teachers are using technology "a great deal" which suggests room for improvement in the level of integration.

Figure 7. Frequency of Technology Integration Among PPS Teachers (% responding "A great deal")



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

According to the mid-year status report, PPS began using Google Classroom as a learning management system (LMS) for professional learning. Google Classroom is being used by over 60 professionals at PPS including the technology coaches group, demonstration teachers group, TechSmart Leadership PLC group, Language Arts coaches group, and future phase adoption school administrators. The district was still evaluating whether to adopt an LMS for K-3 students but elected not to use one for the early grades that participate in TechSmart. Student data is collected via Lexia (providing student progress monitoring

data), myON (which is used to determine student Lexile levels and to provide independent reading activity), and Synergy (a student information system which contains student demographic data).

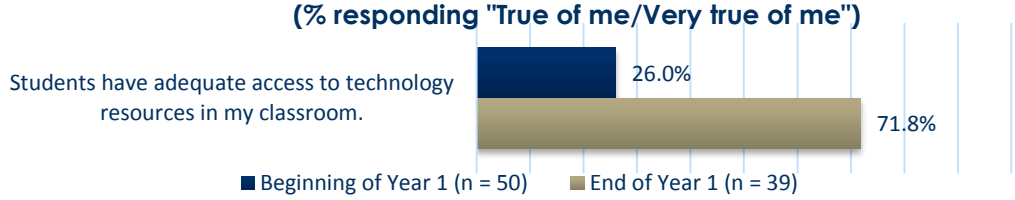
In the year-end status report, it was noted that PPS adopted a formal learning management system, Canvas LMS. The report contained information regarding the direction of Canvas after feedback was obtained from the professional learning committees: "Survey respondents felt Google Classroom activities were less useful than other activities; future PD activities will be hosted in Canvas, which has more sophisticated discussion and media sharing functions." It was also mentioned in the year-end status report that the use of Canvas may enable more effective documenting and sharing of what is working in K-12 buildings:

> *"The Canvas LMS is currently in use by Virtual Scholars for staff PD and student instruction. For K-12 buildings Canvas has an expanding role in PD and student instruction occurred with a small sample of early adopters. A soft rollout to K-12 teaching staff and grade 6-12 classrooms is in preparation for the 2017-2018 school year"*

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

The TechSmart grant funding has provided teachers with increased access to a variety of digital content and resources that they have been using to enhance their instruction. On the teacher survey, teachers were asked whether students have adequate access to technology resources. Figure 8 shows that by the end of the year, there was a 45 percentage-point increase in the number of teachers reporting that students have adequate access to technology in their classrooms.

Figure 8. PPS Teacher Reports on Students' Access to Technology (% responding "True of me/Very true of me")



In terms of the digital content and resources being used by PPS, teachers provided additional comments on the use of Lexia, myON, and Chromebooks. Table 8 below presents sample quotes regarding the application of these technologies.

Table 8. PPS Teachers' Use of Technology

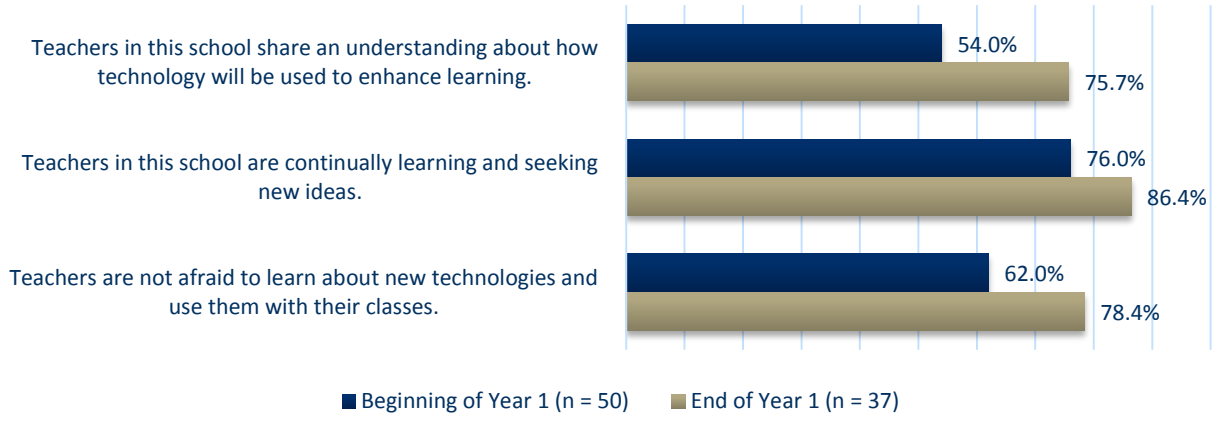
Technology	Teachers' Application of Technology
Lexia	"Much of this year I used Lexia as a way to run a workshop model in the classroom, as a classroom management tool. The students made progress and got some good practice, but I was not as active a participant in their learning as I would like to be in this second year. It is only recently that I've started looking at the Lexia reports and seeing where my students may need more interventions."

myON	"I used myOn as a newcomer and it was great. We could read a text together in English, we could find a bilingual text, or she could read to me in Spanish. It was user friendly and easier than carting a ton of books around depending on what she wanted to read."
Chromebooks	"We effortlessly included technology in everything we are doing. Tools we use are pencils, erasers, and Chromebooks."

Is there evidence of district-wide support for technology integration?

Teachers reported that overall, the culture of support for technology integration grew stronger over the course of SY 16-17. By the end of the year, eighty-six percent (86.4%) of teachers surveyed agreed that teachers in their school are continually learning and seeking new ideas and 78.4% agreed that they are not afraid to learn and use new technologies. A good majority (75.7%) of teachers surveyed agreed that they have a shared understanding about how technology will be used to enhance learning and this was an increase of over 20 percentage points since the beginning of the year (see Figure 9).

Figure 9. PPS Teacher Perceptions of a Culture of Support for Technology Integration (% responding "Agree/Strongly agree")



In discussing support received from the district, several teachers made positive remarks. One teacher expressed appreciation for the support of the district and the technology coach: "The technology coach is here when we need her. I feel that the district has supported the initiative sufficiently." Another teacher commented on potential drawbacks if funding for technology coaches is decreased: "I think the school is doing everything in its power but time will tell when the budget cuts come down the pipes. If they cut the coaches, it will put us at a disadvantage because we need those people to run the program properly." In contrast, another teacher noted that the support they received was not new this year: "I feel like my school had such a strong leader before that was a technology pioneer. We had a head start in that aspect, but I have not seen any of the district TechSmart people, it has really been local support."

Teachers also commented on the district's support through the replacement of broken Chromebooks, as highlighted by one teacher, "With regard to the district, the difficulty is that some of the Chromebooks

that have broken have not been replaced. If I only had half of a class set, it would be difficult. It is really important to be able to have the 1:1."

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

A few teachers provided comments relating to parents' understanding and utilization of the district's technology assets. They commented that parents were presented with instructions for accessing myON books and Lexia at home. One teacher discussed students will be able to help their parents with accessing technology: "We are doing student conferences and the students will be able to show their parents how they get on Lexia. I think that parents have problems getting on the applications because they are not getting the applications from PPS.com." One principal commented on the opportunities students have had to share classroom work with their parents: "They did a lot of non-fiction reading in first grade. They chose an animal to research and were taught how to use Google Slides to present to the class. They also presented their work to other classrooms and to their parents." It was noted on the year-end status report that teachers use Seesaw and Evernote to share student work with parents: "Based on these teachers' positive feedback, we are working to secure a contract with Seesaw to roll out the app to a broader pilot with TechSmart teachers this year." One teacher commented that using technology to interact with parents does not seem equitable as not all parents have access to computers at home:

> *"Many of my students don't have access to computers at home. I have one kid who really wants to do stuff but he waits until he gets over to his grandmas work to use the computer there. It's interesting because it is not my kids of color or ELL students who are without access, but it is my low income white kids. The other families have been able to reach out. I don't use Class Dojo because it doesn't seem equitable."*

The mid-year status report provided descriptions about various methods for parent engagement including an initial communication with parents regarding the Ready4K, which is a text messaging tool used to engage family members in early literacy adoption. Additional information in the year-end status report indicated that over 100 kindergarten parents signed up for the Ready4K tool. Messages sent via text are offered in both English and Spanish. Sample messages sent to parents included:

Table 9. Sample Text Messages Sent to Parents

"Write a lovely little note to read during snack or lunch time: I love you because you are so nice! ¨ Can your child follow the words with his or her fingers as you read?"
"Growth: Keep writing letters! As you unload groceries, challenge your child to find all of the letters A-Z on labels. Can s/he say their sounds and write them?"
"Facts: Children in K have fantastic stories to tell. You can help your child discover how to write a story by asking them to talk about moments from their day."

Visible Leadership

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

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

PPS administrators have shared learnings internally with schools in the district and externally to other districts. One technology coach commented on how they have shared internally across the TechSmart schools: "We've shared among TechSmart schools. That's been our main communication this year. As far as branching out to other non-TechSmart schools, not so much." The TechSmart District TOSA voiced similar comments regarding the sharing of information:

> *"I won't speak for everyone, but I haven't done any communication outside of our district. We're doing a lot inside our district now. We have monthly leadership meetings where all the principals get together and share information. Something that's scaled and highlighted to other schools beyond TechSmart schools, is that Title I schools will be going to a 3:1 ratio of the same devices we're using for TechSmart."*

One technology coach provided an example of disseminating information externally to educators taking a course at Portland State University and to other TechSmart districts. One PPS principal said their school has hosted teachers from other schools in the district and commented on hosting teachers from schools that will be TechSmart schools in the upcoming school year:

> *"In Portland we are divided by clusters. I think our cluster is 10 or 12 schools. We hosted a site visit from the cluster where we talked about literacy. Of course TechSmart is a big part of that. We've also hosted different school visits from other schools as a result of that cluster. We have hosted other teachers from James John, King, Peninsula and Riglar. In the upcoming year James John and King will be an adoption school and the other two will be TechSmart schools."*

The mid-year status report provided additional information regarding dissemination of learnings from the TechSmart grant within the district. It was noted in the status report that information shared about the ASUS "flip" device, which is a convertible Chromebook with a 360° hinge, has led to other schools using these devices. The report provided further commentary about this: "myON e-library and ASUS Flip devices will be purchased for schools receiving Title I funding starting in the SY 17-18. This application was selected because it is easy to use, it offers many high interest texts, it has an expanding number of texts in both English and Spanish, and it has received positive feedback from TechSmart teachers and administrators. The goal of the adoption is to provide students in Title I schools with a larger variety of texts." Additionally, both the mid-year and year-end status reports contained a list of ways in which learnings are disseminated, including the Winter OTL Newsletter, TechSmart Website, and in the Monday Message. Shared learnings were also communicated through presentations to the PPS Board and

at the Superintendents 2016-17 End of Year Workflow Report and Presentation, and at the Board Orientation Retreat.

