



FCPSOn Phase One Evaluation Report: Year Two

Jennifer R. Morrison, Ph.D.  
Steven M. Ross, Ph.D.  
Kelsey L. Risman, M.A.  
Caitlin C. McLemore, M.Ed.  
Mary Laurenzano, M.L.A.  
Alan J. Reid, Ph.D.

Center for Research and Reform in Education (CRRE)  
Johns Hopkins University

June 2018

## Contents

EXECUTIVE SUMMARY .....	3
FCPSOn Phase One Evaluation Report .....	7
Method .....	8
Design .....	8
Measures .....	10
Results.....	12
Background: Year Two of FCPSOn .....	12
Knowledge and Support.....	13
Teacher Practices .....	21
Access to and Use of Technology.....	26
Physical Learning Environment.....	34
Student Engagement .....	36
Student Content Knowledge .....	39
Portrait of a Graduate Skills.....	42
FCPSOn Perceptions.....	48
Conclusion .....	64
References.....	69
Appendix A: Student Focus Group Protocol .....	70
Appendix B: Parent Focus Group Protocol .....	71
Appendix C: Classroom Teacher Focus Group Protocol.....	72
Appendix D: SBTS Focus Group Protocol.....	73
Appendix E: Principal Focus Group Protocol .....	74
Appendix F: Classroom Teacher Reaction Survey .....	75
Appendix G: Student Reaction Survey .....	79
Appendix H: Parent Reaction Survey Protocol .....	81
Appendix I: Classroom Teacher Survey Descriptive Statistics and Frequencies .....	83
Appendix J: Student Reaction Survey Descriptive Statistics and Frequencies .....	90
Appendix K: Parent Reaction Survey Descriptive Statistics and Frequencies .....	97

## **EXECUTIVE SUMMARY: FCPSO Phase One Evaluation Report**

The purpose of the present study was to gather formative and summative data related to the FCPSO initiative during its second year of implementation in the 2017-18 school year within Fairfax County Public Schools (FCPS). The present study documents program implementation in 15 Phase One schools and stakeholder feedback for future FCPSO schools. Key components of FCPSO include the distribution of personal laptops to all students in Phase One schools, professional development (PD), and the resulting impact on intermediary outcomes relating to the goals of improving students' content area knowledge and *Portrait of a Graduate* skills (See Figure 1).

### **Professional Development and Support for Implementation**

Our findings indicate that teachers feel highly supported in their implementation of FCPSO by both SBTS and principals. Interviews and focus groups with stakeholders reveal that SBTS are central to the success of the initiative in Phase One schools and SBTS themselves convey excitement and motivation to support implementation. Principals are also very supportive of their teachers, encouraging them to experiment and innovate in their classrooms, an approach that teachers value. While teachers conveyed feeling supported during the initiative, there were questions raised regarding professional development for educators in both Chantilly Pyramid and eLearning Backpack schools. Specifically, findings indicated needs for professional development regarding various teaching and learning approaches to support FCPSO and *Portrait of a Graduate* skills development.

We also noted discrepancies in knowledge of the initiative between Chantilly Pyramid and eLearning Backpack teachers and parents. Chantilly Pyramid stakeholders conveyed a stronger awareness of the initiative and related outcomes as compared with eLearning Backpack stakeholders. This finding may be partially explained by the fact that three of the six eLearning Backpack schools are in their first year of school-wide implementation; other eLearning Backpack schools partially implemented last year while the entire Chantilly Pyramid is in the second full year of implementation. It seems teachers in eLearning Backpack schools and parents within both groups would benefit from increased communication from the district regarding the FCPSO initiative and expectations for implementation.

### **Intermediary Outcomes**

Findings related to teacher practices suggest that teachers in Phase One schools provided students with multiple approaches for accessing content and use varied strategies to facilitate and guide student learning. Survey responses indicate that teachers are more frequently utilizing practices consistent with FCPSO goals as compared with the previous year. In focus groups, teachers described a shift in their classroom to a more flexible, personalized approach to content and students. Teachers have also become more fluent with technology integration. Our findings suggest that, importantly, the majority of teachers and students have overall positive views towards the use of technology and learning. Further, teachers generally report high levels of efficacy related to technology integration. Taken with the findings related to professional

development needs, it appears the district is well positioned to leverage the positive perceptions of both teachers and students to more fully expand on the technology integration practices presently in place.

Regarding students' use of technology, the majority indicated almost daily use of devices for communication, assessment, and media (e.g., music, videos, games). Students and teachers indicate that school-issued personal devices are a central component of every school day, and that students use their device in multiple ways including to communicate with teachers and peers, demonstrate learning, and access educational content through web-based platforms. The majority also conveyed that the devices made learning more interesting and often facilitated students' turning in homework, completing assignments, and collaborating with peers. However, students at all levels conveyed that devices may be distracting at times and given the relatively frequent self-reported use of devices for media-based activities, this finding is not too surprising. Relatedly, a consistent concern expressed by many stakeholders (e.g., SBTS, parents, and teachers) was the use of devices for inappropriate and off-task behaviors.

The impact of the initiative on student engagement was evidenced from multiple data sources. Findings suggest that Chantilly Pyramid teachers appear to be more firmly convinced than eLearning Backpack teachers that student engagement has increased due to the initiative. Principals of both groups, however, reported increased engagement among their students. Principals tended to attribute increased engagement to an increase in the degree to which students are directing their own learning experiences and interacting with personalized content. Importantly, parents from both groups also described positive impacts of the initiative on their child's engagement in school including high motivation to use the device to complete tasks and practice new computer skills.

### **Student Content Area Knowledge**

Stakeholders provided mixed views regarding whether there has been an impact of FCPSON on student content area knowledge. Teachers from the Chantilly Pyramid and eLearning Backpack schools reported different impacts on student devices on learning, with teachers from eLearning Backpack schools reporting less positive impressions. Parent perceptions were also mixed. In both groups, they expressed concerns about the consistency of quality of instruction and curriculum delivered through their child's device. Principals from both groups, however, had an overall positive view of the impact of the initiative on learning. For example, in the eLearning Backpack group, they mentioned with notable frequency the positive impact on students with special education needs. SBTS from both groups also spoke positively about the impact on student learning. Last, students appeared to equate higher engagement with improved learning, noting that the devices have made learning more fun and the devices provided them greater flexibility in how they demonstrate their learning. Teachers referenced this flexibility in terms of how their instructional practices have changed.

### **Portrait of a Graduate Skills**

Given the relative newness of the initiative, we would not yet expect to see an impact on *Portrait of a Graduate* skills. Indeed, our observations suggest that only about half of the classrooms explicitly demonstrate practice of these skills and teachers' survey responses

regarding an impact on these skills are comparable with the first year of FCPSOn. Teachers most frequently mentioned “students as goal-directed individuals” and an increase in collaborative opportunities. Further, principals and SBTS tended to agree that students have increased acquisition of associated skills. Students conveyed they believed that they are good communicators, collaborators, ethical and global citizens, creative thinkers, and goal-directed and resilient individuals. Interestingly, the skill students agreed with the least is the tendency to use time wisely on their own.

### **FCPSOn Perceptions**

Overall, stakeholders appeared highly positive towards the initiative in its second year. Strengths referenced included increased student engagement and motivation to learn, equitable access to technology, collaboration among teachers and students, differentiated instruction, student acquisition of technology skills, and exposure to digital programs and online resources, including course-related content by students.

Not surprisingly given the relative newness of the FCPSOn initiative, stakeholders identified several weaknesses. Across data sources and participant groups, concerns were raised regarding the curriculum and instructional approaches, device issues (both technical and involving students’ off-task behaviors), and communication and relationships between parents and the district/individual schools.

Stakeholders did offer recommendations that were consistent with the concerns expressed about the initiative. First, while teachers and principals are complimentary of the professional development opportunities provided up until this point, multiple stakeholders (including teachers themselves) indicate that teachers are in need of additional professional development related to FCPSOn and *Portrait of a Graduate* skills along with continued and increased opportunities to collaborate with peers. Second, the district needs a stronger focus on digital citizenship and may consider better regulating the content students may access both in and outside of schools. Third, educators would benefit from clear and consistent standards for blended learning and technology integration.

### **Summary and Recommendations**

This evaluation report presents findings for schools now in their second year (2017-18) of implementing FCPSOn. Findings indicate an impact on evaluation model components, most notably in changing teacher practices and increasing accessing to technology, which have in turn positively impacted student engagement. Based on the findings, the following recommendations are offered for future FCPSOn implementation:

- **Professional development.** Teachers would benefit from more targeted professional development specific to practices prescribed by FCPSOn. They would also benefit from professional development on increasing *Portrait of a Graduate* skills.
- **Increase teacher collaboration.** Teachers noted the importance of learning from their peers and should be given ample time to do so in order to share experiences and plan lessons.

- **Student digital citizenship.** FCPS should consider a stronger emphasis on digital citizenship, along with regulating access to online content.
- **District communication.** FCPS may consider increased communication with eLearning Backpack teachers regarding FCPSO and *Portrait of a Graduate* skills. In addition, parents in both Chantilly Pyramid and eLearning Backpack schools would benefit from increased communication regarding the initiative, particularly in terms of the instructional approach employed by teachers, program goals, and expected educational benefits.

## FCPSO Phase One Evaluation Report

The purpose of the present study was to gather data related to the FCPSO initiative during its second year of implementation in the 2017-18 school year within Fairfax County Public Schools (FCPS). Interviews, surveys, and focus groups yielded summative information related to all 15 of the FCPSO Phase One schools and formative feedback from teachers, administrators, students, and parents for future FCPSO schools.

Key components of the evaluation of FCPSO (see Figure 1) include the distribution of personal laptops to all students in Phase One schools (referred to as the 1:1 or “one-to-one” initiative), professional development (PD), and the resulting impact on intermediary outcomes relating to the goals of improving students’ content area knowledge and *Portrait of a Graduate* skills. The intermediary and long-term outcomes represented in the evaluation model relate to the FCPS Learning Model that includes the major components of a learner-centered environment, a concept-based curriculum, meaningful learning experiences, and purposeful assessment of student learning.

The 1:1 initiative in FCPS supports the *Portrait of a Graduate* adopted by the FCPS school board in the fall of 2014. The *Portrait of a Graduate*, while still focusing on academic achievement, allows FCPS to move beyond high-stakes testing and develop student skills that employers are seeking, including computer skills and technology literacy. Graduating students will be effective communicators and collaborators, ethical and global citizens, creative and critical thinkers, and goal-directed and resilient individuals. PD provided by FCPS and local schools supports teacher efforts to integrate technology and digital curriculum into their classroom and support students’ development of *Portrait of a Graduate* skills.

The current evaluation examines components of the initiative including the impact of the distribution of personal laptops to all students and PD offered to administrators and teachers on intermediary outcomes (e.g., teacher practice, access to and use of technology, the learning environment, student engagement) and long-term outcomes including *Portrait of a Graduate* skills and student achievement (see Figure 1).

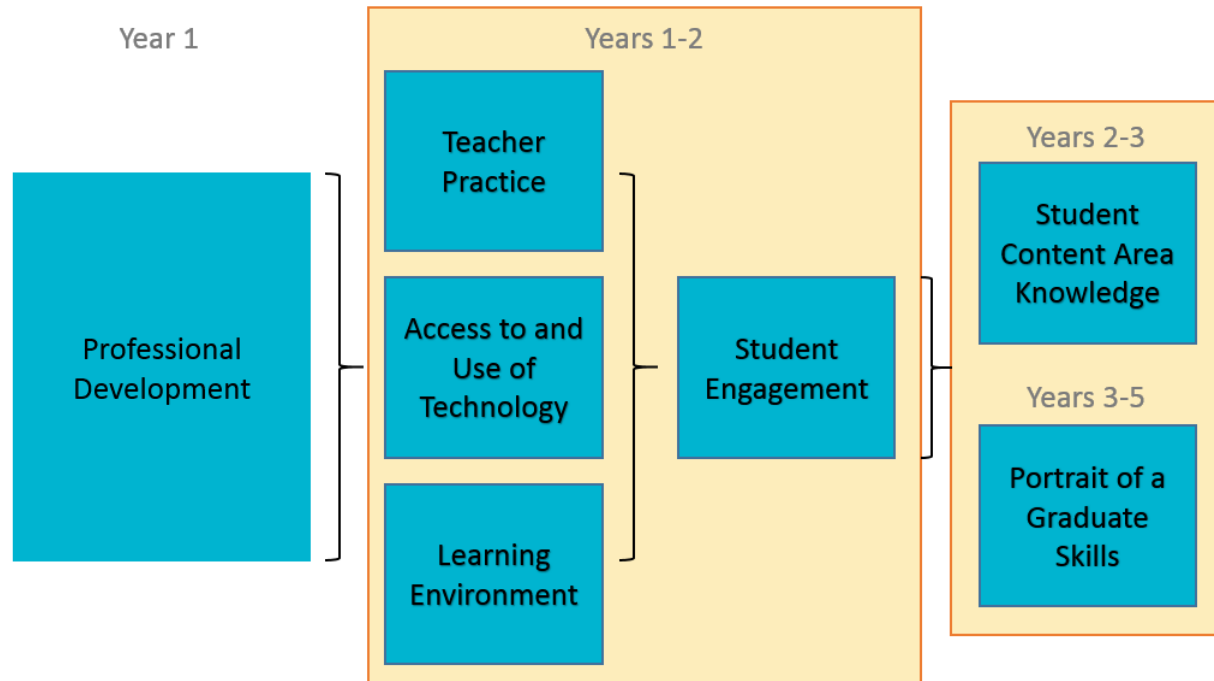


Figure 1. FCPSO evaluation model.

Based on the perceptions of key participant groups (teachers, students, parents, and district administrators/leaders), the following evaluation questions were identified as areas of focus for the second year of the study:

1. What are the impacts and best practices of district-wide and site-based professional development?
2. To what degree and how do teacher practices change over time?
3. To what degree do students demonstrate over time *Portrait of a Graduate* skills such as collaboration, critical thinking, self-efficacy, ethical behavior, and global awareness?
4. What is the fidelity of program implementation each year and across years?
5. What are the experiences and perceptions of key stakeholders and participants (e.g., technology integration specialists, classroom teachers, principals, students)?
6. To what extent do students grow over time in increasing content area knowledge?

## Method

### Design

The current study employed a mixed-methods evaluation design, including qualitative and quantitative data collected from students, teachers, parents, school principals, and school-based technology specialists (SBTS). The FCPSO initiative is a developing program initiated in 15 Phase One schools in 2016-2017. The evaluation design addressed the summative needs of providing evidence of implementation and the formative needs of providing recommendations for program improvement.



FCPS is a large suburban school district serving more than 188,000 students in over 196 schools and learning centers, including 141 elementary schools, 23 middle schools, 22 high schools, and 3 alternative/adult high schools. As of fall 2017, just over a quarter (29%) of students were eligible for free and reduced-price meals, and approximately 29% received English for speakers of other languages (ESOL) services<sup>1</sup>. FCPS serves predominantly White students (39%), followed by Hispanic (26%), Asian American (20%), Black (10%), and students who are multiracial (5%). FCPS has divided Fairfax County into five regions; each region is comprised of four or five high school pyramids and their feeder elementary and middle schools. The current evaluation of Phase One schools included all nine (9) schools in the Chantilly Pyramid and six (6) schools participating in the Virginia Department of Education eLearning Backpack (eLB) Grant. The Chantilly Pyramid is in Region 5; eLB schools are located throughout the district. We discuss these two groups in further detail below. Participants in the current study included students, teachers, principals, school-based technology staff, and parents of students in Phase One schools.