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

On the year-end teacher survey, 91.9% of respondents (n = 37) reported their administrators as being generally supportive of technology integration efforts. As noted in previous sections, teachers feel the district is supporting them in large part by providing the technology coaches. The impact of the turnover of leadership on teachers' feeling supported was described in the year-end status report:

> *"As would certainly be expected, we have seen some turnover in building leadership. Two of our Cohort 1 principals left their jobs before the end of Year 1. These leadership changes have had an impact - teacher surveys and interviews have shown that teachers feel less supported at schools where changes in leadership have taken place. While we are unable to prevent staff turnover, the effectiveness of our initial planning, clearly laying out the commitments and expectations of implementation, as well as the empowerment of and strong communication among staff at multiple levels of management, have helped us adapt and sustain the work through the turbulence. Indeed, through interviews with coaches and teachers, evidence suggests that the strength of our district and school-based coaches have mitigated the effects of the changes in school leadership."*

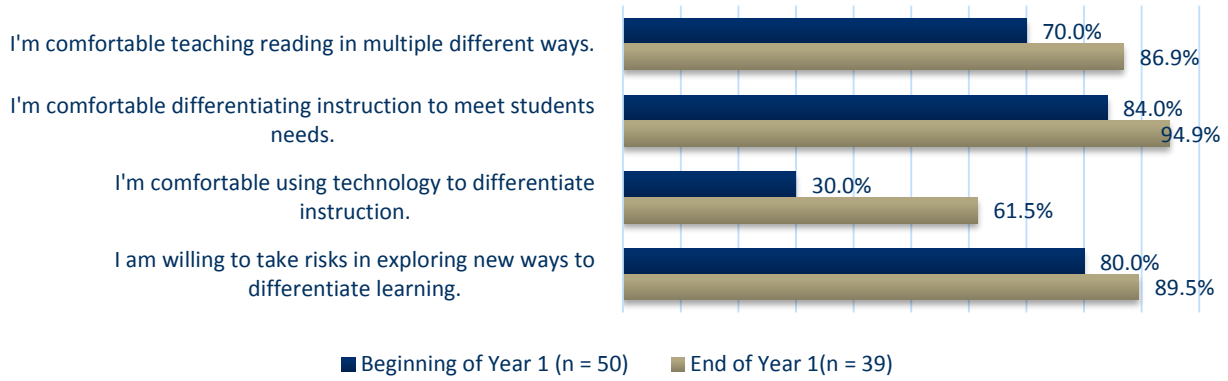
Data-Driven Improvement

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

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

As highlighted in the previous section on Teaching Effectiveness, teachers are increasing their use of data-driven instructional strategies. Figure 10 shows that teachers' comfort levels have risen with regard to teaching reading in different ways, differentiating instruction to meet students' needs, and using technology to differentiate instruction. Notably, teachers' comfort level with using technology to differentiate instruction increased by over 30 percentage points over the course of the year. In addition, by the end of the year, more teachers reported being willing to take risks in exploring new ways to differentiate learning.

Figure 10. PPS Data Driven Improvement (% responding "True of me/Very true of me")



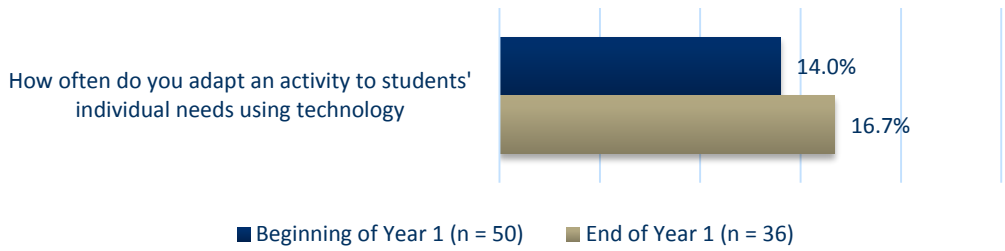
One teacher described how Lexia has helped her learn about students' needs for differentiated instruction: "I have seen the Lexia program, which works on a lot of grammar and phonics, has been super helpful in understanding what kids might need help with that I might not have addressed." Another teacher echoed an appreciation for Lexia:

> *"At the very beginning of my year I was shocked. Obviously I was getting to know my kids and they were getting to know me. I was also getting to know their instructional levels. Part of what they were doing online was allowing me to do that and look and see how they were doing, where they are struggling, and whether they were moving along with the program as it is intended. I have removed programs from the devices that were not beneficial for my kids and kept the ones that were… I have a student who is at the end of first grade who is working on a pre-preschool level. She is doing everything at her own level along with the other students."*

The mid-year status report provided additional details regarding the use of data to differentiate learning. In the report it was noted that teachers used Lexia for tracking purposes: “Some teachers are using Lexia to track student progress. For example, the Lexia dashboard displays what percentage of students are on track to meet benchmarks and how this percentage has changed since the beginning of the year.” The year-end status report provided further examples of how teachers use Lexia: “Lexia provides lesson plans/supplemental activities targeted at skills that students struggle with; teachers reported providing these activities to students (for example, printing out these activities for homework or small group work).” It was also pointed out on the mid-year and year-end reports that teachers were not using myON for tracking purposes due to limited alignment data.

On the teacher survey, teachers were asked to rate the frequency with which they adapt an activity to students’ needs using technology. By the end of the year, 16.7% of teachers reported that they adapted an activity to students’ needs “a great deal”, which is a slight increase from the 14.0% of teachers doing so at the beginning of the year. Although there was an increase, there is still ample room for improvement in increasing the frequency of teachers’ adaptation of activities for students’ individual needs (see figure 11).

Figure 11. PPS Teacher Adaptation of Activities for Students' Needs Using Technology (% responding "A great deal")



Funding & Budget

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

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

The two technology coaches that were interviewed as part of the SY 16-17 evaluation provided examples of how the district is working toward repurposing resources to support technology integration. One technology coach explained her dual role as the curriculum coordinator and described working with fellow teachers to improve the TechSmart initiative:

> *"I am the curriculum coordinator and the technology coach so I am kind of a dual role person. I have been working a lot with a third grade teacher who is technology oriented. Both the teacher and the media specialist have been helping with getting everything started. The three us have really worked together and shifted some of the things we were doing to support this. We did get rid of a computer lab, but the district will probably not allow us to use the laptops for testing."*

The second technology coach interviewed has a half-time position as a librarian. This technology coach offered an additional example of how their school is repurposing funds towards new technology: "Now that we have the actual devices in the classrooms, we have access to a lot of things that are free. I have a unique situation because I am also the librarian. Our principal is providing additional funding for the library to spend on a new program that will be implemented next year." The year-end status report indicated that the district has redistributed laptops and tablets purchased before the TechSmart grant to other grade levels who were not affected by the grant. In addition, it was noted in the report that administrators are allowing teachers to use existing staff meeting time to have technology PD.

Strategic Planning

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

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

The majority of leaders were unable to provide comments regarding the district's strategic plan and were not sure that the district even has one in place; however, one technology coach made reference to the district's need for strategic planning with regard to meeting the needs of the 21st century learner: "I feel like we struggle a lot and I think all school districts can say they are trying to keep up with the needs of the 21st century learner. We are also trying to keep up with the work they will be doing in the future which is a challenge for everyone. Schools are constantly behind in the curriculum provided and the resources. Having the digital technology will increase and impact our goals and how we reach them. In terms of the district's mission/goal and structural plan, it is to promote the highest level of learning and I think technology is a huge tool."

Engaged Communities & Partners

Parents, stakeholders, community groups and others are actively and systemically involved in helping students develop, learn, and achieve.

Do district leaders demonstrate increased communication with and among outside stakeholders regarding technology integration?

PPS is taking steps toward engaging communities and partners through technology integration efforts. One technology coach commented on engaging with their site council:

> *"Our site council was really curious about our technology use. There was some parent concern of degree of technology use in the school. They wanted some clarification about what are we doing and how much time are kids spending on computers. We did some surveys through our site council just to clarify our use and purpose. There was some harmony and buy-in there. Parents have been really involved in using both Lexia and myON at home."*

The TechSmart TOSA commented on the engagement of a technology coach and professional networks: "I can't say that there has been extensive engagement with outside stakeholders. Our lead technology coach participates in networks of like professionals within and around the community to stay up to date with incentives that are complementary to the TechSmart initiatives."

Evaluation Insights at Portland Public School District

The SY 16-17 evaluation for the Portland Public School District produced the following insights:

- With regard to the culture of support within the district for technology integration, several points can be made. Teachers and administrators emphasized that the support received from the technology coaches is effective and that the coaches are integral to the technology integration. As previously noted, a concern was expressed about the impact that future budget cuts will have on technology coaches and that without the coaches, teachers would be left at a disadvantage. On a general note, it was reported on the year-end survey that 91% of teachers felt supported by their administrators. This is encouraging, given that some teachers expressed that the turnover in leadership that they experienced had negatively impacted their perception of leadership support for the technology integration.

- Teachers consistently emphasized the need for additional PD for using myON and Lexia. Teachers expressed a need to learn more about students' myON and Lexia levels, as they are finding that these applications are making some inconsistent student placements. Teachers also expressed a need for support with viewing student data on these devices. Supplemental PD trainings may help to increase teachers' technology skill level, as only 55.0% of teachers rated themselves at Level 4 or Level 5, and an increase in teachers' technology skill levels may lead to more frequent use of technology.

- Overall, there is progress to be made in terms of introducing the technology in conjunction with the adoption of the Equity Based Balanced Literacy Framework. The EBBL adoption is a big change and adding the technology has been overwhelming for many teachers. This is why the majority of teachers are still using technology to substitute or augment traditional instruction rather than for modification or redefinition. Once teachers are able to grasp the EBBL framework, they will be more likely to begin adopting new instructional strategies as a result of the technology. Efforts have been made by the district to address this with Cohort 2 as they are adopting only the reading or writing portion of the EBBL framework during the first year of implementation. This allows for teachers to be less overwhelmed with the EBBL adoption and the technology integration.

- From an evaluation perspective, it will be difficult to tease apart the impact of the technology on student achievement outcomes since there are many variables changing as a result of the EBBL adoption. We envision designing the student impact study to compare the five EBBL TechSmart schools to the five EBBL non-TechSmart schools rather than a historical comparison group study as previously proposed.

Project Summary

Gresham-Barlow School District (GBSD) began implementation of its MHCRC TechSmart grant during the 2016-17 school year (SY 16-17) with Kindergarten through third grade classes at North Gresham Grade School and Kelly Creek Elementary School. The grant focuses on the literacy achievement gap, specifically for students of color, English Language Development (ELD) students, students with disabilities, and students living in poverty. GBSD provides full-time, on-site coaching from an Instructional Technology Coach (ITC) at each school, coupled with other PD opportunities and classroom technology supports, over four school years. Over this time period, GBSD intends to use these pilot schools' learnings and evaluation to build a well-vetted plan, systems, and resources to scale successful literacy instructional strategies and practices district-wide. GBSD's progress during its grant Year 1 is presented below in terms of the seven essential factors for effective transformation to a technology-rich teaching and learning environment.

Methods

A general description of the methods included in the TechSmart evaluation is included in the introduction to the full report. Data collection efforts for SY 16-17 in Gresham-Barlow School District are summarized below.

Teacher Survey

PRE designed a survey that was administered online to teachers in August of 2016 and April of 2017. Thirty-one teachers completed the beginning of year survey and 29 teachers completed the year-end survey.

Teacher Interviews

PRE conducted face-to-face interviews on April 28, 2017 with three teachers from Kelly Creek Elementary School and three teachers from North Gresham Elementary School.

District Leader Interviews

PRE conducted phone interviews in spring 2017 with five district leaders from Gresham Barlow School District including: the Director of Elementary Teaching and Learning, the Kelly Creek principal, the North Gresham principal, and the ITCs from Kelly Creek and North Gresham.

Leadership Rubric

The leadership rubric was completed by the Kelly Creek and North Gresham principals and one ITC.

Gresham-Barlow Classroom Observations

Gresham-Barlow School District conducted teacher observations using the leadership rubric described in the methods in the introduction to this report. A copy of this tool can be found in Appendix G. This tool was used to conduct individual teacher observations. Forty individual classroom observations were completed by GBSD. Twenty-eight teachers were observed at one time point and 12 of them were observed at a second time point.

Findings

The findings from the SY 16-17 evaluation at Gresham-Barlow are presented below and organized by the seven factors identified as essential for schools to effectively transform into technology-rich teaching and learning environments.

Teaching Effectiveness

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

Teachers and leaders interviewed as part of GBSD's SY 16-17 evaluation described the PD provided through the TechSmart grant as a mix of group and individualized PD opportunities. Specifically, teachers described group support occurring through technical assistance for using Smart Boards, which took place in October at Kelly Creek Elementary. Individualized PD took the form of a full-time, onsite ITC at each school who offered a significant amount of support throughout the year. Teachers from both schools noted the willingness of the ITC to help them become more comfortable with the technology and that the ITC was always available. Teachers made positive comments about the informal support that has been provided by their ITCs and specifically noted the benefits of having this person onsite. One teacher commented: "As teachers, we had an understanding of how to use technology through the formal training but not how to implement it in our classrooms. That's where the ITC has been instrumental. She offers optional technology workshops in the morning and makes sure that we aware of her presence…When I have questions, she is eager to come in and help." On the year-end status report, the Director of Elementary Teaching and Learning noted that between January and June over 200 informal professional learning opportunities took place at GBSD. These included co-planning, co-teaching, and ITC modeling in classrooms. Topics focused on various devices and applications including: Screencastify, Journeys, SeeSaw, Kidblog, Green Screen videos, and Google Classroom.

Table 1 shows that teachers spent a significant number of hours in both group and individualized PD. When rating the usefulness of the group PD versus the individualized PD, 25.0% of teachers rated the group PD as extremely useful, while 43.0% of teachers rated the individualized PD as extremely useful. When following up regarding the person who reported zero hours of PD, it was not clear whether this individual made an error when completing the survey or did not attend PD opportunities for a certain reason.

Table 1. Gresham-Barlow Teachers' Hours of PD during SY 16-17 (n = 29)

Hours of PD	Group PD	Individual PD
0 hours	3.4%	3.4%
1-8 hours	20.7%	48.3%
9–16 hours	44.8%	37.9%
17–32 hours	24.1%	3.4%
33+ hours	7.0%	7.0%

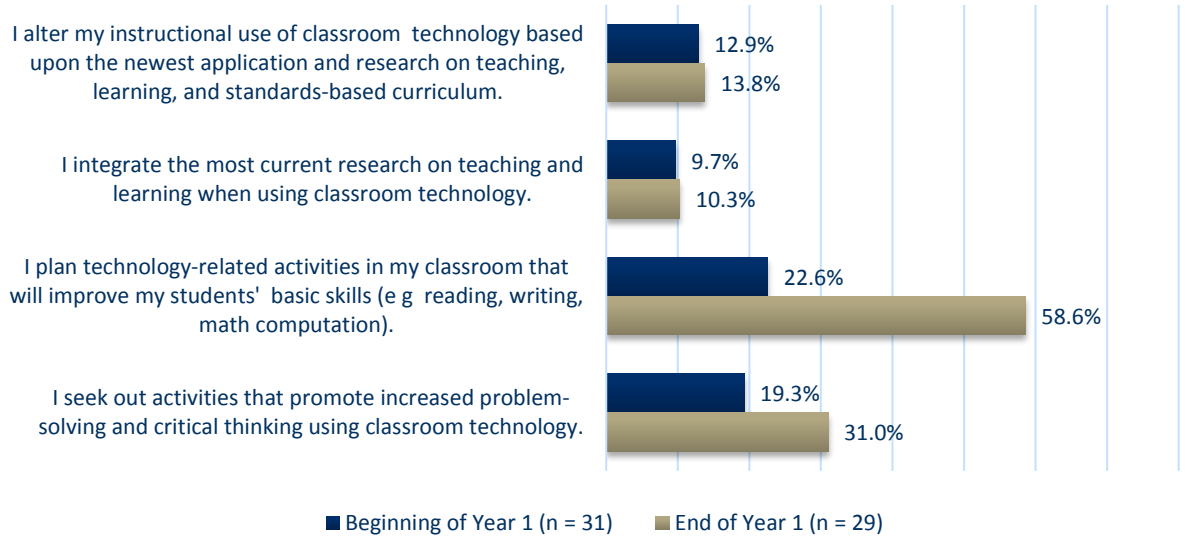
How is the professional development impacting teacher instruction?

As described in the methods section, PRE interviewed both teachers and leaders to assess the impact of the PD activities on teachers' instruction. One ITC who was interviewed noted that there has been a noticeable increase in the number of teachers who are using the online and digital curriculum. The ITC stated, "Students log into their Chromebooks and use Digital Texts a lot more now. I am also seeing more individualized instruction where students who are struggling can be helped in small groups." Additionally, one principal emphasized the importance of having the technology in her building as a result of the TechSmart grant:

> *"Previously we had no technology in our buildings. We only had one iPad in each classroom and a computer lab. Since the integration of the grant, this has dramatically changed. Students have daily access and the ability to use technological resources. Teachers also have new tools, such as the interactive white boards…Teachers are more willing to utilize the new resources including the apps and programs in their instruction."*

Among teachers who completed the year-end survey, sixty-six percent (66.0%) agreed they have identified instructional practices that use technology. Figure 1 shows that by the end of the first year of implementation, the percentage of teachers who indicated that they "plan technology-related activities to improve students' basic skills" increased by over 30 percentage points, and the percentage of teachers who reported that they "seek out activities using technology" increased by over 10 percentage points.

Figure 1. Gresham-Barlow School District Teaching Instruction (% responding "True of me/Very true of me")

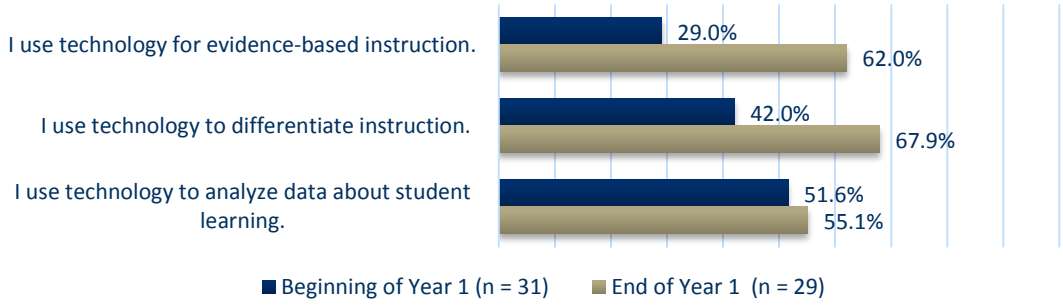


During interviews, teachers commented on their use of technology to support new instructional techniques. All teachers reported that they are integrating more technology as a result of the grant and they consistently reported that the ITCs were an integral piece of learning how to use the technology as demonstrated in the quote below:

"I think that the grant's PD model has been invaluable. There is so much information out there, I was struggling to find a good fit for kindergartners. My coach has helped me to integrate technology into my teaching in a meaningful way beyond just using iPad apps. The kids are gaining valuable experience with technology that will help them be successful in school."

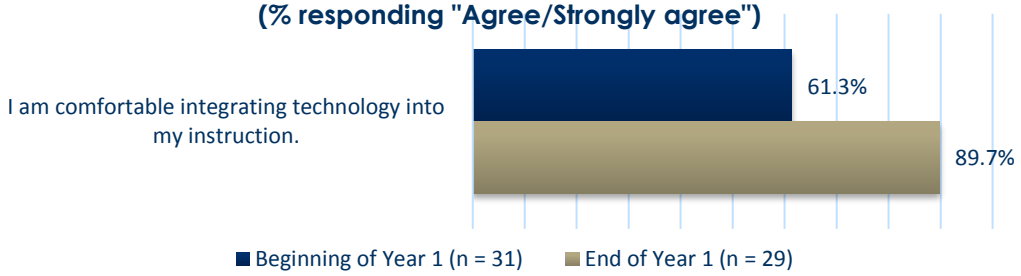
On beginning and year-end surveys, teachers rated the extent to which they are using technology for evidence-based instruction, to differentiate instruction, and to analyze data about student learning. Figure 2 shows that by the end of SY 16-17, there was a noteworthy increase in the percentages of teachers that reported using technology for evidence-based instruction and to differentiate instruction.

Figure 2. Gresham-Barlow School District Instructional Technology Use (% responding "A moderate amount/A great deal")



Teachers were asked to rate their comfort level with integrating technology into their instruction on the teacher survey. Figure 3 shows an increase of 28.4% of teachers by the end of the first year of implementation.

Figure 3. Gresham-Barlow School District Comfort Integrating Technology (% responding "Agree/Strongly agree")



Teachers rated their technology skill level on the beginning and year-end surveys. The surveys asked teachers to rate themselves at one of the following five levels:

Level 1: I get someone else to do technology-based tasks for me.

Level 2: I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job.

Level 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.

Level 4: I use a variety of technology tools, and I use them efficiently for all aspects of my job.

Level 5: I use technology efficiently, effectively, and in creative ways to accomplish my job.

As illustrated in Figure 4, there was an increase in teachers' self-reported technology skill level during the first year of implementation with a large percentage of teachers moving from a Level 3 to a Level 4. By spring, 51.7% of teachers rated themselves above Level 3 and no teachers rated themselves at Level 1. Evidence of this increased skill level was noted in a principal interview: "One of the goals of the grant and one of the goals for the district is to change instructional practice. We started at the beginning of the year with nobody knowing how to turn any of the devices on and now all teachers are using the Smart Boards for instruction."

Figure 4 . Gresham-Barlow School District Teacher Technology Skill Levels

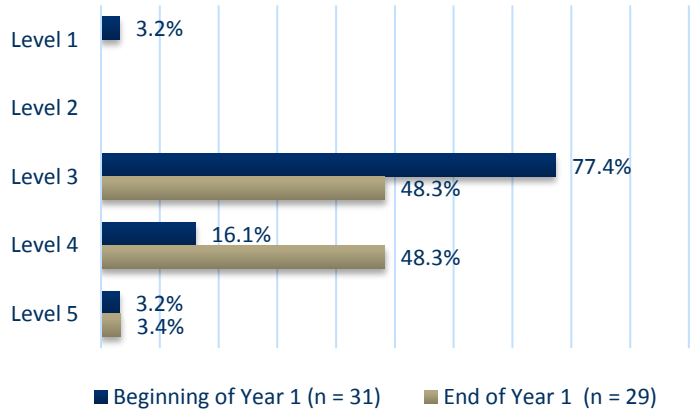


Table 2 presents results from the rubric designed to rate the use of technology to support instruction. Aggregate teacher self-ratings for the rubric as well as the aggregate ratings from two principals and one ITC about "TechSmart teachers as a whole" are presented below. The element of the rubric with the highest rating for both teachers and leaders was "using technology to engage students in learning" followed by "using technology to support planning and preparation." Compared to leaders, teachers rated themselves higher on the elements of "organizing physical space," "using questioning and discussion techniques," and "demonstrating flexibility and responsiveness."

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

	Teacher Survey (n = 29)	Leadership Rubric Survey (n = 3)
Planning and Preparation	3.24	3.33
Managing Classroom Procedures	2.86	3.00
Organizing Physical Space	2.62	2.33
Communicating with Students	2.83	3.33
Using Questioning and Discussion Techniques	2.86	2.67
Engaging Students in Learning	3.52 (n = 27)	3.67
Using Assessment in Instruction	2.79	3.00
Demonstrating Flexibility and Responsiveness	3.07 (n = 28)	3.00

The rubric also asked teachers and leaders to "Provide examples of how teachers used technology to support instruction for at-risk sub-groups (students of color, ELL, SPED, low SES) in the areas defined above." Teachers who completed the rubric provided examples of how the technology has supported instruction with SPED students as noted by one teacher, "I teach special education, and the use of specific apps to target specific skills for individual students has been very helpful and has increased student learning outcomes." Another teacher commented on how technology provides SPED students more time to complete their work: "Students in SPED are able to have texts read to them. They are then able to take their time to complete the task due to the fact that Google Drive saves their work to come back to at a later date."

Leaders who completed the rubric provided examples of how technology is being used to differentiate instruction. One principal wrote, "In my classrooms teachers are using interactive technology to differentiate instruction in order to meet the needs of all learners. Many teachers are using Google classroom to simplify creating, distributing, and grading assignments in a paperless format." An ITC echoed the use of technology for differentiated instruction and also commented on how technology is increasing access to texts for students of color:

> *"Students from low social economic status backgrounds that do not have access to technology or may lack the support at home for learning new skills are being taught how to use these tools at school. Students of color have access to new digital texts that are reflective of their own racial background, who may have not been previously exposed to that. Additionally, the devices allow for more individualized instruction which is helpful for SPED."*

Classroom Observations

The leadership rubric was completed at the individual level by the ITCs as a pilot for the grant. Twenty-eight teachers were observed at one time point and 12 were observed at a second time point. Table 3 provides aggregate observation scores. Observation scores for all elements of the rubric increased from the first to second observation. The second time point observations had the highest ratings for the extent to which technology is supporting "planning and preparation," "managing classroom procedures," "the

organization of physical space," and "engaging students in learning." Ratings on the individual level observation rubric were higher across all domains than the teacher self-report ratings and the aggregate leader ratings.

Table 3. Classroom Observations of Technology Used for Supporting Instructional Practices

	Classroom Observations	
	First Observation (n = 28)	Second Observation (n = 12)
Planning and Preparation	**3.43**	**3.92**
Managing Classroom Procedures	**3.57**	**3.92**
Organizing Physical Space	**3.64**	**4.00**
Communicating with Students	**3.71**	**3.83**
Using Questioning and Discussion Techniques	**2.63** (n = 27)	**3.50**
Engaging Students in Learning	**3.32**	**3.92**
Using Assessment in Instruction	**3.12** (n = 17)	**3.42**
Demonstrating Flexibility and Responsiveness	**3.43**	**3.50**

The rubric also asked observers to provide examples of how teachers used technology to support at-risk subgroups. One ITC observed differentiated instruction for student subgroups, "At the time of the observation, students were engaged in an individualized online math learning program, with skill-based practice levels. Subgroups of students have been placed in levels according to their math skill abilities for different topics." On the year-end survey, one teacher requested more support around using the technology to impact at-risk subgroups: "We have used our iPads to write words in word families. All of my students have created or have access to create digital portfolios. I am interested in how I can specifically target those at-risk subgroups."