Chantilly Pyramid (CP) schools consisted of elementary ( $n = 6$ ) schools, middle ( $n = 2$ ) schools, and one high school that began school-wide implementation in the 2016-17 school year. Demographics for these nine schools are presented in Table 1.

Table 1.

*Chantilly Pyramid school demographics (2017-18)*

School Name	Enrollment	Race/Ethnicity				Free/Reduced Price Meals %	English Language Learners %	Special Education %
		White %	Black %	Hispanic %	Other <sup>1</sup> %			
Brookfield El	842	19.7	10.3	42.6	27.4	56.7	54.6	12.1
Greenbriar East El	964	39.1	9.1	17.7	34.1	24.1	33.9	15.6
Greenbriar West El	888	28.4	4.1	10.2	57.3	11.9	26.4	8.7
Lees Corner El	779	44.8	4.4	11.4	39.4	15.1	29.1	14.2
Oak Hill El	862	41.8	2.9	6.8	48.5	5.9	13.5	13.0
Poplar Tree El	762	45.1	2.6	8.1	44.2	5.4	13.9	13.5
Franklin Middle	882	48.5	7.1	13.2	31.2	17.5	22.4	14.4
Rocky Run Middle	1,322	32.2	3.7	10.9	53.2	12.3	14.6	7.5
Chantilly High	2,813	41.1	6.4	14.0	38.5	16.2	12.2	16.9

<sup>1</sup> "Other" includes the following race/ethnicity categories: American Indian/Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Two or More Races.

Data retrieved from [www.schoolquality.virginia.gov](http://www.schoolquality.virginia.gov)

eLearning Backpack (eLB) schools included six high schools in FCPS. Three of these schools, Annandale, Falls Church, and Lee implemented in select areas during the 2016-17 and expanded school-wide during 2017-18; the other schools implemented school-wide in 2016-17. Demographics for these schools are presented in Table 2. One school serves students across all regions and the remaining are in Region 2 ( $n = 3$ ) and Region 3 ( $n = 2$ ).

Table 2.

*eLearning Backpack school demographics (2017-18).*

<sup>1</sup> Retrieved from Virginia School Quality Profiles [www.schoolquality.virginia.gov](http://www.schoolquality.virginia.gov)

School Name	Enrollment	Race/Ethnicity				Free/Reduced Price Meals %	English Language Learners %	Special Education %
		White %	Black %	Hispanic %	Other <sup>1</sup> %			
Annandale HS	2,188	15.7	15.7	45.2	23.4	56.7	41.2	16.9
Fairfax Adult HS	229	2.2	1.3	86.9	9.6	19.7	96.5	0.0
Falls Church HS	2,166	18.0	7.0	51.4	23.6	52.3	42.5	16.1
J E B Stuart (Justice) HS	2,216	21.8	9.4	55.3	13.5	60.0	50.0	13.1
Lee HS	1,507	81.0	9.9	3.8	5.3	17.5	1.3	16.7
Mt. Vernon HS	2,083	19.1	26.9	44.1	9.9	50.3	30.8	19.1

<sup>1</sup> “Other” includes the following race/ethnicity categories: American Indian/Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Two or More Races.

## Measures

Data sources included classroom observations; focus groups with teachers, students, and parents; and interviews with principals and school-based technology specialists. These activities occurred in a randomly selected subsample of Chantilly Pyramid and eLearning Backpack schools. The subsample varied for the different measures. In addition, all classroom teachers, students, and parents were asked to complete a survey online. All instruments are discussed in detail below.

**Classroom observations.** Seven Phase One schools (4 Chantilly Pyramid and 3 eLearning Backpack) were randomly selected for classroom observations. Observations occurred in three elementary, one middle, and three high schools over several weeks in February and March of 2018. They lasted approximately 20 minutes each and occurred in four to eight randomly selected classrooms at each school, with a total of 22 observations conducted in Chantilly Pyramid schools and 18 conducted in eLearning Backpack schools. Classroom observations focused on the instructional strategies employed by teachers, how and to what degree technology was used by teachers and students, and the degree to which *Portrait of a Graduate* skills were integrated with regular curriculum.

**Student focus groups.** Seven Phase One schools (4 Chantilly Pyramid and 3 eLearning Backpack) were randomly selected as sites for student focus groups. Student focus groups were conducted at two elementary, one middle, and four high schools. Each focus group included three to seven students and lasted approximately 45 minutes. The interview protocol (see Appendix A) solicited students’ descriptions of and reactions to using technology for learning, changes in teaching and learning practices, and their own acquisition of *Portrait of a Graduate* skills.

**Parent focus groups.** Parents of elementary, middle, and high school students were recruited via phone and email to participate in one of three parent focus groups. Parent contact information was obtained through the parent survey. Parents were asked if they would be interested in participating in a focus group related to the initiative (response options were “yes,” “no,” or “maybe”) and the best way to contact them with further information. We compiled all contact information of parents who responded “yes” or “maybe” to the inquiry to participate. We contacted parents using a random selection technique until the invitation list for each focus group was full. Twelve parents were invited to each focus group. Two focus groups were conducted for

parents of students in the Chantilly Pyramid; one focus group was conducted for parents of students in eLearning Backpack schools. A total of 27 parents (20 from the Chantilly Pyramid and 7 from eLearning Backpack schools) joined a virtual focus group by dialing in from a phone or by logging into a website. The focus group protocol (see Appendix B) solicited parents' descriptions of the initiative's purposes and objectives, their overall impressions of the initiative and how the initiative has impacted their child(ren)'s experience(s) at school.

**Teacher focus groups.** Seven Phase One schools (4 Chantilly Pyramid and 3 eLearning Backpack) were randomly selected as sites for teacher focus groups. Teacher focus groups were conducted at two elementary, one middle, and four high schools. Each focus group included three to six teachers and lasted approximately 45 minutes. The interview protocol (see Appendix C) solicited teachers' descriptions of and reactions to PD offered prior to and during FCPS On implementation, changes in teaching practices, and perceived impacts of the initiative on student outcomes.

**SBTS interviews.** Each Phase One school has one full-time staff member (School-based Technology Specialist, SBTS) dedicated to the technical and programmatic needs of the FCPS On initiative, including facilitating professional learning for teachers in formal sessions and as needed throughout each school day. Seven SBTS were randomly selected for an interview. SBTS represented three elementary, one middle, and three high schools. An interview protocol (see Appendix D) provided opportunity for SBTS to describe their experiences and provide impressions of the initiative. Interviews with SBTS lasted approximately 45 minutes and were conducted by phone.

**Principal interviews.** A principal interview protocol (see Appendix E) was developed to provide opportunity for principals to provide descriptions of and reactions to implementation, changes in teacher practice, and student impact. Principal interviews lasted approximately 45 minutes and were conducted by phone with all Phase One school principals ( $n = 15$ ).

**Teacher survey.** The CRRE Teacher Reaction Survey (see Appendix F) was co-developed by CRRE and FCPS. The survey consisted of 45 Likert-type items focusing on preparation and PD, teacher practices, technology integration, and perceived student impacts. In addition, two open-ended items asked about participants' successes and challenges with the FCPS On initiative. The survey was administered to 479 content teachers in the Chantilly Pyramid and 525 content teachers from eLearning Backpack schools. Total completion rate was 73.9%, with a completion rate of 83.9% in the Chantilly Pyramid and 64.8% in the eLearning Backpack schools. Descriptive statistics and frequencies for the survey are presented in Appendix I.

**Student survey.** The CRRE Student Reaction Survey (see Appendix G) was co-developed by CRRE and FCPS. The survey consisted of 27 Likert-type items focusing on students' perceptions of the initiative, their personal computer use, and the instructional and learning activities associated with FCPS On. Several items in the student survey were adapted from the Student Attitudes toward STEM (S-STEM) Survey (Friday Institute for Educational Innovation, 2012). In addition, three open-ended items asked students to elaborate on their computer use at school. The survey was intended to be administered by teachers to 8,153

Chantilly Pyramid students (Grade 3 and higher) and 10,389 eLearning Backpack students. A total of 7,125 students completed the student reaction survey: 4,332 responses are from Chantilly Pyramid students (87.4% completion rate) and 2,793 responses are from students in eLearning Backpack students (26.9%). Descriptive statistics and frequencies for the student survey are presented in Appendix J.

**Parent survey.** The CRRE Parent Reaction Survey (see Appendix H) was co-developed by CRRE and FCPS. The survey consisted of 13 Likert-type items focusing on parents' perceptions of the initiative, their child's computer use, and the impact of instructional and learning activities associated with FCPSO on their child's school experience. In addition, one open-ended item asked parents to elaborate on their child's experience as a student in a Phase One school. The parent survey was administered by schools. A total of 1,147 parents completed the survey, 923 from Chantilly Pyramid schools and 224 from eLearning Backpack schools. Descriptive statistics and frequencies for the parent survey are presented in Appendix K.

## Results

### Background: Year Two of FCPSO

Data collected from surveys, interviews, and focus groups provide a general picture of the second year of implementation of the FCPSO initiative. Overall, outlook among school-based administrators is optimistic. Principals and SBTS tended to emphasize a process of adjustment when prompted to provide an overview of the initiative at their school. Principals expressed confidence in the students and teachers at their school. Teachers expressed overwhelmingly positive feelings about implementation and the work of the district and schools to get the initiative up and running. Students were generally appreciative of their personal devices and seemed to be adjusting well to the integration of technology into learning. The majority of parents affirmed that the school year has gone pretty well for their child. Last, district administrators noted that teacher collaboration and professional development were supported by the district during this second year. Specifically, Phase One schools were provided funding for substitute teachers to encourage peer collaboration and the district offered professional development related to FCPSO and *Portrait of a Graduate* skills.

**Implementation status.** Principals described different stories of implementation including unique challenges and approaches to management. A description of varied degrees of "readiness" to implement emerged from principals: some schools were "up and running" after having piloted the program in the year prior while others describe a gradual step-up to full implementation. Principals tended to emphasize the positive when prompted to give a general overview of implementation. In both groups, principals were quick to praise teachers and SBTS for a job well done so far.

Chantilly Pyramid SBTS identified teacher-focused strengths in this second year of implementation. During interviews, they referenced supporting teachers and maintaining their trust, quickly solving issues that arise, providing PD and facilitating sharing among teachers, communication and collaboration, and positive staff culture and growth mindset. They also noted strengths visible in classrooms including blended learning, purposeful use of devices, shifting

more leadership and initiative to students with teachers as guides, 21<sup>st</sup> century skills, and giving opportunities for students to communicate with each other.

eLearning Backpack SBTS also conveyed that their schools were doing really well with implementation. They identified strengths related to how faculty are working together: collaboration using Google Slides, Docs, and Forms; and “empower[ing]” students to lead their own learning including through self-pacing. They also identified successes directly visible in classrooms such as seeing teachers innovate and incorporate more blended learning. In contrast to Chantilly Pyramid SBTS who indicated confidence in FCPSON already, all eLearning Backpack SBTS looked ahead to further growth. One noted that now that teachers are familiar with the initiative, they are exercising choice and moving in their own preferred directions; another noted that there is “more work” to do; and a third noted that the initiative is going slowly, as one would expect for something new. SBTS identified accomplishments related to the technology infrastructure and the classroom environment. SBTS felt their school was well-positioned for a successful implementation of blended learning.

As with other stakeholders, teachers from both groups conveyed during focus groups that the implementation of the FCPSON initiative has gone exceedingly well. They attribute the ease of the rollout to existing digital fluency of students, the work of SBTS and other members of implementation teams, and up-front professional development and support from principals. Teachers expressed appreciation for district and school-based PD and were impressed by students’ computer skills. They complemented SBTS and other school staff at length in managing the logistics involved with preparing and distributing hundreds of devices and being available to teachers during their adjustment to the devices.

There were no negative impressions with the district’s rollout of the 1:1 initiative from teachers. When teachers did express negative experiences with implementation, they talked in terms of their own trepidations with technology and blended learning or feeling overwhelmed by the change in their classroom. One teacher said, “It was overwhelming at first trying to figure out how to make it work but now I’ve seen how it benefits the students and I’ve gotten really good at catching all different learning curves.”

Parents’ survey responses indicated that the school year was generally going fairly well for their child(ren). Parents of Chantilly Pyramid students, though, were significantly more likely to indicate the school year was proceeding average or better (96.6%) as compared with eLearning Backpack parents (83.9%). There were also differences amongst Chantilly Pyramid parents. Elementary school parents were significantly more likely to indicate a positive school year (97.3%) as compared with high school parents (94.6%), though parents at both levels appeared to be in strong agreement.

### **Knowledge and Support**

School-based staff, including teachers, principals, and SBTS, were asked to describe and reflect on the knowledge and support provided prior to and during implementation of the initiative. Data from surveys, interviews, and focus groups illuminated many salient themes embedded in school-based staff perceptions about their preparation and support prior to

implementation and throughout the school year. In this section, we will discuss administration roles in supporting the initiative and perceptions regarding teachers' preparation and support for implementation, along with parent perceptions.

**Administration support.** Principals and SBTS provided a range of support for teachers within schools implementing FCPSON. Data obtained from teacher focus groups, along with principal and SBTS interviews, conveyed the importance of both roles to the success of the initiative.

**SBTS.** Based on interviews with SBTS, the typical days of SBTS in Phase One schools centered mostly on providing direct instructional support to teachers. SBTS consistently mentioned the following: providing one-to-one coaching; working with collaborative learning teams on instructional planning and/or data analysis; planning for and leading PD; creating and/or identifying technology resources for teachers; and sharing *Portrait of a Graduate* learning models and activities with teachers. SBTS also provided ad hoc support to teachers, including “walk[ing] around providing ideas and support.” In addition, SBTS mentioned involvement in special projects such as designing a newsletter for the school and producing a TV show in collaboration with students.

SBTS described how their role in their school changed over time. One participant described a shift from modeling technology use to building teachers' knowledge and confidence, to now supporting teachers in implementing high-quality blending learning instruction and modeling how to use technology to promote specific 21<sup>st</sup> century skills. Another SBTS described a shift from focusing on hardware and related technical issues, to providing assistance to teachers and students as needed. Yet another described a shift from one-to-one support to teachers who wanted it, to a focus on designing opportunities for small- and medium-sized groups and making resources available to all teachers. All SBTS ( $n = 7$ ) reported that they felt prepared for their role, either unequivocally ( $n = 4$ ) or to an extent that was sufficient to successfully meet the needs of students and teachers ( $n = 3$ ).

During focus groups, teachers in both Chantilly Pyramid and eLearning Backpack schools conveyed that SBTS are an integral and indispensable component of the successful implementation of the 1:1 initiative. Teachers stressed that they have relied on SBTSs during their transition to a digital classroom and extensively complemented these staff members for a job well done.

**Principals.** Principals reported varying degrees of involvement in the daily implementation of the initiative. In Chantilly Pyramid schools, principals mostly listed their involvement as facilitators of PD, holding regular meetings with faculty, and offering teacher support. Almost all principals in both groups described their role in the implementation of the FCPSON initiative as providing “hands-off” support for faculty. Overwhelmingly, principals emphasized a fluid implementation with few specific demands on teachers outside of “just try” and “do your best.” One Chantilly Pyramid principal said, “I tell my teachers, ‘Take risks. I’m going to support you.’” Another asked his faculty, “Does it make sense for the kids?” For this principal, if the answer to that question was “yes,” then they had full support. Importantly, principals described cultivating an environment where teachers had freedom to try new things.

One principal said, “We only expect so much of our teachers. My credo is, ‘We expect you to take one step forward.’ The majority of my teachers have taken the dive.”

Teachers prompted to describe the role of their principal in the day-to-day implementation of FCPSOn echoed the approach self-reported by principals. Teachers conveyed the critical role of principals to supporting changes in their practice, cultivating buy-in from staff, and their overall positive impressions of the rollout. One teacher said,

*[My principal] said, ‘It’s okay to fail forward’ and I agree with that. I always felt like admin was really supportive and cheerleader-ish. I never felt like I had to do it. It was like, we have this now and we were all in, we all agreed to try. You can be [starting from] here or here but we just want you to try... Giving us that freedom was so important.*

Teachers in both the Chantilly Pyramid and eLearning Backpack schools described feeling supported during implementation. This finding was systemic in focus groups: teachers most appreciated support from their principal in the form of freedom to implement at their own pace, try new things, and use new tools to create learning activities.

**Teacher perceptions.** Classroom teachers in Chantilly Pyramid and eLearning Backpack schools were asked a series of survey items related to their preparation and support in the second year of the FCPSOn initiative.

**Roles and expectations.** Similar to year one findings, Chantilly Pyramid teachers were significantly more likely than eLearning Backpack teachers to agree that they were informed of their expected role as a teacher in a Phase One school (CP: 85.7% agreed, eLB: 58.5%) and that they felt their school was successful in fulfilling its role as a Phase One school (CP: 88.4%, eLB: 66.2%). They were also more likely to agree that the culture of their school supports the use of technology-enhanced instruction (CP: 93.1%, eLB: 85.9%). The only statistically significant difference between levels of Chantilly Pyramid schools was teachers’ agreement regarding success in fulfilling the school’s role as a Phase One school. Elementary teachers and middle school teachers were significantly more likely to agree as compared with high school teachers.

Chantilly Pyramid teachers were significantly more likely to indicate that they were knowledgeable of the FCPSOn initiative and of the *Portrait of a Graduate* attributes as compared with eLearning Backpack teachers (see Figure 2). They also were significantly more likely to indicate agreement that these attributes would contribute to greater success for students. Last, they were significantly more likely to indicate that they actively participate in the FCPSOn initiative. With the exception of knowledge of the FCPSOn initiative, Chantilly Pyramid elementary school teachers were significantly more likely to indicate agreement to these statements when compared with Chantilly Pyramid high school teachers.

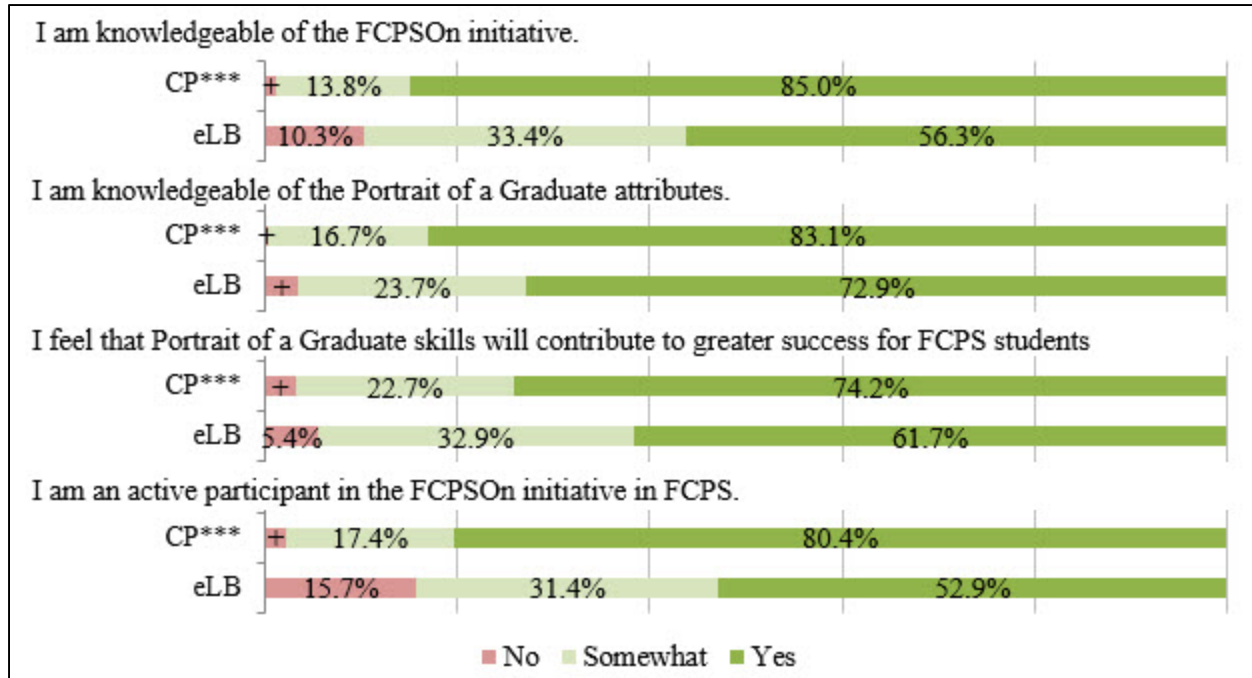


Figure 2. Teachers' survey responses regarding knowledge and support of the FCPSON initiative.

Note: + indicates frequency was less than 5.0%

**Professional development.** Teachers also reported on their PD in different areas to support the FCPSON initiative in the teacher survey (see Figure 3). Both Chantilly Pyramid and eLearning Backpack teachers indicated higher levels of agreement regarding receiving sufficient PD for creating collaborative learning experiences (CP: 70.1%, eLB: 64.1%). Between half and two-thirds of teachers in both groups agreed to having received sufficient PD in the other areas. There were no statistically significant differences between Chantilly Pyramid school levels.



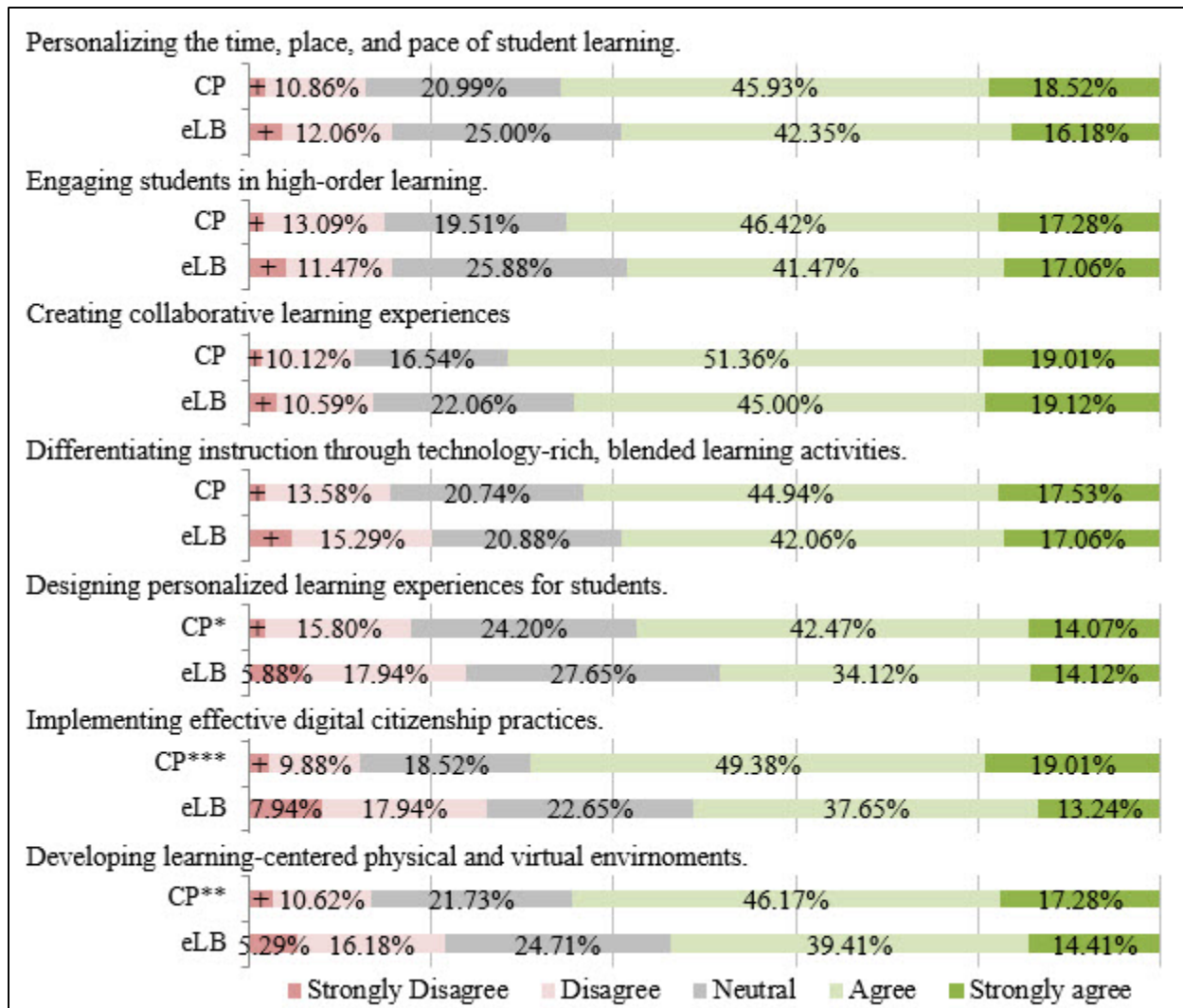


Figure 3. Teachers' survey responses regarding levels of agreement as to whether or not they had received sufficient professional development in different areas.

Note: + indicates frequency was less than 5.0%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

During focus groups, Chantilly Pyramid teachers nearly unanimously cited peer-to-peer experiences as the most helpful PD opportunities so far. Teachers see other teachers, especially those who are teaching the same grade or content area as them, as their greatest resource. Accordingly, they appreciated “learning walks” and one-on-one time with partner teachers to share ideas and learn from the successes of their peers. One teacher said,

*Sitting through a presentation is great but you lose some of that interest when you're going to three different sessions back to back. When we [teachers] can collaborate and are given time with people in our own subject area, that's the best thing for the technology integration.*

Similarly, eLearning Backpack teachers most frequently cited peer-to-peer learning experiences as those that have been most fruitful in expanding blending learning in their

classroom, but they tended to describe peer-to-peer experiences as unstructured and ad hoc. These teachers use phrases like, “word of mouth” and “anecdotal support for a program” to describe their peer-to-peer learning experiences. In sum, it appears that eLearning Backpack schools have had fewer formal opportunities to share with their peers and are overall less satisfied with upfront professional development opportunities than Chantilly Pyramid teachers are.

*Professional development needs.* The most frequent request regarding PD during teacher focus groups included more time to spend on their device prepping digital lessons and exploring/learning resources for their students. Several teachers mentioned that they have heard of resources but “just haven’t sat down and learned how to integrate it.” Teachers also wanted more time to engage in the peer-to-peer learning opportunities they felt were so valuable. For example, one teacher said, “We used to go to other schools to observe and see what’s working. I’d like to see more of that.” Teachers would especially appreciate PD opportunities geared specifically toward their age group or content area.

Chantilly Pyramid school principals appeared clued in to the need for more personalized PD opportunities—the need was consistently identified and noted as a recommendation. Naturally, principals from both groups identified time as a necessary resource. Teachers need more time to process information and to plan. Principals also identified PD needs geared toward veteran teachers who might be resistant to change. For instance, a principal at an eLearning Backpack school recalled a teacher who has five years of her career remaining. The principal said, “I don’t know how to push them.”

Multiple data sources, including parent focus groups, identified a need for a district-wide digital citizenship curriculum or support for schools to develop their own curriculum/standards related to online and digital behaviors. Teachers described online and digital behavior norms as akin to social and emotional learning standards and school-wide rules students must conform to, beginning in kindergarten. One teacher explained,

*One thing we struggled with as a school is that we didn’t have a clear set of cause/effect guidelines for incidents. Teachers were all handling it differently, so I think we needed to have a clear plan for digital citizenship, and that includes curriculum.*

Another said, “I think best practices around technology still need to be defined and articulated. And that really hasn’t been done yet.” Teachers believed students would benefit from having a clear set of digital citizenship guidelines, which outline acceptable online behaviors and expectations for students issued a laptop by their school district.

**Parent perceptions.** Parents also conveyed their knowledge of the FCPS On initiative and *Portrait of a Graduate* skills (see Figure 4). Chantilly Pyramid parents were significantly more likely to indicate that they were knowledgeable of the FCPS On initiative and that their child was enrolled at an FCPS On Phase One school. Not surprising given their increased knowledge of the FCPS On initiative, Chantilly Pyramid parents were also significantly more likely to indicate agreement that they were knowledgeable of the *Portrait of a Graduate*

attributes and the later impact of these attributes on their child. Responses by parents within elementary, middle, and high school Chantilly Pyramid were consistent with one another.

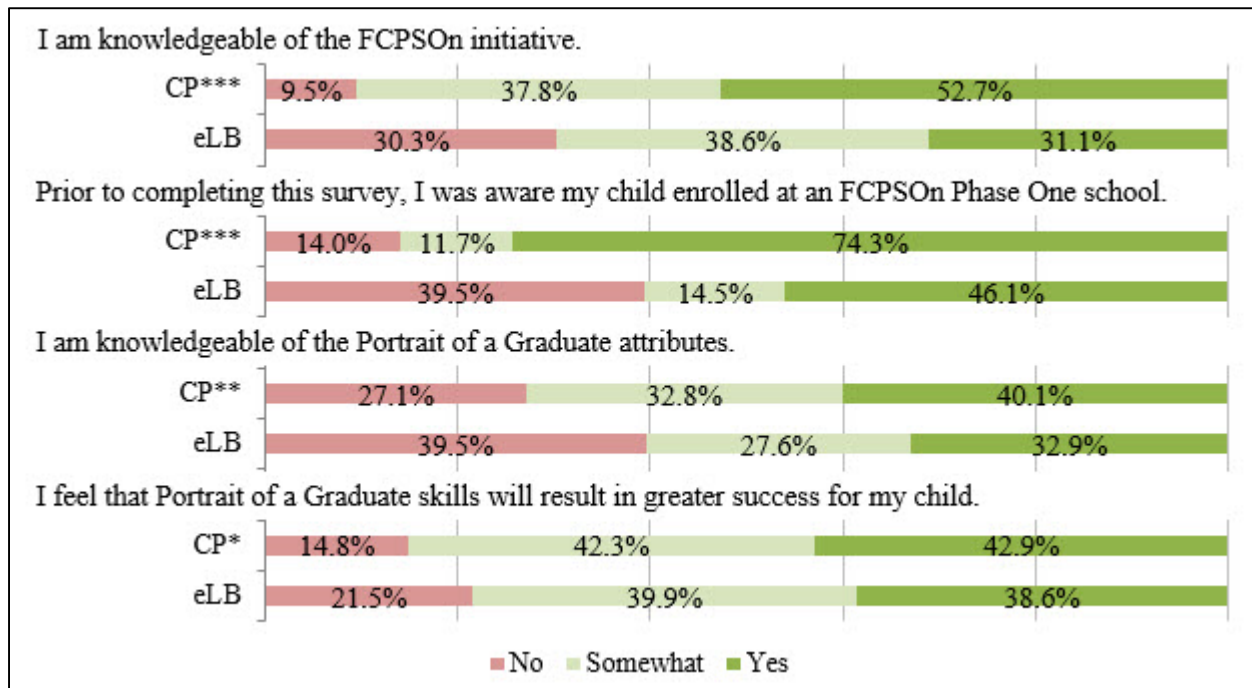


Figure 4. Parents' survey responses regarding the FCPSOn initiative and *Portrait of a Graduate* skills.