What new instructional strategies are teachers reporting?

The year-end survey asked teachers to provide up to three examples of instructional strategies that have been particularly effective in their classrooms and to rate them on a scale of one to five. Some teachers responded to this question by listing the technology supports that they were using to alter instruction. The most common tools reported are listed in Table 4, along with the average effectiveness rating.

Table 4. New Technology Used for Instruction

Technology Supports	% of Respondents (n = 16)	Year-end Effectiveness Rating
Google Classroom	50.0%	4.26
Online Resources and Apps such as Screencastify, Story Maker and Kidblog, SeeSaw	37.5%	4.22
Smart Board	6.3%	4.00
Chromebooks	6.3%	2.00
iPads	6.3%	3.00

One example of an app that is being used by teachers as a formative assessment is SeeSaw as described in one teacher interview:

> *"I have been using SeeSaw as a formative assessment for our most recent journey's unit. Recently, the children have been learning about trees and they were able to draw in their student books. For a final assessment, they took pictures or drew pictures in SeeSaw then dictated the process. That experience was highly engaging with some students who have a hard time sitting down. They love having that sort of access and it is inspiring for them, which has resulted in some of them doing better work."*

Aside from teachers listing the technology supports being used during the school year, teachers also provided examples of how the new technology is being used for instruction on the year-end survey. Table 5 shows that the most common ways in which teachers report using the new technology to support instruction are differentiating instruction, group instruction, and showcasing student work.

Table 5. How New Technology is Being Used for Instruction

Technology Supports	% of Respondents (n = 16)	Year-end Effectiveness Rating
Differentiating Instruction	50.0%	4.00
Utilizing technology for group Instruction	43.8%	3.86
Utilizing technology to showcase work	31.3%	4.20
Utilizing technology for hands-on activities	25.0%	3.75
Using technology for independent work	12.5%	5.00
Utilizing technology for fluency	6.25%	5.00
Utilizing technology to engage students	6.25%	4.00
Utilizing technology for research purposes	6.25%	5.00
Utilizing technology for assessments	6.25%	3.00
Utilizing technology to support common core standards	6.25%	4.00

Table 6 includes example quotes from the mid-year status report describing how technology is being used to differentiate instruction

Table 6. How tools have been Used to Differentiate Instruction

Technology	Teachers' Application of the Technology
Google Classroom	"The third grade teams are utilizing Google Classroom to differentiate their instruction for students using their Chromebooks. For example, they will post a video or reading passage for students to view or read and then respond in writing and/or images. They can provide text at various reading levels to meet the needs of students at various levels. The opportunity to respond with text and/or images allows students to respond at their independent levels as well. This strategy not only allows students to record their thinking and learning, but also ensures that every student is engaged and given the opportunity to participate."
Screencastify	"Second graders at Kelly Creek are documenting their reading through Screencastify, a screencast extension. Students record themselves reading digital eBooks or reading passages. After recording themselves, students are

Technology	Teachers' Application of the Technology
	able to replay their screencasts, checking and assessing their own reading fluency. Sceencastify is also being utilized as a comprehension assessment tool. Students are using the extension to record "book talks," which include their book's main idea, details and other story elements. Each Screencastify is shared with their teacher, allowing teachers to easily assess their students' reading fluency, and comprehension. Teachers can then adjust the texts they are using and the instruction they are providing students in small group or individually based on that assessment."

How are the new instructional strategies impacting student engagement?

In addition to the example on page seven regarding the use of the SeeSaw app, teachers provided several examples of how the new technology has impacted student engagement during interviews. One teacher emphasized the positive impact that Epic Books has had on students at different reading levels:

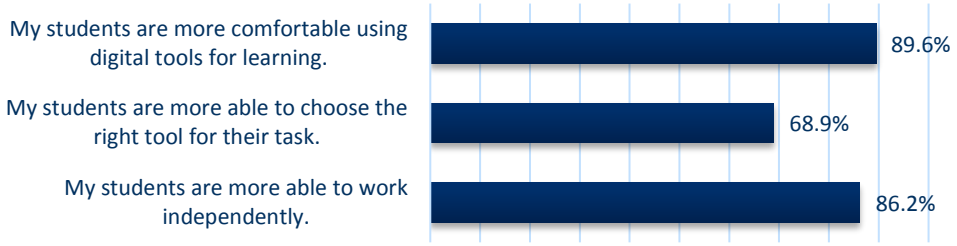
> *"I would say it has highly impacted student engagement in positive ways. I can use Epic Books to have differentiated readers for children that are limited in their English abilities and in their reading levels. I have read aloud as well as higher books for TAG children. They are all in the same topic so the kids can pick their best fit. It preserves integrity because they are not seeing one child read a higher level book, while they're reading a picture book that might have three words on it. Everyone is deeply engaged in their own story and their own books, nobody else has to know what they are doing, which allows them to all get the information and they can all participate in conversation."*

The mid-year status report provided additional information regarding the way in which the new instructional strategies are impacting student engagement. The report emphasized that although it was too early to know the impact, both teachers and students were utilizing the technology in a variety of ways including Screencastify to capture evidence of their learning, Journeys assigned texts, and Brainpop videos. The mid-year report also highlighted the impact of the technology on students with behavioral issues:

> *"The students are highly engaged in learning due to their enthusiasm and excitement about utilizing technology in their classrooms. Based on observational data made by teachers and principals at both schools, some students who have previously had behavior issues in the classroom are having a more positive school experience due to their excitement about interacting with the technology."*

The year-end survey asked teachers to rate students' comfort with using digital tools for learning, their ability to choose the right tool for their task, and whether students are able to work independently. Over 86% of teachers were in agreement that their students are more comfortable with using digital tools and are able to work more independently (See Figure 5).

Figure 5. Gresham-Barlow School District Year-End Student Technology Use (n = 29) (% responding "Agree/Strongly agree")



Finally, the year-end status report provided several examples of how technology has impacted student engagement. In particular, students are using Screencastify to document learning and are engaging with specific tools such as Epic, Storyline Online, and MackinVia. The year-end status report included several comments made by teachers, one of which noted, "My takeaway is that when technology is used to teach/learn, students get excited about assignments. They seem to 'dig in' faster and are often excited to share work and ideas with peers."

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

Due to the fact that there is a one year time lag in receiving student achievement data from ODE, these results are not included in this report. PRE will include student achievement data from GBSD's first year of implementation in the 2018-19 report. Although student achievement data were not included in this report, teachers and leaders in GBSD provided several examples of how technology supported instruction is showing promise for improving academic outcomes.

During the leadership interviews, the Director of Elementary Teaching and Learning indicated that it is too early to know if the new technology strategies are showing promise for improving student outcomes, "It is hard for me to guess at this early stage…I have seen third graders blogging and responding to each other's blog. The new strategies are going to help us engage them more." Several teachers who were interviewed noted promise of improved student outcomes. One teacher noted an improvement of student math skills as a result of the different math tools accessible on the Smart Board and the ability to practice IXL on their own computers. The relationship between student engagement and the potential for improved student outcomes was highlighted in a teacher interview: "As students get used to the idea that technology is not just for games, it will pay off academically in the long run. It is a huge draw because students would rather play with iPads than listen to me." Similar comments regarding the impact of the new instruction on future success was noted in a principal interview:

> *"I think it is too early to say in regards to whether or not the new strategies are impacting student achievement. I have always been a proponent of technology and this year I have seen kids pretty comfortable with word processing at 25 to 30 words per minute…The coding that they are doing and the way in which they have connected that to geometry and planes. Technology is relevant to the real world and the work they will be doing as they move into college and careers."*

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

Leaders who participated in the interviews were asked whether the instructional practices show promise for improving student academic outcomes with at-risk student subgroups, and those not on track to meet academic standards. In addition to the examples that have been provided thus far in the report, one ITC commented on the impact the practices have had on students with Individualized Education Plans (IEPs). Specifically, one ITC wants to integrate more digital text for students with IEPs:

> *"It is impacting our students who are on IEPs. Our Kindergarten and first graders are using a digital journal called SeeSaw. I see that being really practical for student groups. I think it appeals to all types of students with all types of backgrounds and levels of skill. That is a really promising practice. I would like to see our students who are on IEPs utilize the digital text even more as it has the potential to help all students."*

The other ITC commented on how new instructional practices are showing promise for ELD (LEP) students:

> *"I do feel like the instructional practices are showing promise. I work a lot with the ELD teachers and they are having the students bring their Chromebook into class almost daily. The students are doing slideshows and video recording. The video recording has really helped the ELD students especially prepare for their ELPA assessment. This is an area that I want to continue to grow next year and look more into adaptive technology, because other than the ELD teachers, it hasn't been as big of a focus this year because we wanted to roll everything out. Next year, I want to focus on those adaptive pieces and do some PD around that."*

One teacher echoed this ITC's desire to focus PD on using technology to support as-risk student subgroups in an interview. She commented, "I think the instructional practices are showing a little bit of promise, but everyone is receiving the same instruction regardless of deficits or color. I think the staff would benefit from receiving PD that is specific for those subgroups."

In an interview, one teacher reported that technology has made it easier to find and access culturally relevant materials: "When using the Smart Board to look up and show videos, it is much easier to find that content that will feature current events or people of color, which is super important for students. There are also resources that will read the books in Spanish and in English. This is the same with the iPads. We have a book program that has books in English and Spanish so instead of me having to buy another library of books, I have it readily available." Another teacher commented on how the technology allows SPED students to integrate more easily with their peers:

"I have two students who only come into the classroom to learn from their peers. They are able to get on their computers and listen to stories and look like a normal third grader. The capability to listen, because they are not strong readers and still be able to complete their word work is beneficial. The differentiation has been helpful. I have ELD students who are high in academics who just need language help and even my TAG students can extend their knowledge too."

One principal interview explained how ELD (LEP) and SPED students have benefited from the visuals but felt it was too early to tell whether the instructional practices would close the achievement gap:

"When I look at our ELD students, I would say this is going to impact them very positively, because there are so many more visuals available. When they are working on research projects such as researching animals in the rain forest, they all know how to search and find things to represent those words on a page that they may or may not know…It can happen right in the instruction when a child says, 'I don't know what that is,' and the teachers can search and display an image. I think that is huge for kids. Again will we see the achievement gap close? I don't know."

The Director of Elementary Teaching and Learning reported proficiency changes in student subgroup DIBELS scores in the year-end status report. As part of the grant, the district identified a demographically similar school for each of the pilot schools. For Kelly Creek that school is Powell Valley Elementary and for North Gresham it is Highland Elementary. In the year-end status report, the following proficiency changes were noted among GBSD students: "Kelly Creek showed more growth over the year than their comparison school in all subgroups (ELD, SPED, Hispanic students, and Black students), while North Gresham showed less growth over the year than their comparison school in all subgroups." Although outcome data for GBSD is not currently available for evaluation, the GBSD SY 17-18 evaluation will provide further detailed information relating to proficiency changes.

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

During this first year of implementation there was not substantial student data to analyze the rate of student growth or outcomes for at-risk student subgroups. As noted in the mid-year status report, in the following years of implementation, student growth, as a result of the technology grant, will be analyzed using the Initiative Logic Model. The year-end status report suggested that the district is showing promise for closing the achievement gap, particularly through the use of the technology by ELD and SPED teachers to support at-risk student sub-groups.