Note: + indicates frequency was less than 5.0%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

The discrepancy in awareness of FCPSOn and *Portrait of a Graduate* skills between parents from the Chantilly Pyramid and eLearning Backpack schools was also affirmed by data from the parent focus groups. Parents from the Chantilly Pyramid described having received newsletters, emails, and other correspondence from their child's school regarding a new initiative related to the integration of technology into learning. Chantilly Pyramid parents recalled knowing that their child would receive a school-issued laptop and, while they did not use the language prescribed by *Portrait of a Graduate*, were able to connect the issuance of the laptop to a district-wide focus on 21<sup>st</sup> century learning skills. Parents mentioned that the initiative was "trying to get kids ready for the future through technology" and helped with "not just the computer but the whole process of learning" when prompted to describe their understanding of FCPSOn.

Parents from eLearning Backpack schools indicated remarkably less familiarity with the FCPSOn initiative prior to their child receiving a laptop. One parent even said, "I learned about FCPSOn from the [FCPSOn evaluation] survey." eLearning Backpack parents made no mention of receiving information prior to the school year about the initiative. Most parents learned their child would be getting a school-issued laptop on the day of registration. One parent explained, "There was no information up front, we just found out at registration. And I didn't know about

the whole initiative, I just knew they were getting laptops. I didn't understand the role of the individual school in Phase One.”

Importantly, and even among parents who indicated less awareness of the purpose of the initiative, parents were highly positive towards the use of technology for learning and related aspects of the FCPSON initiative (see Figure 5). The vast majority of parents in both groups indicated agreement on the survey to the importance of exposing children to using technology for learning (CP: 91.8%, eLB: 89.8%), digital citizenship and appropriate online behaviors (CP: 96.3, eLB: 94.7%), and the acquisition of 21<sup>st</sup> century skills (CP: 95.6%, eLB: 95.1%). The majority also conveyed agreement in their ability to assist their child with school-related tasks on the personal device (CP: 89.3%, eLB: 87.5%).

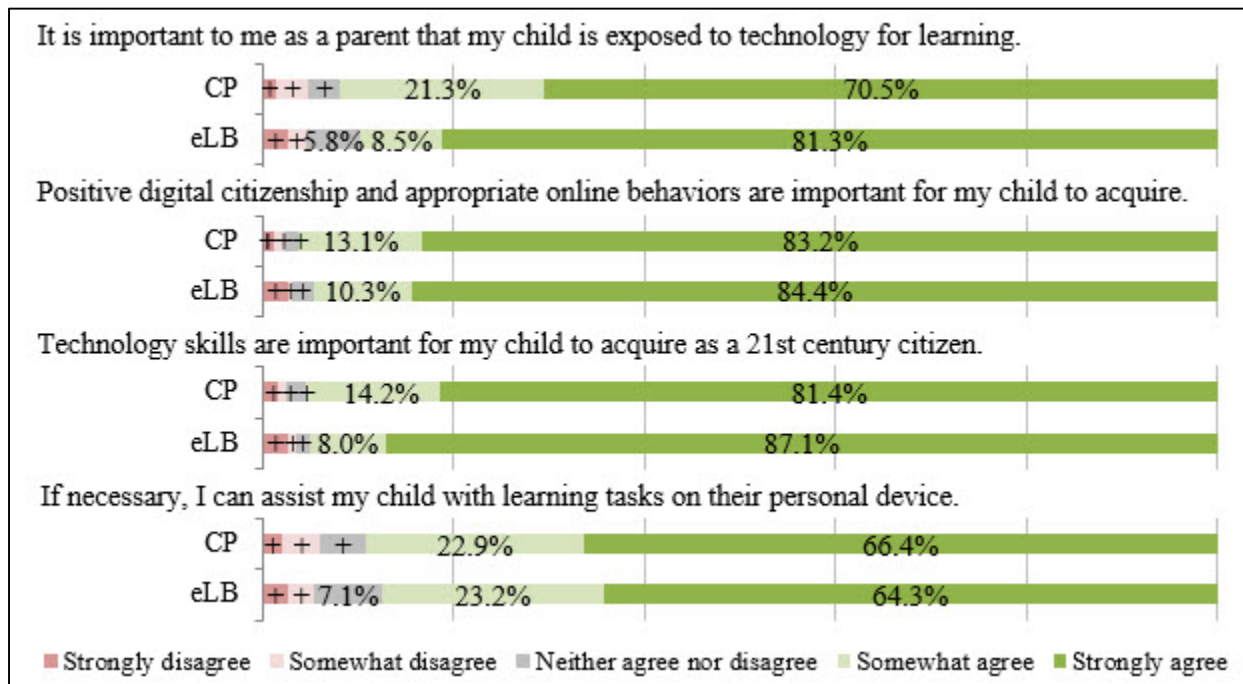


Figure 5. Parents' survey responses regarding their students' use of technology for learning.  
Note: + indicates frequency was less than 5.0%

**Summary.** It appears that SBTS are a highly successful component of the FCPSON initiative. SBTS expressed confidence and general satisfaction in their role at school. Based on raw interview data, SBTS as a whole are excited about their work and the initiative; they appeared highly motivated and rarely complained or criticized the initiative, their school or FCPS. SBTS were praised by teachers at length for their contributions and were described as integral to the success of the initiative. SBTS described their days at work as full of many different activities that brought them into contact with teachers, students, and administration. Based on interviews and focus groups with stakeholders, we conclude that SBTS are central to the success of the initiative in Phase One schools. Current SBTS appear to be well-suited to be leveraged as a key resource for the district in future phases of the initiative.

In focus groups, teachers confirmed the approach to supporting teachers as self-reported by principals; and teachers were consistently appreciative of the freedom granted by principals to

try, to fail, and to change or stay the same during implementation. Teachers described a hands-off, “just try” approach as necessary to maintaining a positive environment for teachers as they embarked on a fundamental shift to instruction. Teacher focus groups included all types of teachers: specialists, new teachers, seasoned teachers, K-3 elementary teachers, and middle and high school teachers in single subject areas; and our findings suggest that all of them need to feel genuinely supported for where they are personally in terms of computer skills and beliefs about technology integration.

Principals in both groups of schools reported encouraging teachers to take risks and try new things. However, findings from the teacher survey indicated that teachers from eLearning Backpack schools were significantly less likely to be aware of the approaches to teaching and learning prescribed by FCPSO and *Portrait of a Graduate*. While the differences were not statistically significant, eLearning Backpack teachers were also generally less likely to report feeling prepared to create the type of learning experiences specified by these initiatives. Perhaps more importantly, findings from the teacher survey revealed that a fair amount of teachers who responded to the survey were neutral or in disagreement regarding receiving sufficient PD for various teaching practices. Principals and teachers were on the same page regarding principals’ approaches to creating a positive environment for teachers to explore new practices. However, the majority of teachers felt like they did not have the tools to take the space provided by their principal to explore new things and use it to create learning experiences that directly reflect the goals of FCPSO and *Portrait of a Graduate*.

When prompted to describe what type of PD are most desirable and effective for improving teacher practice, teachers said time, opportunity to collaborate with other teachers, and the ability to work independently to learn new programs. These needs were affirmed when principals were asked how they and the district can further support teachers during implementation. Multiple data sources triangulate a need for PD and the ultimate adoption of school- or district-wide standards related to digital citizenship and online behaviors.

Multiple data sources captured a discrepancy in knowledge of the initiative between parents of students in the Chantilly Pyramid and eLearning Backpack schools. In focus groups, eLearning Backpack parents described feelings of surprise at registration day when they learned their child would be receiving a school-issued device. It appears that eLearning Backpack schools have done less to promote the initiative among teachers and parents. Teachers and parents from both groups reported highly positive attitudes towards the use of technology for learning and related aspects of the FCPSO initiative. Therefore, the district stands to benefit from further promoting the ideas and practices associated with FCPSO and *Portrait of a Graduate*.

### **Teacher Practices**

Teachers, principals, SBTS, parents, and students were asked to comment during focus groups and interviews on what changes they had made or observed in teaching practices this year. Teachers were also asked to respond to a series of prompts in the teacher survey related to current teaching practices. These data, along with classroom observations ( $n = 40$ ), suggest that teachers incorporate multiple methods of instruction, including whole class, small group, and

individual learning, and use inquiry- and project-based learning. Teachers conveyed the initiative has allowed for more flexibility in their classroom, changed the way they approach basic classroom management tasks, and increased the degree to which they can provide personalized and student-directed learning opportunities for their students.

**Instructional activities.** Observations in the Chantilly Pyramid schools revealed that in 15 of 22 observed classrooms, teachers incorporated a variety of instructional activities and methods within the same lessons. Ten classes included both independent (e.g., review problems, worksheets, writing) and whole group work (e.g., direct instruction, discussion, homework review, read-aloud). In some instances, students worked on individual assignments while the teacher was leading the whole class through the assignment. One class had whole group instruction, then allowed for student choice of activities with group and individual options where the observer saw clear connections to students' own lives. Additionally, six classes used rotations that included a combination of individual, group, and teacher-led activities. Four classes used inquiry-based or project-based learning with a context relatable to students' own lives. In these classes, students worked as individuals or in groups to conduct research and apply knowledge to design project outcomes. In one project-based learning assignment, students explored the engineering design process by working in small groups to build structures. Only three classes completed a singular activity during the observation including an assessment, individual work, and teacher-led instruction.

In observations at eLearning Backpack schools ( $n = 18$ ), almost half of the classes incorporated inquiry-based practices and authentic contexts for learning. In three classes, students worked on individual projects (e.g., critical analysis of a persuasive essay, researching and diagramming ecological relationships, multimedia explanation of quotes) and in three other classes, students worked on group projects (e.g., critical analysis of Supreme Court cases, planning a road trip, simulation labs). In two classes, students chose to work on their own or in groups to complete projects related to course content (e.g., how a bill becomes a law, product research and marketing).

Most classes at eLearning Backpack schools incorporated a variety of instructional activities and methods within the same lessons or included inquiry-based and project-based learning activities. In 12 classes, students completed individual assignments (e.g., math problems, review questions, worksheets). In five classes, whole group work occurred (e.g., direct instruction, discussion, homework review). Four classes included some form of assessment.

In the survey, teachers were asked to report the extent to which they implemented specific teaching practices, with or without technology (see Figure 6). Survey responses somewhat reflected classroom observations.

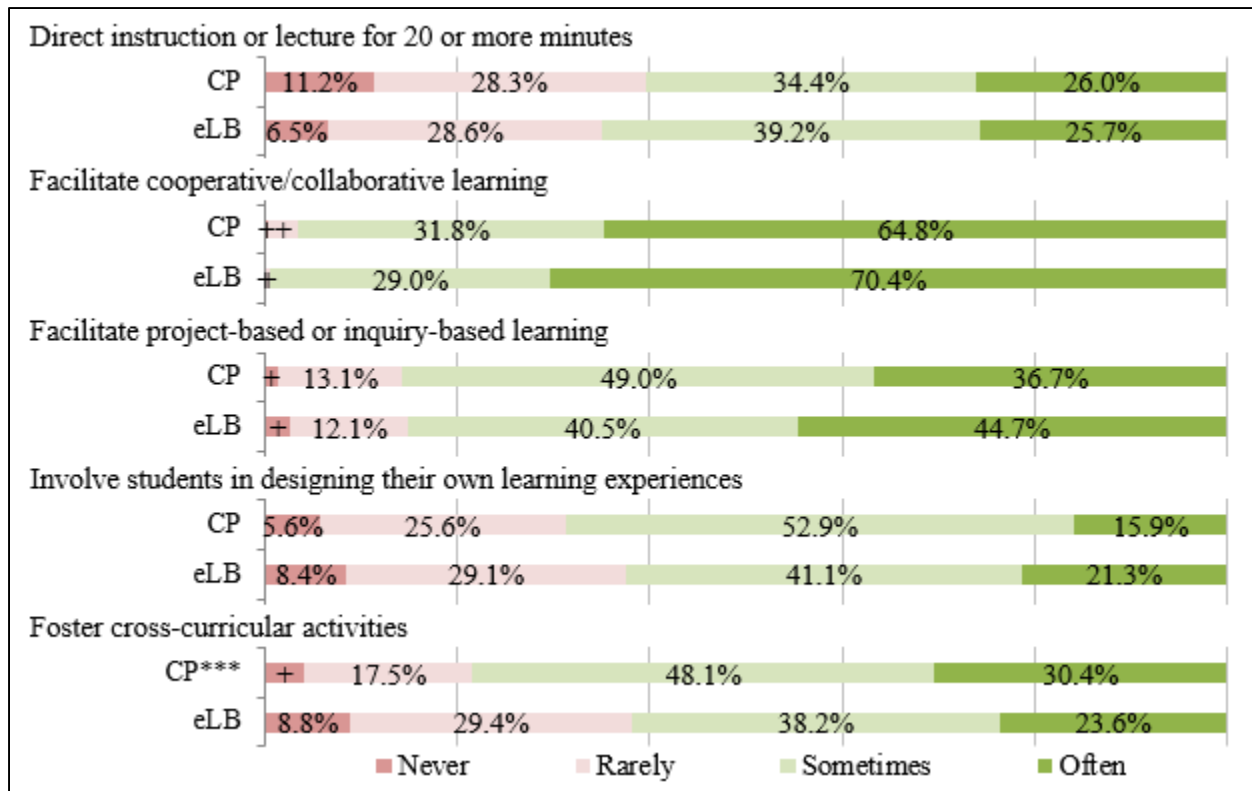


Figure 6. Teachers' reported frequency of various instructional practices.

Note: + indicates frequency was less than 5.0%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

Practices were similar between Chantilly Pyramid and eLearning Backpack teachers with few exceptions:

- **Direct instruction.** Both Chantilly Pyramid (60.5%) and eLearning Backpack teachers (64.9%) reported providing direct instruction or lecture to their students for 20 minutes or longer, at least sometimes. There were statistically significant differences within Chantilly Pyramid schools: elementary (56.3%) and middle (56.7%) school teachers reported less frequent use of this practice as compared with high school teachers (71.4%).
- **Cooperative/collaborative learning.** The vast majority of both Chantilly Pyramid (96.5%) and eLearning Backpack (99.4%) teachers employed cooperative or collaborative learning at least sometimes. Elementary Chantilly Pyramid teachers (98.5%) were significantly more likely to indicate employing cooperative/collaborative learning as compared with high school teachers (95.3%).
- **Project- or inquiry-based instruction.** Chantilly Pyramid teachers (85.7%) and eLearning Backpack teachers (85.2%) provided similar views regarding the extent to which they employed inquiry-based approaches to learning. There were no statistically significant differences between groups.
- **Student designed learning.** Teachers expressed less frequent use of involving students in designing their own learning experiences according to personal goals, needs, and interests, with similar use reported by Chantilly Pyramid teachers (68.8%) and eLearning Backpack teachers (62.5%). Elementary Chantilly Pyramid teachers (75.4%) were



significantly more likely to indicate employing this practice as compared with high (62.1%) school teachers.

- **Cross-curricular connections.** Chantilly Pyramid teachers (78.5%) were significantly more likely to indicate at least sometimes fostering cross-curricular connections as compared with eLearning Backpack teachers (61.8%). Elementary Chantilly Pyramid teachers (92.3%) were significantly more likely to indicate employing this practice as compared with high school teachers (64.1%). As noted in the year one evaluation, it may be easier for elementary school teachers to design lessons across content areas since they teach all content areas to their students. In contrast, middle and high school teachers would need to work together to design such activities due to specialization in a particular content area.

A comparison in trends between teachers' year one and year two survey responses revealed a substantial reduction in the frequency direct instruction was employed. Importantly, teachers increased the frequency they employed the other teaching practices; most notable was the increase in cooperative/collaborative learning opportunities.

Data from focus groups with teachers and interviews with SBTS bolster some of the findings related to teacher practice that emerged from classroom observations and the teacher reaction survey. Chantilly Pyramid and eLearning Backpack teachers spoke about their classroom as a place with more flexibility and greater access to resources than before the initiative. Teachers described the computer as a tool for accessing endless content and answering endless questions. One teacher from Chantilly Pyramid said, "It makes me more of a facilitator. Instead of me being the one with the knowledge, the students can explore and access it on their own, which has been exciting to watch. I used to be the vessel." Teachers described how they often continued to add resources to lessons as students were working through their assignments and how easy it is to change or adapt lessons delivered electronically. One teacher explained, "With pen and paper, you've got what's there in front of you and you're trying to work with what you have prepared for that day. But now I maneuver things all the time. I switch resources in and out." Flexibility also increased how teachers allow students to demonstrate learning. A teacher from an eLearning Backpack school said,

*[The device] has opened the classroom up. I say, 'here's the directions, you can choose however you want to present it.' I did not do that before. I usually would give them two or three options but now I let their individual interests/skillset guide them.*

In focus groups, Chantilly Pyramid teachers frequently spoke about the impact of the initiative on completing basic classroom management tasks, including lesson planning, providing feedback, and keeping students on task. Teachers mentioned the ability for students to submit work online, for teachers to provide quick feedback, and being able to reach students who are absent as positive changes in their teacher practices. One teacher said,

*When we create sub plans, we put a lot of work and effort into those plans to try to get the kids as much content as we can. But we can put it into Google Classroom also where kids can kind of take onus and control over the lesson. I feel like the kids get a lot more out of that.*



Chantilly Pyramid and eLearning Backpack teachers frequently mentioned how the devices assist with personalizing learning for students and enabling teachers to meet the needs of different students. One teacher said of keeping lesson content online,

*It allows the kids to move at their own pace; if somebody needs more time on something, they have ability to spend more time...If there's a group that gets it, I can get them something more, another assignment. For students that need more, I can get them the remediation stuff. I can bump them down, especially using educational games.*

In several teacher groups, teachers mentioned that the devices protect remedial students, ELLs, and students with accommodations from the attention of their peers.

Many of the changes in instructional practice described by teachers were echoed by data from interviews with SBTS. Both Chantilly and eLearning Backpack SBTS explained that there has been less teacher-centered, whole-class instruction and more learner-centered, small-group instruction than before. Chantilly Pyramid SBTS also noted that students are more in control of their learning, have more choice, and have increased access to personalized experiences. SBTS also mentioned that the method of information delivery has changed.

**Summary.** Findings related to teacher practices suggest teachers in Phase One schools provide multiple opportunities for students to access content and learning and use multiple methods to facilitate and guide student learning. Classroom observations in Chantilly Pyramid (15 of 22) and eLearning Backpack (12 of 18) classes revealed that teachers did not rely on just one method or opportunity to access content. Observation data also revealed that in most of the classes in both the Chantilly Pyramid (20) and eLearning Backpack schools (13), either all or some of the students used personal devices during the observation. Taken together, it appears that teachers utilize students' personal devices as one method of instruction among many.

In focus groups, teachers described a shift in their classroom to a more flexible, personalized approach to content and students. Teachers attributed the increased flexibility specifically to the presence of personal devices and the ability to use student devices consistently to deliver content. In terms of instructional practices, the introduction of personal devices may be, at the very least, an additional tool in the general toolkit of instructional practice to use when teachers are designing and delivering content.

We discuss in later sections of this report a need, identified by teachers, principals and parents, for more professional development related to designing and delivering high quality digital content which addresses the standards outlined by FCPSON and *Portrait of a Graduate*. Findings in this section affirm that teachers are “getting their feet wet” and have taken the opportunity to integrate technology into their practice.

## Access to and Use of Technology

The second logic model components examine the degree to which students and teachers access technology and how the technology is used. Before reviewing findings related to access to and use of technology, we first present survey data regarding teachers' and students' technology beliefs and efficacy. Research suggests that teachers' beliefs about technology and their perceptions of their own capabilities to use technology effectively predict the degree to which teachers incorporate technology into their instruction (Klassen & Tzue, 2014; Kim, Kim, Lee, Spector, & DeMeester, 2013; Ertmer, 1999, 2005; Hew & Brush, 2007). This may have important implications for increasing effective teacher practices related to technology. A similar association may exist for students: the degree to which students are motivated to use technology may be useful in explaining the degree to which they use their personal device appropriately as a tool to support learning. After technology access and use are presented, we review the findings related to students' perceptions of technology.

**Teachers' technology beliefs and efficacy.** Teachers' survey responses indicated general agreement to various items regarding their technology beliefs and efficacy. The majority of both Chantilly Pyramid and eLearning Backpack teachers agreed that integrating technology into instruction supports learning (CP: 92.9%, eLB: 91.5%), that students are motivated to use technology during learning (CP: 85.2%, eLB: 82.7%), and that technology has contributed positively to student achievement (CP: 76.5, eLB: 78.0%).

Both groups of teachers' survey responses indicated varying levels of technology efficacy. Specifically, roughly three quarters of teachers conveyed agreement that they are confident they integrate 1:1 technology effectively in their classroom (CP: 78.0%, eLB: 76.1%) and that they can deal with most technical difficulties they encounter (CP: 69.6%, eLB: 72.7%). Teachers also indicated higher levels of agreement that they are aware of the different digital tools and resources available (CP: 84.8%, eLB: 83.0%) and that with proper training they are confident in their ability to learn these tools and resources (CP: 94.6%, eLB: 94.7%). Importantly, the majority indicated agreement that they enjoy using technology in their classroom (CP: 80.9%, eLB: 83.9%). Elementary school Chantilly Pyramid teachers were significantly more likely to indicate enjoyment integrating technology as compared with their high school counterparts (elementary: 86.1%, high: 72.9%).

**Teachers' technology use.** The majority of Chantilly and eLearning Backpack teachers indicated agreement that technology has become an integral part of their planning and administration (CP: 85.5%, eLB: 94.1%). eLearning Backpack teachers, however, were significantly more likely to agree that technology was an integral part of planning and administration (CP: 85.5%, eLB: 94.1%) and of their classroom learning environment (CP: 81.2%, eLB: 90.2%). There were also statistically significant differences within levels of Chantilly Pyramid schools related to teacher opinion of the integral role of technology with planning and administration: elementary teachers (87.8%) were most likely to agree, then middle school teachers (85.6%), then high school teachers (74.3%).

A set of survey items solicited teachers' use of technology for different instructional purposes (see Figure 7).

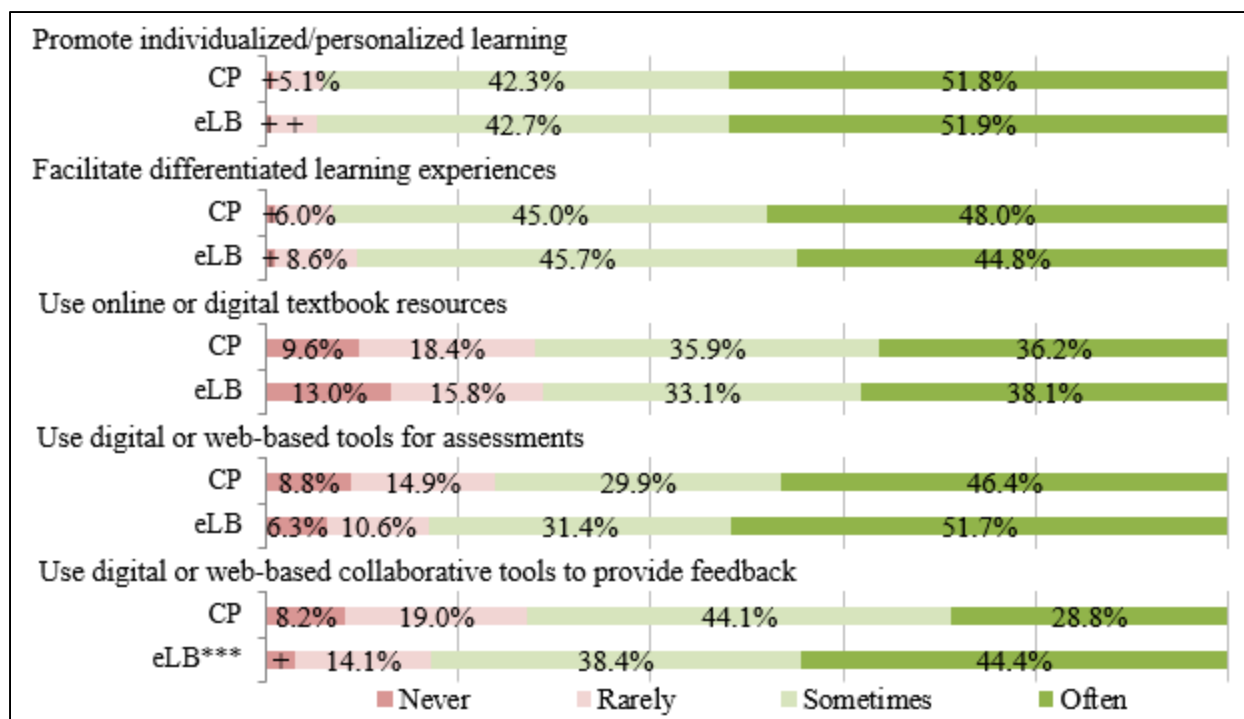


Figure 7. Teachers' reported use of technology for learning activities.

Note: + indicates frequency was less than 5.0%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

There were some differences between teacher groups:

- **Individualized/personalized learning.** Both teacher groups reported relatively frequent use of individualized/personalized learning (CP teachers: 94.1%; eLB teachers: 94.7%).
- **Facilitate differentiated learning.** Both teacher groups reported frequently differentiating learning (CP teachers: 93.0%; eLB teachers: 90.5%). Elementary Chantilly Pyramid teachers were significantly more likely to indicate facilitating differentiated learning (98.0%) as compared with middle (92.3%) and high (83.7%) school teachers.
- **Use online or digital textbook resources.** eLearning Backpack teachers reported somewhat higher levels of use for online or digital textbook resources as compared with Chantilly Pyramid teachers (CP: 76.3%, eLB: 83.1%).
- **Use digital or web-based tools for assessments.** eLearning Backpack teachers (83.1%) and Chantilly Pyramid teachers (76.3%) reported relatively frequent use of technology for assessment purposes. Chantilly Pyramid elementary (85.9%) and middle (87.2%) school teachers reported significantly greater use of digital tools in this manner than high (50.0%) school teachers.
- **Use digital or web-based collaborative tools.** eLearning Backpack teachers indicated significantly more frequent use (82.9%) of technology to provide feedback to students as compared with Chantilly Pyramid teachers (72.8%).

**Student technology beliefs.** Students responded to a series of survey items regarding their technology beliefs. Responses were overall fairly positive in both Chantilly Pyramid and eLearning Backpack schools (see Figure 8). Students tended to agree to statements such as

school is more interesting when using the computer for learning (CP: 72.1% agreed, eLB: 70.9%) and that using a computer during learning feels natural (CP: 67.5%, eLB: 69.6%). There was a statistically significant difference in the degree to which students agreed that their device distracts from learning. Chantilly Pyramid students were more likely to disagree than eLearning Backpack students (CP: 59.9%, eLB: 53.1%).

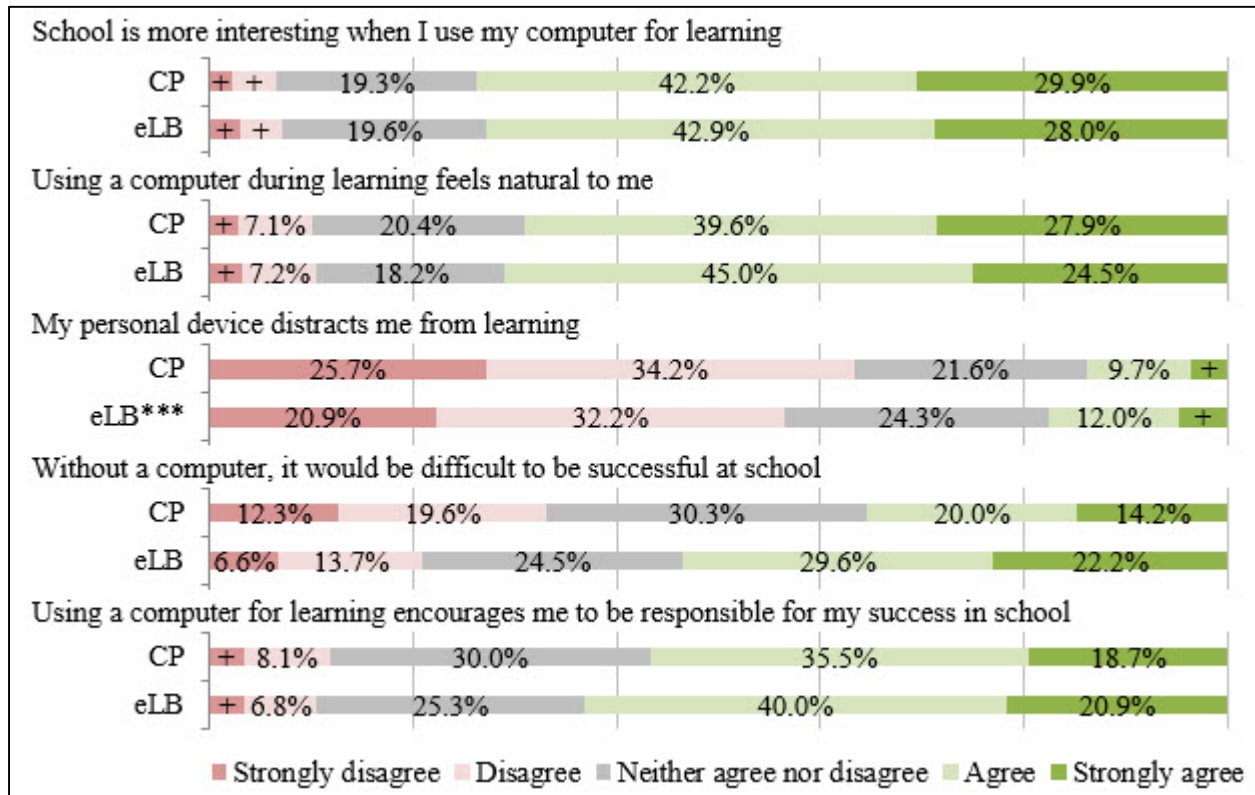


Figure 8. Degree to which students agreed to survey items regarding technology beliefs.