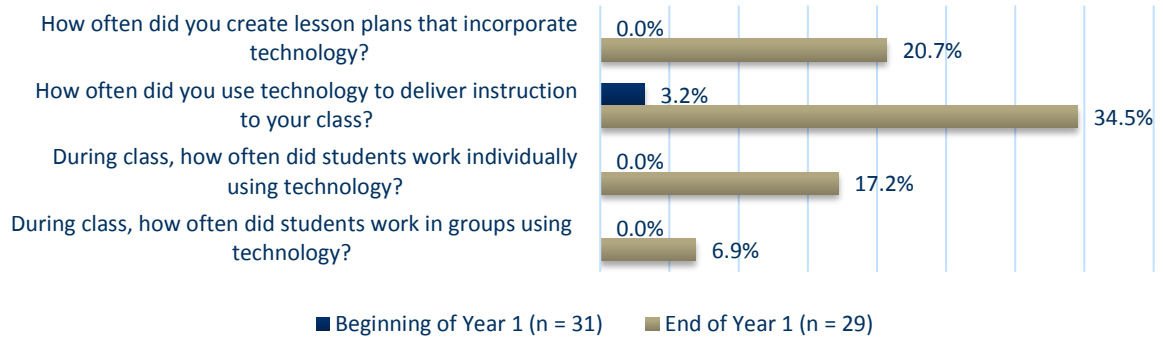
Digital Age Learning Culture

District embraces a cultural shift and views technology as positive.

Has the use of technology to support instructional practices increased?

Compared to teachers who completed the survey at the beginning of the year, the year-end survey responses showed an increase in the frequency of teachers integrating technology in the classroom (see Figure 6).

Figure 6. Frequency of Technology Integration Among Gresham-Barlow School District Teachers (% responding "A great deal")



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

Although a formal learning management system is not in place, GBSD is currently using Google Classroom and some free elements of Canvas and Schoology for this purpose. The year-end status report provided information regarding the adoption of a Learning Management System (LMS). Specifically, the LMS committee came to a consensus that at this point in time there was no need to implement an LMS as the Google tools have met the needs of the teachers. Benefits of using Google products were listed in the year-end status report which included: 1) easy setup, 2) saves time and paper, 3) better organization, 4) enhances communication and feedback, 5) works with apps used, and 6) affordable and secure.

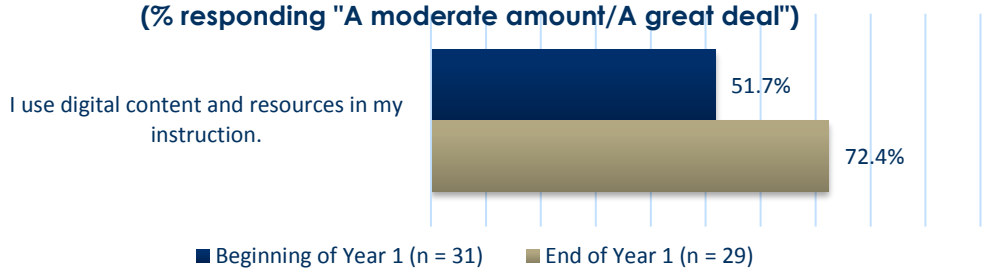
Several teachers use Google Classroom as noted by one teacher when describing effective instructional practices on the teacher survey, “An effective instructional practice is Google Classroom. I use Google Classroom to create assignments, and I use Google Slides to make presentations.” A second teacher wrote, “Students complete daily word work on Google Classroom. The assignment is posted and they are to respond and submit it. Students are then able to take their time and create work that is at their individual learning level.” In the mid-year status report, the Director of Elementary Teaching and Learning described how Google Classroom was being used:

"Google Classroom has created more efficiency for both students and teachers. That efficiency allows more time to focus on instruction and learning rather than logistics and material management. By using Google Classroom, teachers are able to quickly push-out assignments without having to make copies or take up instruction time to pass out large amounts of paper. Many teachers have set up their Google Classroom and are beginning to explore to pushing out multiple assignments digitally throughout the day. Teachers are noticing that Google Classroom helps keep students organized, as assignments can be turned in with the click of a button, and there aren't any loose papers to get lost."

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

As emphasized in previous sections of this report, the TechSmart grant funding has provided teachers with increased access to a variety of digital content and resources that they have been using to enhance their instruction. At the beginning of SY 16-17, 32.3% of teachers reported that students had adequate access to technology resources in their classroom. At the end of the school year, 75.9% of teachers reported students had adequate access to technology resources. In terms of increased use of digital content and resources in instruction, teachers reported a 20 percentage point increase in this area from the beginning of the year to the end of the year (see Figure 7).

Figure 7. Gresham-Barlow School District Instructional Technology Use of Digital Content and Resources (% responding "A moderate amount/A great deal")



Examples of the most commonly mentioned digital content and resources include Google Classroom, iPads, videos, and online resources such as applications to target skills and voice-to-text technology. Table 7 provides additional examples of how various teachers use each of these resources.

Table 7. Gresham-Barlow School District Teachers' Use of Technology

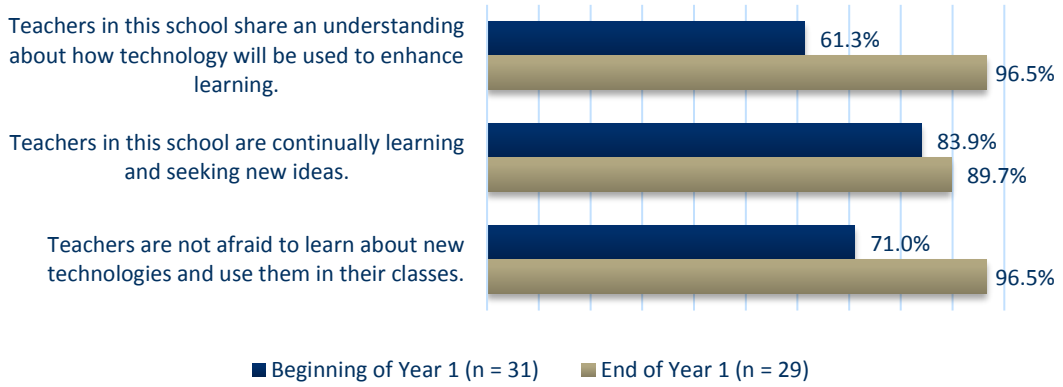
Technology	Teachers' Application of the Technology
Google Classroom	"Students in SPED are able to have texts read to them. They are then able to take their time to complete tasks due to the fact that Google Drive saves their work to come back to at a later date."
iPad	"We've used our iPads to write words in word families, and all of my students have created or have access to create digital portfolios. I am interested in how I can specifically target those at-risk subgroups with technology."

Technology	Teachers' Application of the Technology
Online resources or applications	"I work with at-risk students. Students receiving SPED are very motivated to use technology. Struggling writers enjoy using technology to type out their ideas. We are also able to use voice-to-text technology, which also allows struggling writers to express their ideas."
Online videos	"I have used videos—including online and ones created in class—to create visual representations of the concepts behind assignments." "Showing videos that describe and demonstrate key concepts. Looking up vocabulary words and finding images that represent the words."

Is there evidence of districtwide support for technology integration?

Teachers reported a strong technology culture in GBSD. At the beginning of the school year, 97% of teachers who completed the survey agreed that administrators are generally supportive of the technology integration which increased to 100% by year-end. Figure 8 shows the change in district-wide support for technology integration over the course of the year. The number of teachers who reported a shared understanding about how technology will be used to enhance learning increased by over 30 percentage points.

Figure 8. Gresham-Barlow School District Perceptions of a Culture of Support for Teaching Integration (% responding "Agree/Strongly agree")



In discussing the strong culture of support for technology, multiple teachers noted the support of the ITC and their principal in interviews. In terms of support at the district level, one teacher commented, "From the district, I know our coaches are supportive. At the school level, we have a strong culture of support towards technology."

Leadership interviews revealed additional evidence to support the culture of support for technology. One of the ITCs noted, "Our new superintendent is really forward thinking. I'm feeling positive about the way leadership is taking this on…I know that any time I go to my principal, they are here. I feel like leadership has been really supportive." Both principals and one ITC praised the work of the Director of Elementary Teaching and Learning. Additionally, one teacher interviewed commented on the Director's support: "Yes, I do feel supported mostly because the Director works in the district office and this was her grant, and I know they are looking at ways, with the bond, to improve technology across the district." The year-

end status report noted that teachers across the district have received Teacher Innovation Grants to support technology integration. Additionally, the district has begun an initiative to expand the use of technology through bond funds. Specifically, the district plans on having one device to every two students in all schools in the district.

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

Teachers who participated in interviews indicated that parents' understanding and utilization of the technology assets has increased in year one. For example, one teacher discussed using the SeeSaw application to engage parents:

> *"I have been using Seesaw and it links the parent into the kids' learning. Kids can comment on each other's work and parents can comment on their work. Instead of people presenting in front of the class, they can go look at each other's work online. They have reactions to their classmates and their parents seeing what they are doing. This is my first year, and I am trying to push it out school wide. That has changed things quite a bit."*

Such opportunities for parents to experience technology were described in both the mid-year and year-end status reports. The mid-year report described technology nights for parents and families, which took place in November and December. The year-end status report noted two additional parent engagement opportunities. Kelly Creek family night in May, focused on providing parents with opportunities to learn about coding, safe internet practices, and tutorials of technology in practice. Approximately 200 people participated. The second family night was held in April at North Gresham. Similar learning opportunities were provided to parents which included learning about safe internet practices, sessions on digital citizenship, and tutorials of technology in practice. Approximately 150 participants were involved. Two teachers who were interviewed discussed the use of QR codes for parent night, which allowed attendees to see their student's work (See Photo 1). Additionally, the year-end status report included digital journals created by students about their learnings which were also shared with parents.

Photo 1. Parent use of QR codes at Kelly Creek Elementary School

Visible Leadership

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

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

GBSD is sharing results both internally within the district and also with other districts. Both the mid-year and year-end status report noted sharing updates about the grant's activities and progress within the district. The mid-year status report provided the following comments:

> *"Even though we are very early in our grant implementation, we already have a huge opportunity on the horizon for impacting technology integration practices across the district. GBSD was fortunate enough to pass a bond in November. That bond will allow us to update and improve the technology available in many of our buildings. Our Chief Financial Officer, who is coordinating the bond work, has already stated that he plans to ensure that we take our processes and learnings from our two technology integration pilot schools into our planning and implementation plans for schools across the district."*

In leadership interviews, both principals described sharing results with their fellow colleagues who are principals in the same district. One of the principals noted that other principals have visited her school to see how the TechSmart grant is impacting the school. The year-end status report indicated learnings have also been disseminated through an article in Gresham-Barlow Schools Today Newsletter.

The Director of Elementary Teaching and Learning commented on shared learnings outside of the district. She described that the ITC participated in the Multnomah County Coaching Network, but they have not formally gone beyond that in this first year. One ITC mentioned using Twitter as a way to disseminate information in her interview and the second ITC noted, "My big hope for next year is to share with other districts what we are doing. The other technology coach and I have only reached out to our own networks."

The mid-year status report provided additional information regarding dissemination of learnings from the TechSmart grant project outside the district. It was noted that information has been shared during the Literacy Coaches Network but it was premature to share learnings with other districts. The year-end status report indicated several ways in which information regarding the grant has been shared or disseminated. Learnings have also been disseminated at the Oregon Tech Cadre Networking meetings, and in Multnomah County Educational Service District's county meetings.

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

At the time of the evaluation, district leaders were providing support for technology integration at various levels. As highlighted in the previous section on digital age learning culture, 100% of teachers (n = 29) who completed the year-end survey indicated that administrators at GBSD were generally supportive of technology integration efforts. Principals at both schools are supporting the technology integration by being actively involved in the grant trainings. The mid-year status report indicated that principals participated in the training that provided background information regarding the expectations and goals of the grant. Additionally, both principals attended a technology onboarding training that allowed them to work with the ITCs.

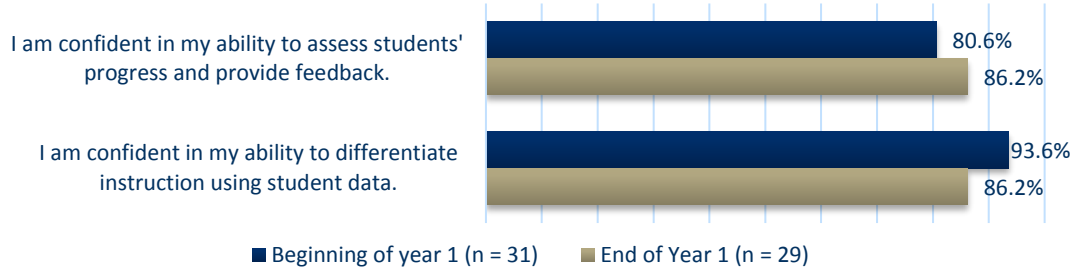
Data-Driven Improvement

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

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

As highlighted in the previous section on teaching effectiveness, teachers have been increasing their use of data-driven instructional strategies. As Figure 3 in the teaching effectiveness section shows, by the end of the year, over 55% of teachers participating in the survey increased their use technology to analyze data about student learning. Figure 9 displays more information about data-driven improvement efforts at the school.

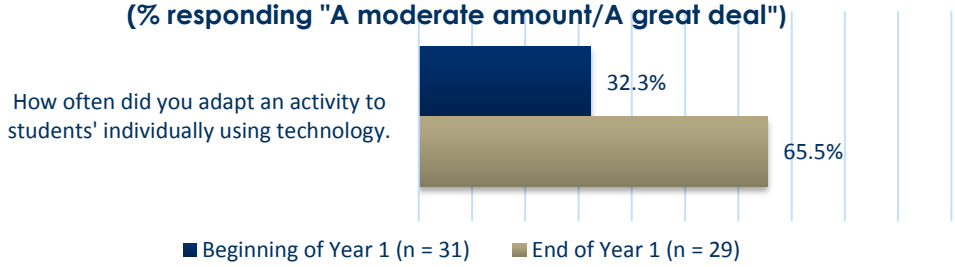
Figure 9. Gresham-Barlow School District Data-Driven Improvement (% responding "Agree/Strongly agree")



As shown in Figure 9, there was a slight increase in teacher's confidence in their ability to assess students' progress and provide feedback by the end of SY 16-17. It is worth noting that there was a slight decrease in teachers' confidence in their ability to differentiate instruction using student data, although it remained high at 86.2%. Similarly, at the beginning of the school year, 74.2% of teachers reported that they use formative assessments "a moderate amount" or "a great deal", while only 57.2% of teachers at the end of the year used formative assessments "a moderate amount" or "a great deal".

On the surveys, teachers were asked to rate the frequency with which they adapt an activity to students' needs using technology. Sixty-five percent (65.5%) of teachers responded either "a moderate amount" or "a great deal" by the end of the year, which was an increase of over 20 percentage points from the beginning of the year (see Figure 10).

Figure 10. Gresham-Barlow School District Teacher Adaption of Acitivites for Students' Needs Using Technology (% responding "A moderate amount/A great deal")



Funding & Budget

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

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

Leadership interviews provided examples of how the district is working toward repurposing resources to support technology integration. One ITC and principal commented that they are trying to shift how the parent group is utilizing their funds. The ITC stated, "I do not know how the district is repurposing resources in regard to positions, but conversations are starting to happen with our parent group here. Their focus is to support our technology and want to support us with programs and software." The principal provided a similar comment:

> *"The things that come to mind of the district repurposing resources and seeking funding outside to fund technology support, is that we're trying to shift how our parent group is utilizing the funds they have and how they can continue to support these efforts. For example, we rent headphones as part of the grant, which has enhanced the whole situation in terms of use and management… I believe at the district level, some of the funding has been repurposed for the IT support person, there were shifting funds in that regard."*

Strategic Planning

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

All of the leaders who were interviewed identified how the district's strategic plan reflects a shared commitment to improving outcomes for students. The ITC and one principal identified the grant's focus on improving literacy for students in kindergarten through the third grade. The ITC commented, "The grant is geared toward literacy for K-3. Within our district, that has been a big goal. I believe we are doing great things to support this goal in both of our schools, especially in regard to the literacy goals and the technology." The Director of Elementary Teaching and Learning identified and explained the district's technology vision:

"The strategic plan is huge and we've kind of been behind the technology curve until a couple of years ago when we wrote a district technology plan…What has been nice is that we have created a technology steering committee and have a much greater insight on technology…You need to be thinking about what is coming ahead. We do have a district technology vision which is focused on the purpose of having students prepared for the world they are going to be living in."

Engaged Communities & Partners

Parents, stakeholders, community groups, and others are actively and systemically involved in helping students develop, learn, and achieve.

Do district leaders demonstrate increased communication with and among outside stakeholders regarding technology integration?

As mentioned in earlier sections, the GBSD has only worked with families to enhance instructional practices. In the leadership interviews, the Director of Elementary Teaching and Learning commented, "At Kelly Creek we had a STEM night and families were brought in and engaged in technology-based activities. Beyond reaching families directly, we have worked with the district advisory committee, which is open to any parent around the district."

Evaluation Insights at Gresham-Barlow School District

The SY 16-17 evaluation at GBSD produced the following insights:

- In terms of technology integration in the classroom, the ITCs have been an integral part of the TechSmart grant. The teachers noted the usefulness and benefits of having an onsite ITC, especially at the start of implementation. Specifically, it has been noted several times that ITCs are open and willing to support teachers in any way possible to help them become informed and comfortable with the use of technology.

- Teachers and administrators have noted the increased use of technology in classrooms. The common tools that have been noted by both teachers and administrators include the use of Chromebooks, Google Classroom, and apps. Teachers' self-reported technology skill levels showed an increase at the year-end of the grant, with teachers reporting use of a variety of tools efficiently. This too was noted by the leaders who completed the classroom observations as they reported high rates on items relating to effective instructional practices being implemented in the classrooms.

- Although there was significant evidence of the use of the technology to differentiate instruction for student subgroups, teachers and ITCs expressed a desire to focus more on this in the future years of the grant. It is too early to have student achievement data to support whether the first year of implementation has impacted at-risk student subgroups but teachers have identified several technology tools that can potentially impact subgroup students. Such tools have included the ability to adapt reading for ELD (LEP) and use of the green screen. In that regard, teachers are asking for PD opportunities to learn how to impact students in these subgroups with the use of technology.

Appendix A. Evaluation Planning Tool

The following planning tool includes the TechSmart Initiative logic model, evaluation plan, and timeline. The logic model and evaluation plan have been designed to align with the MHCRC Framework for Successful Technology Implementation as described below. Pacific Research and Evaluation will work with MHCRC and each district to create a district specific program evaluation plan utilizing the tools in this document. The goal of utilizing this model is to provide consistency in the evaluation of projects across the TechSmart Initiative.

MHCRC Framework for Successful Technology Implementation: The framework includes seven factors that have been identified as essential to effective transformations to technology rich teaching and learning environments. As you can see, the components do not stand in isolation from each other; many components are linked and substantially overlap.

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

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

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

ACTIVITIES	OUTPUTS	SHORT TERM OUTCOMES – Y1-2 (TEACHING OUTCOMES)	INTERMEDIATE OUTCOMES – Y3-5 (STUDENT OUTCOMES)	LONG TERM OUTCOMES --Y6+
What are the key elements of the districts' project plans?	*What are the direct results of our activities?*	*What changes do we expect to occur within the short term?*	*What changes do we want to occur within the scope of the project?*	*What changes do we hope will occur over time?*
Teaching Effectiveness • Districts create a systemic PD plan, which includes technological, content and pedagogical knowledge. • Districts offer relationship based PD that includes the following components: a) Using technology effectively, b) implementing evidence-based instructional strategies. • Teacher PD familiarize teachers with the MHCRC Common Criteria*. • Districts provide technology support on-site for teachers. • MHCRC and districts identify and evaluate effective instructional practices using the Common Criteria*.	• Number of teachers who participate in PD annually. • Number and type of shared learning opportunities for teachers and administrators. • Number and type of project-related district learning cohorts (horizontal and vertical). • Number of students in student cohorts. • Number of cohort students representing targeted student subgroups (i.e., ethnic minorities, low SES, ELL's and SWD's).	• PD has helped teachers increase the use of technology for evidence-based instructional practices. • PD has helped teachers use technology to analyze and use data about student learning. • PD has helped teachers use technology to differentiate instruction. • The use of technology has increased teachers' ability to engage students and improve teaching of Common Core standards. • Instructional practices show promise for improving student academic outcomes.	• Student achievement has increased in one or more AHR outcome, as measured by student growth over time. • The rate of student growth in one or more AHR outcome is greatest for at-risk student subgroups (i.e., ethnic minorities, low SES, ELL's, SWD's, and those not on track to meet academic standards). • There is a positive correlation between teacher implementation of instructional practices and student AHR academic outcomes. • The positive correlation between teacher implementation of instructional practices and	• Instructional practices are transferable to varied classrooms or academic settings. • Longitudinal data show sustained and/or ongoing progress in relevant AHR outcomes.

			improvement in AHR academic outcomes has been replicated in multiple academic settings.	
<u>Digital Age Learning Culture</u> • Districts conduct an assessment of physical technology assets and how assets are being used. • Districts use a learning management system to provide data about student achievement. • Districts use learning management systems to identify and validate effective practices. • Districts have a system to provide digital content and resources across a district. • Districts provide trainings for parents to understand technology integration.	• Number of technology assets being used. • Number of teachers and administrators using the learning management system. • Number of parent trainings offered. • Number and percentage of parents attending training.	• The use of technology to support instructional practices has increased. • The learning management system is useful for identifying effective instructional practices (more efficient, easier, data driven). • Teachers have increased access to and use of digital content and resources. • There is district wide support for technology integration/innovation. • Parents increase understanding and utilization of districts' technology assets.	• An increased number of students are utilizing and engaging with new technology.	• Technology integration is seen as a shared responsibility among teachers, district leaders, and parents.
<u>Visible Leadership</u> • Districts participate in cross-project networking to share effective instructional practices.		• Each district identifies one or more effective instructional practices and disseminates information and results to other districts.		• Districts actively exchange data and information about effective instructional practices, so that those practices can be

• Leaders provide clear communication about the district's vision for instructional technology.		• Teachers feel increased support from district leaders regarding technology integration.		implemented and validated in new settings.
<u>Data Driven Improvement</u> • Districts use formative assessments for studying the effectiveness of instructional practices. • Teacher PD includes techniques to use student learning data and differentiate instruction. • Districts evaluate projects in relationship to their project-specific logic models and continuously adjust project activities based on evaluation data.	• Percentage of teachers using formative assessments.	• Teachers increase their use of formative assessments to identify effective instructional practices. • Teachers have increased ability to assess students' progress and provide feedback. • Teachers have increased ability to differentiate instruction using student data.	• Differentiated instruction improves student learning outcomes.	
<u>Funding and Budget</u> • Districts allocate adequate funding for technology transitions. • Districts seek funding for sustaining technology integration.	• Number and percentage of students with access to technology.	• Districts have identified at least one opportunity for repurposing resources to support technology integration.	• Student learning outcomes provide evidence to support continued funding in order to sustain technology integration.	• District resources sustain and enhance technology based instructional practices.
<u>Strategic Planning</u> • Districts' strategic plans prominently include technology as well as		• Diverse stakeholders are involved in developing the technology components of strategic plans.	• Evaluation data inform active strategic planning over time.	

mechanisms for scaling programs. • Districts identify long range plans to fund technology and PD supports.				
<u>Engaged Communities & Partners</u> • District leaders maintain effective communication with outside stakeholders regarding technology integration. • Districts create structures to support communication among stakeholders (e.g. website, community meetings).		• District leaders demonstrate increased communication with and among outside stakeholders regarding technology integration.		

Appendix B. Teacher Survey

MHCRC TechSmart Teacher Survey

Introduction

You are receiving this survey because you have participated in technology-related professional development or training as part of your school's TechSmart grant funded by the Mt. Hood Cable Regulatory Commission (MHCRC). MHCRC has partnered with an external evaluation company, Pacific Research and Evaluation, to conduct an evaluation of these grants and to learn about the effective instructional teaching practices that have emerged. A key element of this evaluation is to hear directly from teachers.

This survey will ask about your experience with technology-related professional development, new ways you have incorporated technology into your instruction, and other questions related to technology use. Your responses to this survey will go directly to Pacific Research and Evaluation and will only be shared with your school in aggregate form. We appreciate you taking 15 minutes to complete this survey.

This survey will ask you to report your PEID. We are asking for your PEID so Pacific Research and Evaluation can address research questions requiring analyses of how teachers implementation of instructional practices influences student outcomes. This information will in no way be used for purposes of teacher evaluation and will only be seen by these external researchers.

If you have questions about this survey, please contact Kristi Manseth at Pacific Research and Evaluation (Kristi@pacific-research.org).