Note: + indicates frequency was less than 5.0%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

There were more significant differences between levels of Chantilly Pyramid students:

- All levels tended to agree that school is more interesting when using the computer for learning, but elementary school students were significantly more likely to agree (76.0%) as compared with middle (72.5%) and high (68.0%) school students.
- Elementary students were significantly less likely (64.0%) than middle school students (69.6%) to agree that using a computer during learning feels natural to them.
- All levels were relatively neutral as to whether their device distracts them from learning, but high school students were significantly less likely (49.9%) than both elementary (68.5%) and middle (61.6%) school students to agree with this statement.
- Middle (35.7%) and high (41.8%) school students were significantly more likely than elementary (24.4%) students to agree that being successful in school would be difficult without a computer.

Students were asked in focus groups to reflect on the amount of time they spend on screens and whether they felt they have too much screen time in a day. Students in the Chantilly

Pyramid and at eLearning Backpack schools were just as likely to feel that they have too much screen time as they were to indicate, if indirectly, that screen time is not an issue to them. No students conveyed a feeling of too little screen time. When high school students indicated that too much screen time is not an issue for them, they tended to point out that the frequency of device usage depended on content area and/or teacher.

**Students' technology use.** Classroom observations revealed that in most of the classes in both the Chantilly Pyramid ( $n = 20$ ) and eLearning Backpack schools ( $n = 13$ ), either all or some of the students used personal devices, including either school-issued laptops or their own personal devices. In several classes, there was a mixture of some students using devices and some using print resources (e.g., books, paper/pencil) or other electronics (e.g., graphing calculators). For example, in classes that used rotations, some of the rotations required students to use their laptop while others did not. Another example is classes that used personal devices for research, where students used both personal devices and additional resources to search for information. In eight classes in the Chantilly Pyramid and five classes in eLearning Backpack schools, no personal devices were used.

Students were asked in focus groups to describe their initial impressions of their laptop and their process of adjusting to having a personal device to use during school. Students from the Chantilly Pyramid schools felt that they were immediately able to complete assignments faster and keep track of their work with less effort. Students recalled feeling impressed by the machine, sharing, "I thought the laptop was really fast." Students also felt like it was an exciting time to be a student at their school, sharing, "I was really excited... finally we didn't have to take turns." Similarly, students in eLearning Backpack schools spoke about how the computer immediately made school tasks easier. These students spoke in terms of completing assignments at home and having flexible access to school-related content. One student said, "It was nice to be able to work at home. It helped me a lot because I didn't have a personal computer at home."

Student survey results replicated findings from the focus groups related to the ease of completing school tasks and the overall favorable view toward computer use at school. In the student reaction survey, Chantilly Pyramid and eLearning Backpack students tended to respond positively to statements regarding computer use at school, though there were statistically significant differences between students in these groups. For all but one item, Chantilly Pyramid students were significantly more likely to agree to survey items as compared with eLearning Backpack students. Most notably, Chantilly Pyramid students were more in agreement that their devices work well (CP: 78.3% agreed, eLB: 69.2%) and that they knew how to use the devices to complete tasks (CP: 93.1%, eLB: 87.1%).

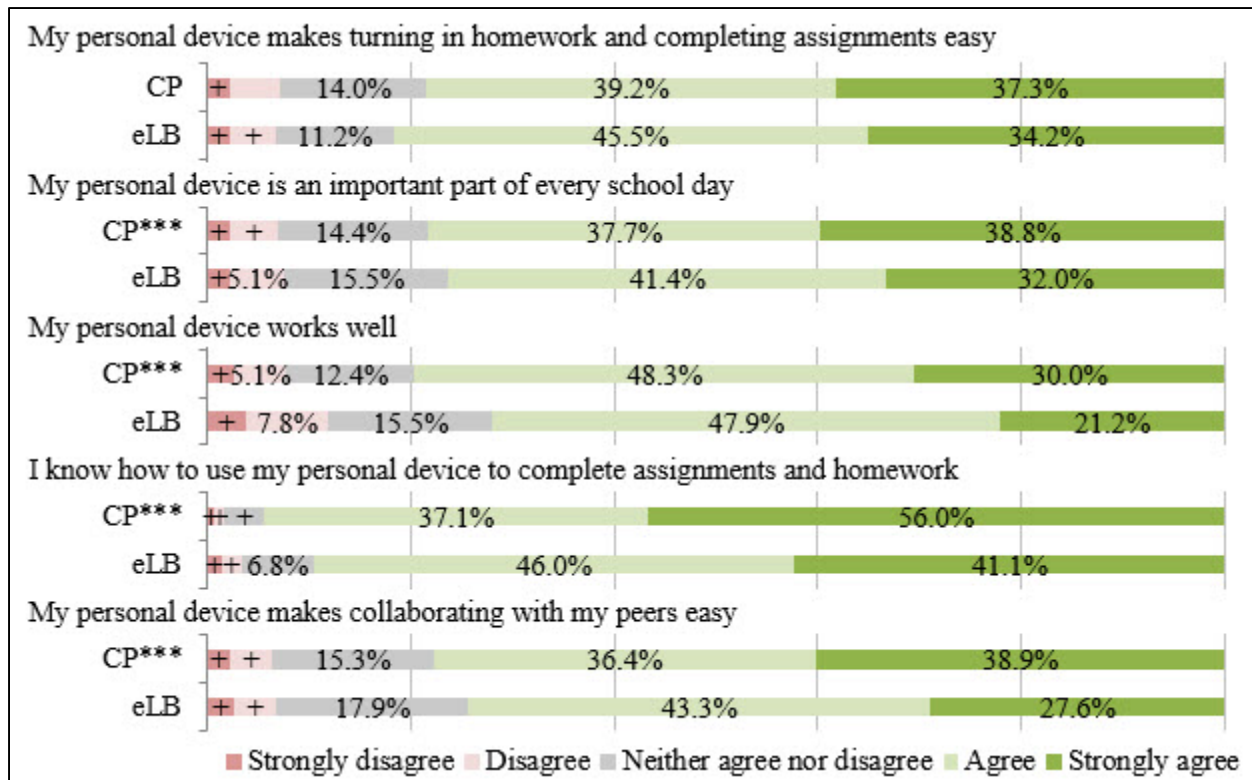


Figure 9. Degree to which students agreed to survey items regarding motivation to use technology.

Note: + indicates frequency was less than 5.0%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

As with the previous set of survey items, there were also statistically significant differences between levels of Chantilly Pyramid students:

- Middle (80.0%) and high (78.9%) school students were more likely to agree as compared with elementary (69.9%) students that the devices make turning in homework and completing assignments easier.
- Middle school students (81.8%) were more likely to agree as compared with the other two groups (elementary: 68.2%, high: 78.9%) that their device is an important part of every school day. High school students were more likely to agree than elementary school students.
- Elementary school students (85.4%) were significantly more likely to agree than the other two groups that their device works well (middle: 75.4%, high: 74.7%).
- High school students (82.4%) were significantly more likely to agree than the other two groups that the device makes collaborating with peers easy (elementary: 66.4%, middle: 76.6%). Middle school students were more likely to agree than elementary students.

Students also indicated in the student survey the frequency that they used their personal devices for various activities. In terms of more general use, the majority of students in both Chantilly Pyramid and eLearning Backpack schools indicated using devices to work on school work at home almost every day or daily (CP: 86.5%, eLB: 80.4%) with Chantilly Pyramid students indicating a significantly greater frequency than eLearning Backpack students. Students

indicated frequent use of devices to type notes for class (CP: 80.7%, eLB: 80.9%) and comparable frequency to download notes or presentations from teachers (CP: 78.4%, eLB: 76.4%). Middle school Chantilly Pyramid students indicated a significantly less frequent use of devices to type notes as compared with the other two levels. Elementary Chantilly Pyramid indicated a significantly more frequent use of devices to download notes or presentations from teachers as compared with middle and high school students.

**Communication.** A set of items explored the degree to which students used devices for communication activities such as email, receiving feedback, and collaboration with other students. As shown in Figure 10, students in both groups use devices regularly for communication tasks and at comparable levels with the exception of sending and receiving emails. Here, Chantilly Pyramid students reported significantly more frequent use than eLearning Backpack students did.

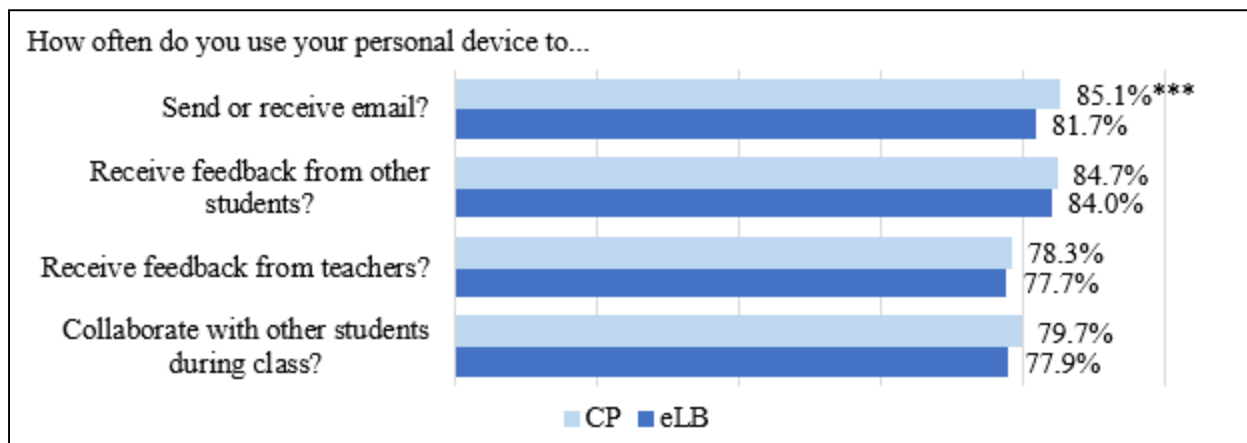


Figure 10. Frequency students reported almost daily or daily use of personal devices for communication purposes.

\*\*\* $p < .001$ , \*\*  $p < .01$ , \* $p < .05$

There were statistically significant differences between Chantilly Pyramid levels. Elementary school students were significantly more likely than the other two levels to use devices to send or receive email and to collaborate with other students during class.

**Assessment.** Device use for assessment purposes, such as for tests, homework, or in preparation for such assignments was somewhat more common than for communication purposes (see Figure 11). Most students regularly reported using devices to complete homework (CP: 90.9%, eLB: 83.1%) and to look up information related to a classroom assignment or current event (CP: 82.8%, eLB: 80.6). Chantilly Pyramid students reported significantly more frequent use of devices for taking tests or quizzes, submitting homework, completing homework, and looking up information as compared with eLearning Backpack students.



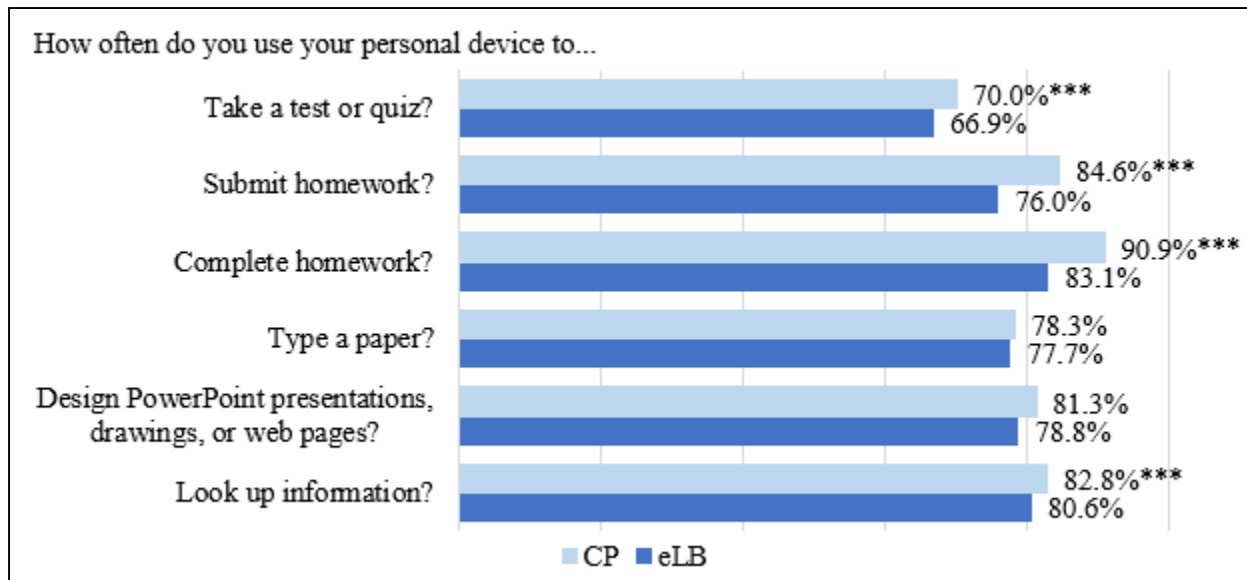


Figure 11. Frequency students reported almost daily or daily use of personal devices for assessment purposes.

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

Again, levels within Chantilly Pyramid schools exhibited significant differences in frequency of device use for assessment purposes. Elementary and middle school students indicated significantly more frequent use of devices to complete homework and submit homework as compared with high school students. Elementary students reported significantly more frequent use of devices for tests and quizzes as compared with middle and high school students. High school students reported greater frequency than middle school students. Middle school students reported greater frequency than high school students for designing presentations, drawings, or web pages. High school students more frequently use devices to look up information related to classroom assignments or current events as compared with both other levels.