Clicking on the "Next" below indicates that you understand that you do not have to answer any question(s) you choose not to answer. In addition, you understand that your identity will not be revealed in any way except to the researchers at Pacific Research and Evaluation involved in the TechSmart project, and that the results will not be reported in a way that will reveal individual participants.

Background Questions

1. **Please indicate your ID**
2. **What grade level(s) do you currently teach? (Mark all that apply)**
   - *Response options for this item will be tailored to the targeted grades for each project*

3. **How many years have you taught at the K-12 level?**
   - 0-2 years; 3-5 years; 6-10 years; 11-20 years; 21-30+ years
4. **What is your school?**

Professional Development Dose (Post Only)

5. Indicate the number of hours spent in technology-related group professional development (PD) over the past school year. (0 hours; 1-8 hours; 9-16 hours; 17-32 hours; 33 hours or more)
    - Please rate the extent to which this group PD was useful for integrating technology into your classroom (1 = Not at all useful; 5 = Extremely Useful)
6. Indicate the number of hours spent in technology-related professional development (PD) in the form of individualized training/coaching over the past school year. (0 hours; 1-8 hours; 9-16 hours; 17-32 hours; 33 hours or more)
    - Please rate the extent to which this individualized PD was useful for integrating technology into your classroom (1 = Not at all useful; 5 = Extremely Useful)
7. How effective has your TechSmart grant's professional development model been in terms of helping you change your instruction? Do you have suggestions for improvement?

Technology Skill Level

8. **Choose the statement that best describes the level of your technology skills. Please choose *only one* of the following:**
    - I get someone else to do technology-based tasks for me. (1)
    - I accomplish assigned tasks, but I am more efficient when I don't use technology to do a job. (2)
    - I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose. (3)
    - I use a variety of technology tools and I use them efficiently for all aspects of my job. (4)
    - I use technology efficiently, effectively and in creative ways to accomplish my job. (5)

Technology Integration (• 1 – Very untrue of me • 2 – Untrue of me • 3 – Somewhat untrue of me • 4 – Neutral • 5 – Somewhat true of me • 6 – True of me • 7 – Very true of me)

Rate the extent to which the following statements are true or untrue of you.

9. I alter my instructional use of classroom technology based upon the newest applications and research on teaching, learning, and standards-based curriculum.
10. I integrate the most current research on teaching and learning when using the classroom technology.
11. I plan technology-related activities in my classroom that will improve my students' basic skills (e.g., reading, writing, math computation).
12. I seek out activities that promote increased problem-solving and critical thinking using classroom technology
13. Students have adequate access to technology resources in my classroom (e.g., iPads, Chromebooks)

Teacher Support (Innovative Culture): (1 = Strongly Disagree; 5 = Strongly Agree)
Please indicate the extent of your agreement with each of the following statements. 5-point agreement scale

14. Teachers in this school share an understanding about how technology will be used to enhance learning.
15. Teachers in this school are continually learning and seeking new ideas.

16. Teachers are not afraid to learn about new technologies and use them with their classes
17. Administrators in this school are generally supportive of technology integration efforts.

Frequency of Technology Use: (1 – Never, 2 – Rarely, 3 – Occasionally, 4 – A moderate amount, 5 – A great deal)

Please answer the following questions looking back at the **2016-17** school year.

18. How often did you create lesson plans that incorporate technology?
19. How often did you use technology to deliver instruction to your class?
20. How often did you adapt an activity to students' individual needs using technology?
21. During class, how often did students work individually using technology?
22. During class, how often did students work in groups using technology?

Logic Model Outcomes

Please rate your agreement on the following items (1 = Strongly Disagree; 5 = Strongly Agree)

23. I am confident in my ability to assess students' progress and provide feedback
24. I am comfortable integrating technology into my instruction
25. I am confident in my ability to differentiate instruction using student data
26. I am confident in my ability to engage students through the use of technology
27. I have identified effective instructional practices that use technology (Post Only)
    - Please provide an example of an instructional practice utilized in your classroom. (Post Only)

Please how frequently you do each of the following (1 – Never, 2 – Rarely, 3 – Occasionally, 4 – A moderate amount, 5 – A great deal)

28. I use technology for evidence-based instruction
29. I use technology to differentiate instruction
30. I use formative assessments to identify effective instructional practices
31. I use technology to analyze data about student learning
32. I use digital content and resources in my instruction

33. **Please list and rate the effectiveness of new technology related instructional practices that you have integrated into your classroom this year. (List up to three practices) (POST Only)**

_____	**1**	**2**	**3**	**4**	**5**
_____	**1**	**2**	**3**	**4**	**5**
_____	**1**	**2**	**3**	**4**	**5**

Please rate how much you agree or disagree with the following statements about your current students in comparison with your students in the 2015-16 school year. (POST Only)

34. My students are more comfortable using digital tools for learning.
35. My students are more able to choose the right tool for their task.
36. My students are more able to work independently.

Please rate the extent to which technology supports the following aspects of your instruction. (1 – Not at all, 2 –Very little, 3 – Somewhat, 4 – To a great extent) **(POST Only)**

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

45. **Please provide examples of how you have used technology to support instruction for at-risk subgroups (students of color, ELL, SPED, low SES) in the areas defined above. (POST Only)**

Appendix C. Teacher Interview Questions

TechSmart Teacher Interview Question 2017 (Y2)

My name is _____. I am a research consultant with Pacific Research and Evaluation. We have asked you to attend this PD because you have participated in professional development or training as part of your school's TechSmart grant funded by the Mt. Hood Cable Regulatory Commission (MHCRC). MHCRC has partnered with our organization to conduct an evaluation of these grants and to learn about the effective instructional teaching practices that have emerged. A key element of this evaluation is to hear directly from teachers so we greatly appreciate your time today.

1. Can you start by telling us a little about the professional development you have received as part of the TechSmart grant this year or last?
    a. Technology focus? Instruction?
    b. Formal vs Informal?
2. How effective is this PD model in terms of helping you change your instruction?
    a. Suggestions for improvement?
3. How are you using technology to support new instructional techniques?
    a. Can you give examples of technology related instructional strategies that have been particularly effective in your classroom?
    b. Have any strategies been less effective?
4. Have you experienced any barriers to integrating technology into your classroom instruction?
5. How has your use of technology supported instruction impacted student engagement?
6. A focus of the TechSmart grants is closing the achievement gap. How has the use of technology supported instruction impacted learning for students of color, English Language Learners, those with an IEP, etc.
7. Have you adopted any new practices that show promise for improving student academic outcomes?
    a. How do you know it is improving? Real time data, etc.?
8. What type of support have you received at the district level for using technology to support instructional change?
    a. Is there a culture of support around technology in your school?
9. Do you have any other comments about your PD experience or technology integration?

Appendix D. District Leader Interview Protocol

TechSmart Leadership Interview Questions

1. What are the primary ways that you have seen the TechSmart grant funding impact your district?

2. How do you think the grant funding has impacted teachers' instructional strategies?
    a. Have you seen or heard about new instructional strategies being implemented?
    b. Do you think these instructional practices show promise for improving student academic outcomes?
    c. A focus of the TechSmart grants is closing the achievement gap. How has the use of technology supported instruction impacted learning for students of color, English Language Learners, those with an IEP, etc.

3. How is the district leadership providing support for technology integration/innovation?

4. Have you shared with other districts' what you are doing with your TechSmart grant?
    a. If yes, what type of information have you shared?
    b. If not, do you have plans to share successes with other schools/districts?

5. Has your district or school(s) repurposed resources to support technology integration in classroom learning over the past school year? For example, has the district or a school changed a current staff position role, shifted budget expenditures, changed PD schedules or types in order to support technology integration?

6. How does technology fit into your districts' strategic plan?
    a. Who has been involved in developing these components?

7. In the districts' work to enhance instructional practices through technology integration, have you worked with any stakeholders outside of your district? (community members/parents)
    a. Has this collaboration/communication increased with the grant?

8. Do you have any other comments about the TechSmart grant and the impact within your district?

FOR Principals and coaches only: We do have one additional request for principals and coaches for our evaluation. We have worked with the MHCRC to create a rubric designed to provide feedback on all techsmart teachers as a whole in terms of what kind of instructional changes you have noticed. Rating teachers as a group eliminates confidentiality issues and concerns that teachers are feeling directly evaluated as part of this program evaluation. We have this rubric available through an online link that we will send to you upon completion of this interview. It should only take 5 minutes to complete and we'd like your feedback within the next week. Does this sound okay?

Appendix E. Student Survey

TechSmart Initiative Student Survey

This survey will ask you some questions about the technology that has been used in your classes this year. Please answer the questions below honestly and to the best of your ability. Your responses will not affect your grade in class and will not be shared with your teacher. Thank you for your participation!

(Note: When the survey uses the word "technology," it refers to the use of computers, iPads, etc.)

1. What grade are you in?
- 9th
- 10h
- 11th
- 12th

2. Rate the following items from Strongly Disagree to Strongly Agree
- The use of technology in my classes has increased since last school year.
- I have felt more interested in class activities using technology compared to activities in which technology is not used. (Consider iPads, etc.)
- I like receiving instruction through technology.
- I concentrate better in class when technology is used to deliver instruction.
- I would work harder if my teacher used technology more often.
- I know that using technology gives me opportunities to learn many new things.
- I can learn many things when my teacher uses technology.
- I believe that the more often teachers use technology, the more I will enjoy school.

3. The use of technology in my class this year…
- Helped me stay focused.
- Did not affect my learning.
- Seemed to distract me.

4. When it comes to your learning, which of the following generally describes your experience with new technology tried in class this school year.
- The technology helped me learn more.
- Technology had a neutral impact; I learned the same amount whether I had technology or not.
- The technology slowed my learning.

5. Of the activities listed below, which TWO kept your INTEREST most in class in the last year? (Mark 2 choices)
- Lecture/presentation by teacher

- Large group work
- Small group work
- Reading/working by yourself
- Completing worksheets, posters, study guides, textbooks, questions, etc.
- Using apps (on iPads, Chromebooks, etc.)
- Using computers (typing, researching, creating presentation)
- Watching movies/films

6. Of the activities listed below, which TWO do you feel you LEARNED the most from in class in the last year? (Mark 2 choices)

- Lecture/presentation by teacher
- Large group work
- Small group work
- Reading/working by yourself
- Completing worksheets, posters, study guides, textbooks, questions, etc.
- Using apps (on iPads, Chromebooks, etc.)
- Using computers (typing, researching, creating presentation)
- Watching movies/films

7. I generally _____ using more technology in my classes this school year.

- Enjoyed
- Felt neutral about
- Disliked

8. After using more technology in my classes lately, I hope my teachers next year use…

- Less technology overall
- About the same amount as this year
- More technology overall

9. If you were given the choice to complete the same assignment with or without the use of technology, which would you generally choose?

- With technology
- Without technology

10. I generally _____ learning in class when technology is incorporated.

- Enjoy
- Feel neutral about
- Dislike

11. What technology do you wish your teachers would use? How would this help you to learn or make school more meaningful for you?

12. After trying some new technologies in my classes in the last year, how, if at all, have your opinions changed about teachers incorporating more technology into lessons? Explain.

Appendix F. Leadership Rubric

Pacific Research and Evaluation is contracted by the Mt. Hood Cable Regulatory Commission (MHCRC) to conduct an evaluation of the TechSmart Initiative and to learn about the effective instructional teaching practices that have emerged. A key element of this evaluation is to learn how teachers are utilizing technology to support their instruction.

You have been asked to complete this rubric to help provide some feedback on how teachers are utilizing technology to support their instruction. In order to ensure teacher anonymity, this form will ask you to rate all teachers in your district's TechSmart grant as a whole. This form is **not** in any way meant to be evaluative of TechSmart teachers and results will only be used learn about promising instructional practices that have emerged from the TechSmart Initiative.

This form should take approximately 10 minutes to complete. Your responses to this form will go directly to Pacific Research and Evaluation and will only be reported in aggregate form. If you have questions about this survey, please contact Kristi Manseth at Pacific Research and Evaluation (Kristi@pacific-research.org).

Clicking on the "Next" below indicates that you understand that you do not have to answer any question(s) you choose not to answer. In addition, you understand that your identity and the identities of individual teachers will not be revealed in any way except to the researchers at Pacific Research and Evaluation involved in the TechSmart project, and that the results will not be reported in a way that will reveal individual participants.

1. Please select your school district.
    a. David Douglas School District
    b. Gresham-Barlow School District
    c. Parkrose School District
    d. Portland Public Schools
    e. Reynolds School District
2. What is your role within the school district? (This question is optional)
    a. Principal
    b. Coach (TOSA, technology coach, ect.)
    c. Other _____
3. Please Indicate which cohort of TechSmart teachers you are completing this rubric for: (This question was only displayed to leaders from Reynolds School District)
    a. Cohort 1
    b. Cohort 2

Thinking about all your TechSmart teachers as a whole, to what extent do they use technology to support the following… (1 – Not at all, 2 –Very little, 3 – Somewhat, 4 – To a great extent)

1. **Planning and Preparation** (Includes knowledge of content and pedagogy, knowledge of students, setting instructional outcomes, knowledge of and access to resources, designing coherent instruction, and designing student assessments)

2. **Managing Classroom Procedures** (Includes instructional groups, transitions, materials and supplies, non instructional duties, and efficient classroom procedures)

3. **Organizing Physical Space** (Includes safety and accessibility, and arrangement of furniture and resources)

4. **Communicating with Students** (Includes expectations for learning, directions and procedures, explanations of content, use of oral and written language)

5. **Using Questioning and Discussion Techniques** (Includes quality of questions, discussion techniques, and student participation)

6. **Engaging Students in Learning** (Includes activities and assignments, student groups. instructional materials and resources, and structure and pacing)

7. **Using Assessment in Instruction** (Includes assessment criteria, monitoring of student learning, feedback to students, and student self-assessment and monitoring)

8. **Demonstrating Flexibility and Responsiveness** (Includes lesson adjustment, response to students, and persistence)

Can you provide specific examples of how teachers are using technology to support new instructional practices in any of the areas defined above?

Appendix G. Gresham-Barlow Classroom Observations

MHCRC has partnered with Pacific Research and Evaluation (PRE) to conduct a program evaluation of the TechSmart Initiative. A key element of our work is to examine how technology is supporting effective instructional practices across the TechSmart grantees. In order to learn about this key outcome, PRE developed this observation tool in partnership with the TechSmart districts and the MHCRC.

This tool is not meant to be evaluative, and results will not be linked to identifying teacher information.

We are asking that teachers be observed at least three times this school year (2016-17). In order to assess change over time, we ask that you indicate if this is the first, second, or third time you are observing this teacher. These results will be aggregated by time point for each school district.

1. **Is this the first, second, or third observation for this teacher?**
    a. First observation
    b. Second observation
    c. Third observation

Domain Descriptions

Planning and Preparation: Includes knowledge of content and pedagogy, knowledge of students, setting instructional outcomes, knowledge of and access to resources, designing coherent instruction, and designing student assessments

Managing Classroom Procedures: Includes instructional groups, transitions, materials and supplies, non instructional duties, and efficient classroom procedures

Organizing Physical Space: Includes safety and accessibility, and arrangement of furniture and resources

Communicating with Students: Includes expectations for learning, directions and procedures, explanations of content, use of oral and written language

Using Questioning and Discussion Techniques: Includes quality of questions, discussion techniques, and student participation

Engaging Students in Learning: Includes activities and assignments, student groups. instructional materials and resources, and structure and pacing

Using Assessment in Instruction: Includes assessment criteria, monitoring of student learning, feedback to students, and student self-assessment and monitoring

Demonstrating Flexibility and Responsiveness: Includes lesson adjustment, response to students, and persistence

Please rate the extent to which technology supports the following aspects of this teacher's instruction as defined above. Please mark N/A if there was no opportunitiy to observe this aspect of instruction. (1 – Not at all, 2 –Very little, 3 – Somewhat, 4 – To a great extent, 5 – N/A)

2. Planning and Preparation
3. Managing Classroom Procedures
4. Organizing Physical Space
5. Communicating with Students
6. Using Questioning and Discussion Techniques
7. Engaging Students in Learning
8. Using Assessment in Instruction
9. Demonstrating Flexibility and Responsiveness

Please provide examples of how this teacher used technology to support instruction for at-risk subgroups (students of color ELL, SPED, low SES) in the areas defined above. (Open-Ended)

Appendix H. Reynolds Walk Through Tool

Mt. Hood Cable Regulatory Commission Walk-Through Tool

To be used in the evaluation of strategies being implemented through the Mt. Hood Cable Regulatory Grant.

This survey is non-evaluative and teacher names will not be attached to the data. The data can be shared with the cohort of teachers if they wish, and will be shared with Justin Birmingham and the MHCRC board to review the success of the grant. A data summary may be shared with principals, but cannot identify individual teachers, and only building level data will be shared. The results will be used to inform how to inform the use of technology, prioritize staff development, and increase the working knowledge for staff around integrating technology in secondary Math who are participating in the MHCRC TechSmart Initiative in the Reynolds School District to best-support student learning.

* Required

Date *

mm/dd/yyyy

Building *

Observer First Name *

Teacher First Name *

There is evidence of educational technology in use within the classroom. *

- Yes
- No

Please note the following Standards for Mathematical Practice, when evidence is observed.

(Check all/any that apply)

Make sense of problems and persevere in solving them.
(Check all/any that apply)

- [ ] Find meaning in problems.
- [ ] Look for entry points.
- [ ] Analyze, conjecture and plan solutions pathways.

- [ ] Monitor and adjust.
- [ ] Verify answers.
- [ ] Ask themselves the question: "Does this make sense?"
- [ ] Not observed.

Reason abstractly and quantitatively.
(Check all/any that apply)

- [ ] Make sense of quantities and their relationships in problems.
- [ ] Learn to contextualize and decontextualize.
- [ ] Create coherent representations of problems.
- [ ] Not observed.

Construct viable arguments and critique the reasoning of others.
(Check all/any that apply)

- [ ] Understand and use information to construct arguments.
- [ ] Make and explore the truth of conjectures.
- [ ] Recognize and use counterexamples.
- [ ] Justify conclusions and respond to arguments of others.
- [ ] Not observed.

Model with Mathematics.
(Check all/any that apply)

- [ ] Apply mathematics to problems in everyday life.
- [ ] Make assumptions and approximations.
- [ ] Identify quantities in a practical situation.
- [ ] Interpret results in the context of the situation and reflect on whether the results make sense.
- [ ] Not observed.

Use appropriate tools strategically.
(Check all/any that apply)

- [ ] Consider the available tools when solving problems.
- [ ] Are familiar with tools appropriate for their grade or course (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website, and other technological tools).
- [ ] Make sound decisions of which of these tools might be helpful.
- [ ] Not observed.

Attend to precision.
(Check all/any that apply)

- [ ] Communicate precisely to others.
- [ ] Use clear definitions, state the meaning of symbols and are careful about specifying units of measure and labeling axes.
- [ ] Calculate accurately and efficiently.

- [ ] Not observed.

Look for and make use of structure.
(Check all/any that apply)

- [ ] Discern patterns and structures.
- [ ] Can step back for an overview and shift perspective.
- [ ] See complicated things as single objects or as being composed of several objects.
- [ ] Not observed.

Look for and express regularity in repeated reasoning.
(Check all/any that apply)

- [ ] Notice if calculations are repeated and look both for general methods and shortcuts.
- [ ] In solving problems, maintain oversight of the process while attending to detail.
- [ ] Evaluate the reasonableness of their immediate results.
- [ ] Not observed.

Please note the following 6 Educational Technology Standards, when evidence is observed, as they pertain to math instruction.

(Check all/any that apply)

Students Demonstrate creative thinking and problem solving skills in mathematics to innovative products and processes using (digital) technology.
(check any/all that apply)

- [ ] A. Apply existing knowledge to forecast possibilities and generate new ideas, products or processes.
- [ ] B. Create original works as a means of personal or group expression.
- [ ] C. Develop or apply models and simulations to explore complex systems, issues and trends.
- [ ] Not observed.

Students use digital media and environments to communicate and work collaboratively, across the global community, to support individual learning and contribute to the learning of others.
(check any/all that apply)

- [ ] A. Interact and collaborate with peers, experts, or others employing a variety of digital environments and media.
- [ ] B. Effectively communicate and publish to multiple audiences using a variety of media and formats.
- [ ] C. Engage with learners from other cultures to develop cultural understanding and global awareness.
- [ ] D. Contribute to project teams. Produce original works or solve problems in a team setting.
- [ ] Not observed.

Students select and apply digital tools to gather, evaluate, validate, and use information.
(check any/all that apply)

- [ ] A. Plan strategies to guide inquiry.

- [ ] B. Locate, organize and use information ethically from a variety of sources and media.
- [ ] C. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- [ ] D. Analyze, evaluate, and summarize information or data and report results.
- [ ] Not observed.

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
(check any/all that apply)

- [ ] A. Identify and define authentic problems and significant questions for investigation.
- [ ] B. Plan and manage activities to develop a solution or complete a project.
- [ ] C. Collect and analyze data to identify solutions and or make informed decisions.
- [ ] D. Use multiple processes and diverse perspectives to explore alternative solutions.
- [ ] Not observed.

Students understand issues related to digital technology and practice legal, ethical, and responsible behavior.
(check any/all that apply)

- [ ] A. Advocate and practice safe, legal, and responsible use of information and digital technology.
- [ ] B. Model and practice a positive attitude toward using digital technology that supports collaboration, learning, and productivity.
- [ ] C. Demonstrate personal responsibility for lifelong learning.
- [ ] Not observed.

Students utilize technology concepts and tools to learn.
(check any/all that apply)

- [ ] A. Select, use, and troubleshoot tools efficiently.
- [ ] B. Transfer current knowledge to learning of new technologies.
- [ ] Not observed.

Evidence of Student and Teacher Usage/Workflow when evidence is observed

Is there evidence the teacher provides feedback/communicates with students digitally (in legal compliance)? *

- ( ) Yes
- ( ) No

Is there evidence that students engage in the content through technology? *

- ( ) Yes
- ( ) No

There is evidence that the following is used in the classroom by teachers.

(check all that apply)

- [ ] Projector
- [ ] Student computers (Dell Venue Pro 10)
- [ ] Mobile Devices
- [ ] Teacher computer (Surface Pro 3)
- [ ] Schoology
- [ ] Student use of active stylus
- [ ] OneDrive (Cloud Storage)
- [ ] Online Video Lessons (Khan Academy, Discovery Ed, Teachertube, etc.)
- [ ] Excel
- [ ] Word
- [ ] OneNote
- [ ] Surveying/Polling Apps and Websites (Socrative, etc.)
- [ ] Online/Digital Collaboration
- [ ] Other: _____

There is evidence that the following is used in the classroom by students.
(check all that apply)

- [ ] Projector
- [ ] Student computers (Dell Venue Pro 10)
- [ ] Mobile Devices
- [ ] Schoology
- [ ] Student use of active stylus
- [ ] OneDrive (Cloud Storage)
- [ ] Online Video Lessons (Khan Academy, Discovery Ed, Teachertube, etc.)
- [ ] Excel
- [ ] Word
- [ ] OneNote
- [ ] Surveying/Polling Apps and Websites (Socrative, etc.)
- [ ] Online/Digital Collaboration
- [ ] Other: _____

Submit

100%: You made it.

Never submit passwords through Google Forms.

Appendix I. ELPA21 Proficiency Descriptors

2016 ELPA21 Proficiency Descriptors

Emerging

- ELPA21 Official Students are Emerging when they have not yet attained a level of English language skill necessary to produce, interpret, and collaborate on grade-level content-related academic tasks in English. This is indicated on ELPA21 by attaining a profile of Levels 1 and 2 in all four domains. Students scoring Emerging on ELPA21 are eligible for ongoing program support.

- Oregon "family friendly" version Emerging – A student at the Emerging level does not yet have the ability produce grade-level academic content in the English language. For the ELPA21 annual assessment, this means the student scores either Level 1 or Level 2 in each of the four domains of reading, writing, listening, and speaking.

Progressing

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

- Oregon "family friendly" version Progressing – A student at the Progressing level is approaching the ability produce grade-level academic content in the English language with support. For the ELPA21 annual assessment, this means the student scores above a Level 2 on one or more domains, but does not yet meet the requirements to be at the Proficient level on the four domains of reading, writing, listening, and speaking.

Proficient

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

- Oregon "family friendly" version Proficient – A student at the Proficient level can produce grade-level academic content in the English language. For the ELPA21 annual assessment, this means the student scores either Level 4 or Level 5 on each of the four domains of reading, writing, listening, and speaking.