**Media.** The final set of survey items regarding device use explored the frequency students used their FCPS-issued device for media-related activities. Frequency appeared to be greater for these activities as compared with communication and assessment. As shown in Figure 12, the vast majority of both Chantilly Pyramid and eLearning Backpack students used devices almost every day or every day to access social media, surf the web, and listen to music. Chantilly Pyramid students reported significantly more frequent use of their devices for listening to music, surfing the web, watching TV or YouTube videos, and accessing social media. It should be noted that the student survey did not distinguish between the consumption of media for educational and non-educational purpose. It is impossible to determine from the student survey alone to what extent these media-based activities are for educational or entertainment purposes.



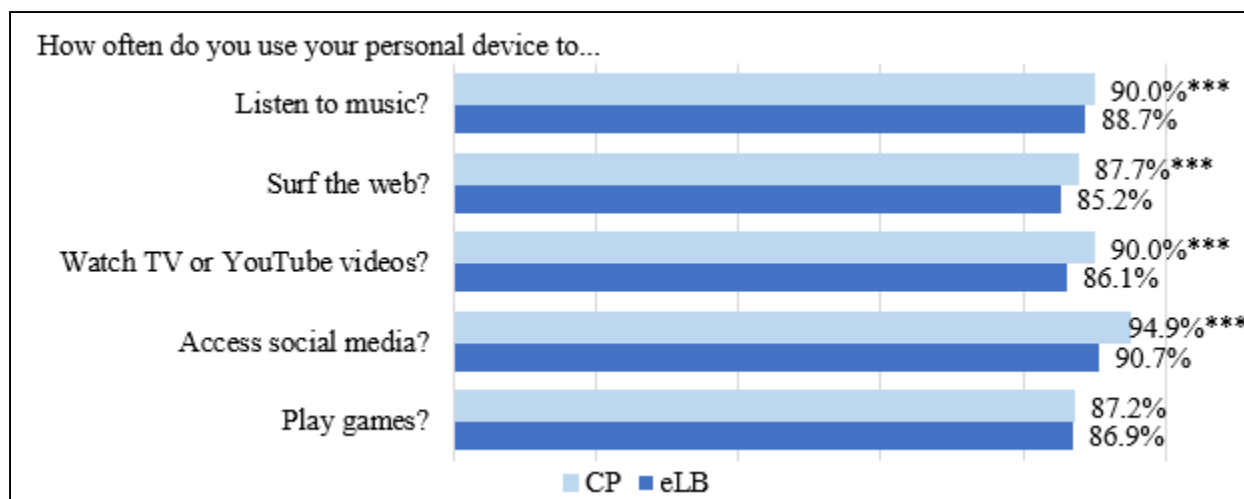


Figure 12. Frequency students reported almost daily or daily use of personal devices for media-based tasks.

\*\*\* $p < .001$ , \*\*  $p < .01$ , \* $p < .05$

There were statistically significant differences observed between levels of Chantilly Pyramid students. First, elementary students reported more frequent use of their personal device to surf the web, access social media, and watch TV or YouTube videos when compared with middle and high school students. Elementary students also reported more frequent use of their personal device to play games when compared with high school students. Middle school students also reported more frequent use of their personal device to access social media and watching TV or YouTube videos than high school students.

**Content areas.** Students also responded to prompts in the survey to indicate the classes where their devices were used most and least often. The content areas reported by elementary ( $n = 1,324$ ), middle ( $n = 1,464$ ), and high ( $n = 3,908$ ) school students were consistent. Specifically, elementary, middle, and high school students reported most frequently using their devices in English language arts and social studies. Elementary and middle school students also reported frequently using devices in science. One notable difference between levels was the use of devices in mathematics. Elementary students reported mathematics as a content area where they used the device most often (20.0%) and this content area was not as frequently referenced by middle (7.7%) and high (7.3%) school students. In regard to courses where devices were used the least, middle and high school students most often referenced mathematics, followed by gym/health. Elementary students most often referenced mathematics (17.7%). Given the inconsistencies between content areas reported as most and least used, one may conclude that individual teachers drive the use of devices rather than content areas.

**Summary.** Results specific to technology access and use indicate that the majority of teachers and students have overall positive views toward the use of technology in learning. Teachers generally agreed that the technology supports learning and that students are motivated to use their computer to complete schoolwork. Teachers reported generally high efficacy—roughly three out of four teachers reported high levels of efficacy related to the integration of technology into their teaching practice. Considering the importance of efficacy in preceding

teacher practice (Klassen & Tzue, 2014; Kim et al., 2013; Ertmer, 1999, 2005; Hew & Brush, 2007), the one in four teachers who reported low levels of technology-related efficacy are an important population for the district to reach. In a previous section of this report, findings reveal that principals struggle to reach “resisters” and engage them in new tools for learning. Data related to technology access and use also reveal a fruitful avenue for addressing this concern from principals: 95% of teachers feel confident in their ability to learn new tools and resources *with proper training*. It seems that addressing this concern from principals likely involves targeted PD specific to the needs of the low-efficacy teachers.

Results in this section also reveal that the majority of teachers in the Chantilly Pyramid and eLearning Backpack schools self-reported a relatively frequent integration of technology into classroom routines, including for planning and administrative tasks. One of the most robust findings related to teacher practice was that over 90% of all teachers surveyed use technology to deliver differentiated content and promote individualized or personalized learning experiences at least sometimes. These findings echo those from classroom observations and focus groups, which suggest the majority of teachers have embraced the availability of students’ personal devices as a tool to deliver content in new ways.

Finally, findings indicate that students generally have favorable views of technology use at school, including that using their personal device makes school more interesting and that using their computer feels natural. Across data sources, students indicated that their personal device makes completing school tasks easier and that they use their device almost daily for a number of different activities such as to complete homework, access content and social media, play games, listen to music, design projects, and communicate with teachers and peers. While the majority of students indicated that the personal device is firmly integrated into their daily life, less than half of students surveyed felt their personal device was integral to their success at school.

### **Physical Learning Environment**

Observations and interviews documented the extent to which the physical environment of classrooms supported the integration of technology into learning and created a learner-centered environment. A learner-centered environment includes a de-emphasis on the front of the classroom; a variety of seating areas which accommodate whole group, small group and independent learning; and the free movement of teachers and students in the classroom space.

Observations in Chantilly Pyramid schools revealed that classrooms were arranged to support student voice and choice. For example, many of the observed classrooms contained additional seating options to support different types of learning (e.g., small group work). Almost half ( $n = 10$ ) of the classrooms contained carpeted areas designated for reading or small group work and six classrooms contained small tables for group work. One classroom, a STEAM lab, contained benches for students to sit on while a second-grade classroom had a designated reading nook. Twelve classrooms had desks in groups or students sitting in groups at tables, six classrooms had desks in rows, and one classroom had a combination of three long rows of desks and one cluster of desks. Two classrooms, a science room and a STEAM lab, had lab tables instead of desks.

While the seating arrangements were similar in Chantilly Pyramid and eLearning Backpack classrooms, the eLearning Backpack classrooms did not appear to support student voice and choice with additional seating options. Seven classrooms had desks in groups or students sitting in groups at tables and seven classrooms had desks in rows. One classroom arranged desks in a U-shape. In two classrooms, groups of students sat at tables rather than individual desks. Only one classroom, English 10 Honors, had multiple seating options for students including beanbags, a couch, high desks with barstools, a reading corner, a rug, standard desks, and a table. Another classroom also included three large tables at the back of the classroom for additional seating. No other alternative seating options were noted.

With just one exception, a STEAM lab, all of the Chantilly Pyramid classrooms contained visual supports such as content-specific displays (e.g., equations, maps, vocabulary). Other classroom displays varied but included visuals such as character traits (e.g., critical thinking, digital citizenship), classroom expectations (e.g., lab guidelines), inspirational posters (e.g., quotes from famous authors), photographs of students, school pride posters, and social-emotional learning displays. Only four of the classrooms were reported to contain the *Portrait of a Graduate* poster.

About half of the eLearning Backpack classrooms contained content or subject-specific displays (e.g., calculations, vocabulary), with a few classrooms displaying student-made content. About half of the classrooms had agenda or learning objectives posted, with one classroom displaying outdated information. Only three classrooms posted homework on the board. In addition to content-specific displays, five classrooms displayed other visuals (e.g., artwork, class rules, crisis hotline information, motivational quotes).

During interviews, several Chantilly Pyramid school principals mentioned a physical change in classroom space and how this positively impacts learning. One principal explained that the initiative has forced schools to rethink the design of their classrooms; now, there are “more center-based” activities because of flexible seating and opportunities for students to move around freely. The principal felt this has resulted in a more student-centered teaching model, redefining the teacher as a facilitator.

**Summary.** The seating arrangements for desks in Chantilly Pyramid and eLearning Backpack schools were similar with desks mainly in groups or rows. However, Chantilly Pyramid classrooms tended to offer additional seating options for students to work. These additional options promote student voice and choice as they accommodate different learning styles and encourage variety in the classroom learning experience. Also, almost all the Chantilly Pyramid and about half of the eLearning Backpack schools displayed visual supports to help promote and support student learning.

Teachers and students in focus groups, and principals from eLearning Backpack schools, did not frequently mention the physical environment. Several principals from Chantilly Pyramid schools, though, felt that the initiative provided an opportunity for teachers to rethink their role in the classroom, and adjustments to the physical environment reflect a shift from teacher to facilitator.

## Student Engagement

The fourth logic model component examined the impact on student engagement. First, we present perceptions of student engagement as gathered from classroom observations. Then, we present findings from interviews and focus groups regarding the impact of the FCPSON initiative on student engagement.

**Classroom observations.** Observations revealed a variety of student participation levels in Chantilly Pyramid schools. A few classes had students that worked fully independently. In other classes, almost all (75% or more) students raised their hands during whole group instruction, though one class had three to five students that did not participate at all during whole group instruction. In addition to whole group participation, several classes had students that asked for help during independent work. Students seemed to participate during group work, except for those few that were noted as off-task. Over half of the classes in Chantilly Pyramid schools had students on-task ( $n = 11$ ). In these classes, observers noted behavior such as students consistently on-task, excited to work, and focused with minimal distractions. Additionally, several observers noted students as engaged during both group and independent work. For example, students appeared to be highly excited about participating in Hour of Code. One class had a mix of on-task and off-task behavior, while one observer did not report on student behavior. In the eight classes that were reported as exhibiting off-task behavior, only two or three students tended to be off-task.

At eLearning Backpack schools, students either worked individually on assignments or participated in a combination of individual and small group work. Only two classrooms were observed as having all students engaged for the entire lesson. In both classes, students were engaged in assignments that required critical thinking and/or use of the three C's (collaboration, communication, and creativity). However, in most classrooms ( $n = 14$ ), only a few students (1-4) were noted as off-task. This included individual, small group, and whole group work. Off-task students were typically either using their devices/phones as a distraction (e.g., checking email, watching YouTube) or doing work for another class. Only two classrooms had many students off-task. One of these classrooms included two larger groups of four students (out of 18 total students) that were off-task (talking socially). In the other mostly off-task classroom, about half of students exhibited signs of boredom or distraction during a teacher lecture. Regarding student requests for help, most teachers ( $n = 16$ ) circulated the classroom to guide students and answer questions during individual and small group work. In one class, the teacher allowed students to come to him with questions and in another class, the teacher lectured.

**Teacher perceptions.** Teachers were asked to indicate through the teacher survey the degree to which the use of technology has affected student engagement. Survey responses revealed that just under two thirds (63.9%) of Chantilly Pyramid teachers agreed to an improvement in student engagement this year; even fewer eLearning Backpack teachers agreed (56.8%). The difference was statistically significant. In addition, Chantilly Pyramid elementary teachers were significantly more likely to agree than Chantilly Pyramid middle and high school teachers. Chantilly Pyramid teachers were more likely to agree to an improvement in students' engagement this year as compared with last year. The opposite was true for eLearning Backpack teachers, with fewer indicating agreement this year as compared with last year.

In contrast to survey responses, Chantilly Pyramid teachers reported increased student engagement in learning during focus groups. Teachers, especially of younger grades, felt that students have a natural inclination toward tablets and laptops, and that educational gaming is a promising mechanism for scaffolding content while capturing student attention better than any other conduit. Teachers also attributed increased engagement to their own re-thinking of how to deliver educational content. The initiative has encouraged teachers to “think outside of the box” and provide content that is suited for a digital classroom. Teachers reported bringing videos, digital games, and other interactive content to existing lesson plans. With student access to the internet and digital programs, teachers have expanded options for students to demonstrate their learning. The result is a student that is more engaged in what their teacher has planned for them.

In focus groups, eLearning Backpack teachers did not mention increased student engagement with notable frequency when prompted to describe the impact of the initiative on students. In fact, when compared to data from the Chantilly Pyramid teacher focus groups, data from eLearning Backpack teachers included a relatively high frequency of *negative* impacts of the initiative on students. Unfortunately, negative feedback related to student impacts was just as frequent in eLearning Backpack teacher focus group data as mentions of positive impacts. One teacher went as far as suggesting, “The laptops are probably more of a distraction than a help.” Negative feedback related to student impact from eLearning Backpack teachers generally fell into two themes. The first was that the computers are a distraction and the second is that students use the devices in inappropriate ways. While this theme emerged with troubling high frequency in the eLearning Backpack teacher group, it is not a unique theme in general—there was some mention of students being off-task and needing redirection in every teacher focus group.

**Principal perceptions.** Principals in both groups noted an increase in student engagement due to the initiative. Chantilly Pyramid principals attributed the devices and Google Classroom to the increase in a student-centered learning approach. Contrary to reports from teachers in eLearning Backpack focus groups, eLearning Backpack principals reported an increase in student engagement, specifically that students are able to learn at their own pace. One principal stated, “Devices make it easier to provide [differentiation] for kids.” Other benefits related to engagement included enhanced improved retention, more collaboration between students and teachers, and enhanced technology skills. One principal added, “I feel like we’re readying kids for the workplace, especially those who’ve never used an electronic device before.” Several principals reported seeing a decline in the number of disciplinary referrals. Perhaps most importantly, principals noted that students are communicating more with each other and with the teacher. In terms of challenges, principals raised questions about digital citizenship competency – something that they would like to address with their students as the initiative continues.

**SBTS perceptions.** There were differences in perceptions regarding student engagement between Chantilly Pyramid and eLearning Backpack SBTS. The Chantilly Pyramid SBTS that were interviewed were unanimous in reporting an overall positive impact on student engagement or enjoyment within their schools. They cited aspects of the initiative that facilitated the increased engagement including flexibility in offering all students opportunities to participate,

along with encouraging student voice and choice. eLearning Backpack SBTS, in contrast, were more ambivalent. One SBTS emphasized the benefits of student voice and choice to engagement.

**Parent perceptions.** Parents presented mostly positive views regarding an impact on student engagement. Survey responses revealed that both Chantilly Pyramid and eLearning Backpack parents tended to agree (CP: 78.4%; eLB: 70.8%) that their child is motivated to use their personal device to complete homework, assignments, and other school-related tasks. During focus groups, parents conveyed mixed perceptions about their child's enjoyment of school with the FCSPOn initiative. Two themes emerged from the Chantilly Pyramid focus groups. First, Chantilly Pyramid parents described their children as simply excited to use the computer and motivated to complete tasks involving its use. Parents described their children as having fun while completing school-related tasks. One parent said, "My kids just love to make PowerPoints and they enjoy sharing their presentations with us, rehearsing their presentations." Chantilly Pyramid parents also reported seeing an increase in general computer skills compared to years prior ("I would say now they are definitely more computer savvy in terms of using it") and the ability to use different programs and features to express content and ideas ("She is really learning the technology and getting comfortable with it in a work and school environment").

eLearning Backpack parents also described a positive impact of the initiative on their child's enjoyment of school. They attributed increased engagement to the mitigation of barriers to achievement. One parent described a more organized and efficient approach that her daughter can now take toward school-related tasks,

*I have two children, one who is very into school and one who isn't. For the one who is not, I see the impact on her engagement very clearly. She has everything right there and everything is real-time. The whole process is more efficient for her. Her homework, notes, everything...she can just sit down and get through it.*

Another parent explained,

*My son is taking all his tests online, on the computer, including the SOL and he likes that because it keeps his bad handwriting off the test. That has frustrated him during testing in the past. It wears him down. That's the best thing for him.*

**Summary.** The impact of the initiative on student engagement was evident through survey responses, interviews, and focus groups with stakeholders. Survey data and focus group responses provide evidence that Chantilly Pyramid teachers appear to be more firmly convinced than eLearning Backpack teachers that student engagement has increased due to the initiative. Just over half of eLearning Backpack teachers agreed to this prompt in the survey and, in focus groups with eLearning Backpack teachers, negative impacts were described with just as much frequency as positive impacts. Of the positive impacts that were discussed by eLearning Backpack teachers, increased student engagement did not appear with any notable frequency. Principals of both groups, however, reported increased engagement among their students. Principals tended to attribute increased engagement to an increase in student-directed learning experiences and student interaction with personalized content.

Parents from both groups also described a positive impact of the initiative on their child's engagement in school—parents perceived their child to be motivated to use their device to complete tasks and practice new computer skills. Parents also felt that access and use of a personal device increased engagement and removed barriers to success at school. Parent feedback may help explain the relatively low frequency of mention of increased student engagement from eLearning Backpack teachers. eLearning Backpack parents overwhelmingly equate “engagement” with their children accomplishing tasks that teachers expected them to perform all along; the computer has leveled the playing field for students whose parents we spoke with in the focus group. Teachers may not see increased engagement as much as they see increased ability to accomplish basic school-related tasks.

### **Student Content Knowledge**

Stakeholders were asked to comment on the perceived impact of the FCPSON initiative on student learning. While we would not expect significant results in only the second year of implementation, many attributed an improvement in learning to increases in student engagement. In the following section, we present findings from surveys, focus groups, and interviews relevant to the impact on student learning.

**Teachers.** Teachers were asked to indicate through the teacher survey the degree to which the use of technology has impacted students. Overall, they agreed that their students have improved in their use of technology as a learning tool (CP: 77.9%, eLB: 76.8%). There were statistically significant differences between teachers at the three levels of CP schools: elementary teachers were significantly more likely to agree than middle and high school teachers, and middle school teachers were more likely to agree than high school teachers.

Teacher focus groups reflected survey responses. Chantilly Pyramid teachers alluded to an improvement in student learning given the increased student engagement. They offered that feedback can be more timely and efficient. Also, students can ask questions online that they might not have asked in class. Overall, the initiative has increased accountability. eLearning Backpack teachers did not have a positive view of the impact of the initiative on student learning. They conveyed that the computers do not meet the needs of the student population they work with. Teachers mentioned that their students need direct instruction, which the device cannot provide. One teacher explained,

*When given self-directed tasks online, they get distracted, they don't know what to do next. I get nowhere. I feel like they are backtracking on these days. Students spend the whole time asking questions, getting confused, and making little progress and then I'm behind in trying to cover what we have to get through.*

**Principals.** Both groups of principals agreed that the FCPSON initiative improves student learning and meets the needs of students in general but particularly those with special accommodations. Simply put, one respondent said, “Kids love technology.” Another commented, “[Kids] love being a part of something. Tech is a voice and a vehicle for them.”

With regards to students with 504s, IEPs, or ELLs, the implementation of technology has been helpful. A Chantilly Pyramid principal noticed that, “Special education students used a computer before, and they looked different. Now, they are able to blend in.” Similarly, in eLearning Backpack schools, the initiative has helped in bridging the digital divide and giving students more confidence. One respondent said, “Kids that struggle, for the most part, are having a better learning experience with options and self-pacing.” In both school groups, the FCPSON initiative has positively impacted students of all abilities in a number of ways.

**SBTS.** During interviews, SBTS from both Chantilly Pyramid and eLearning Backpack schools conveyed a positive impact on student learning. They spoke to increased access to a variety of tools and information, along with the ability to demonstrate their learning in a variety of ways. Further, one SBTS described an increase in student collaboration, creativity, and critical thinking that would positively affect learning. An eLearning Backpack SBTS noted that since teachers are facilitating instruction and circulating the classroom, students can no longer be “lost in a corner” or falling through the cracks. In addition, they mentioned that students can access materials anytime, regardless of if they are in the classroom. The positive perceptions regarding student learning did not come without concerns, however. SBTS referenced the need for students to learn the content and curriculum in addition to becoming proficient with technology skills.

**Students.** Chantilly Pyramid students use the words “fun,” “exciting,” and “interactive” during focus groups to describe the 1:1 initiative’s impact on learning. Students appreciate digital content (“Watching videos for learning is fun”) and the different ways their computer allows them to demonstrate learning (“I know I’d rather be doing PowerPoints and presentations on a computer than writing!”). Chantilly Pyramid students reported that they are more likely to work on collaborative projects and that collaborative projects are easier when facilitated on the device through Google Classroom. One student said,

*I think a big thing for me is it’s more collaborative, and in that sense it is more fun because you get to work with people, like your friends. I know I make study guides with my friends and that makes it easier I think.*

Students frequently described the positive impact of the device on completing basic school-related tasks such as keeping track of assigned or completed work, turning in assignments, and staying organized throughout the school year. Students consistently explained that the computer makes it easier to keep track of homework and stay on top of assignments because “everything is all in one place.”

Last, students noted the increased independence and flexibility they feel they have in their studies. Students talk about independence and flexibility in terms of teachers’ instructional practices: students are given more flexibility and choice in how they demonstrate their learning. The computers have opened a world of project-based learning, allowing students to use multiple resources, including online and digital programs. One student said, “Some teachers accept Google docs or slide or PPT or an excel sheet. It gives you the freedom to do it your way because there are multiple different ways you can do it.” A more prevalent student response was that the computer enables them to work when and how is best for them. One student explained,



*Since the classes are centralized in Google apps, you can direct yourself to what you need to do and complete. It helps me to be more organized with my time now that I can actually do the work at any time. I have to allocate the time and effort, but I can do it at home or anywhere, really.*

**Parents.** Parents' perceptions regarding the impact of the initiative on student learning were mixed. Survey responses indicated that parents generally agreed (CP: 76.6%, eLB: 70.8%) that the personal device provided by the district has contributed positively to their child's achievement in school this year. They also conveyed agreement (CP: 75.8%, eLB: 70.8%) that the device is an integral part of their child's learning experiences. Focus group responses, though, were somewhat more neutral. Some Chantilly Pyramid parents conveyed that learning improvement was due to a variety of aspects of the initiative including increased access to information, creativity and problem solving, and tools and programs. Others expressed concern over the quality of the digital instructional content and lack of their child's computer skills, along with the distractions that come with the device. eLearning Backpack parents were just as mixed with their views about the impact of the initiative on students' learning. While some noted the same benefits expressed by Chantilly Pyramid, others expressed a desire for more consistency across teachers and restricted access to distracting content.

**Summary.** Teachers from the Chantilly Pyramid and eLearning Backpack schools reported different impacts on student learning, with teachers from eLearning Backpack schools reporting less positive impressions. Parent perceptions were also mixed—parents from both groups expressed concerns about the consistency of quality of instruction and curriculum delivered through their child's device. Given that this is a new initiative, and how forthcoming teachers were about their professional development needs, mixed findings about student impacts from the populations arguably closest to students (teachers and parents) is not cause for concern. Importantly, eLearning Backpack teachers were not dismissive of the initiative or futile about the possibilities of positive impacts.

Principals from both groups had an overall positive view of the impact of the initiative on learning, and in the eLearning Backpack group, principals mentioned the positive impact on students with special education needs with notable frequency. SBTS from both groups also spoke positively about the impact on student learning.

Students most frequently used words like “fun” and “exciting” to describe the impact of the initiative on learning. They also mentioned the assistive properties of the device. Interestingly, students also frequently mentioned the impact of their device on learning in terms of the flexibility it provides them in how they demonstrate learning. We can recall from previous sections that this was one of the most prominent themes to emerge from teachers when prompted to describe changes in their instructional practices due to the initiative. It appears that increased flexibility is important to students and teachers, albeit in different ways. Teachers appreciate the flexibility in designing and adapting content; students appreciate flexibility in how and when they demonstrate learning and access content.

## Portrait of a Graduate Skills

*Portrait of a Graduate* skills were examined through a variety of sources including classroom observations, interviews, focus groups, and surveys. Observers examined the degree to which the instruction encouraged the development of *Portrait of a Graduate* skills while teachers, principals, students, and SBTS/librarians were asked to comment on the impact of the FCPSON initiative on *Portrait of a Graduate* skills. These skills include students as a communicator, collaborator, ethical and global citizen, creative thinker, and goal-directed and resilient individuals.

**Classroom observations.** Evidence of the focus on *Portrait of a Graduate* skills emerged from classroom observations. For example, curriculum and instruction at both Chantilly Pyramid and eLearning Backpack schools often utilized multiple instructional activities and methods within the same class. Almost half of the eLearning Backpack schools and several of the Chantilly Pyramid schools used inquiry approaches, project-based learning, or real-world contexts to engage learners.

In 10 Chantilly Pyramid classes, students exhibited evidence of collaboration, communication, and/or creativity. Those classes included group work, Hour of Code, inquiry approaches, project-based learning activities, research, and some rotations. In 11 classes, students exhibited minimal to no evidence of collaboration, communication, or creativity. In those classes, student-teacher interaction occurred during whole group instruction, but little to no communication or collaboration occurred between students. Those classes included content or homework review, some rotations, and worksheets.

In eight classroom observations at eLearning Backpack schools, students exhibited evidence of collaboration, communication, creativity, and/or critical thinking. Those classes often included group work, project-based learning, or research. Some examples included collaboration on a simulation lab, creativity during a multimedia literature project, critical thinking during analysis of a persuasive essay, and all of the above were used to critically analyze Supreme Court cases. In 10 eLearning Backpack classes, students exhibited minimal to no evidence of collaboration, communication, or creativity. Those classes included activities such as individual work and whole group instruction or review.

**Teacher perceptions.** Classroom teachers were asked a series of items that captured the degree to which they felt that technology had impacted their students' acquisition of *Portrait of a Graduate* skills (see Figure 13).

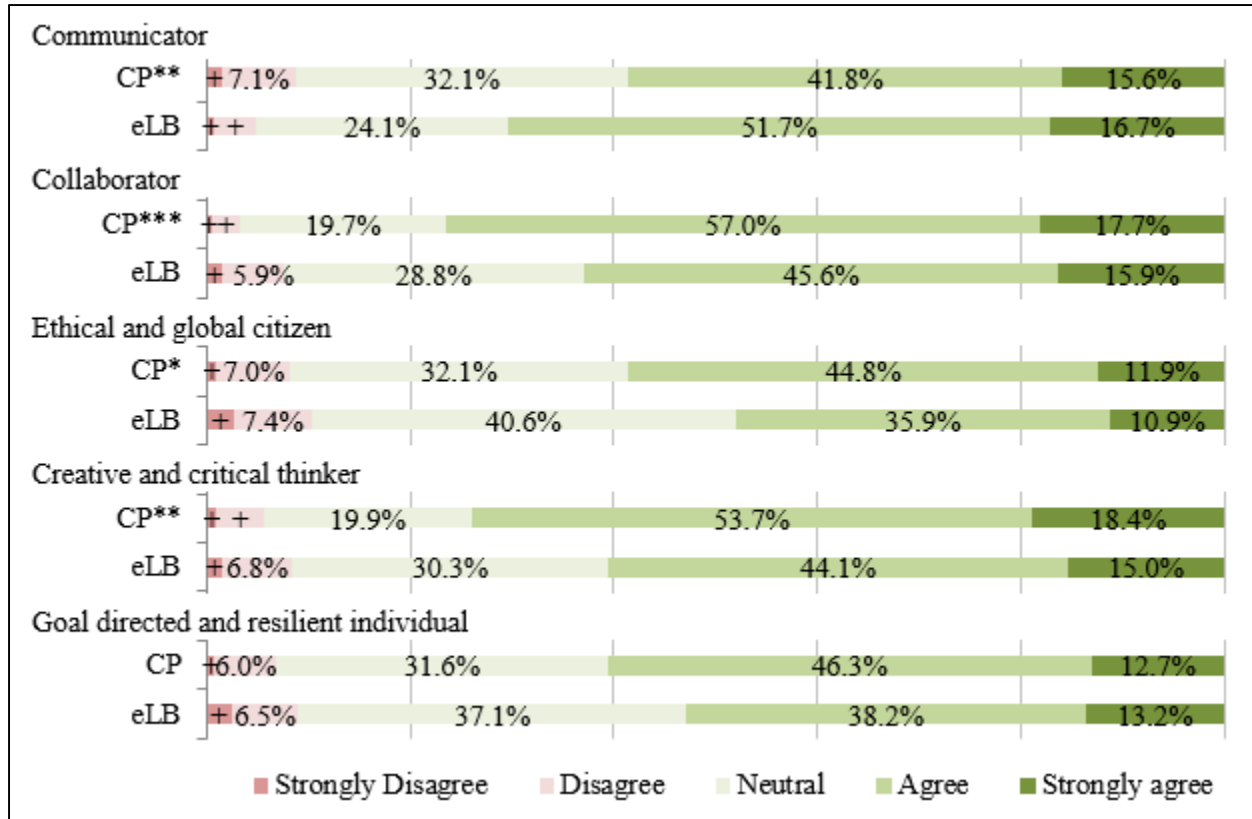


Figure 13. Classroom teachers' perceptions of students' *Portrait of a Graduate* skills.

Note: + indicates frequency was less than 5.0%

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

Overall, Chantilly Pyramid teachers were more likely to agree with specific impacts regarding *Portrait of a Graduate* skills than eLearning Backpack teachers. As with year one, the teachers in both groups were more likely to perceive an impact on communication, collaboration, and creative and critical thinking as compared with the other skills. Teachers' survey responses between year one and the present year remained relatively stable. There were slight declines in both Chantilly Pyramid and eLearning Backpack teachers' responses regarding communication and goal directed and resilient individuals and slight increases in their perceptions for collaboration and ethical and global citizens.

- **Communicator.** Roughly two thirds of Chantilly Pyramid teachers (68.4%) agreed to a perceived impact on students' communication skills, with significantly fewer eLearning Backpack teachers (57.4%) in agreement. Chantilly Pyramid elementary teachers were significantly more likely to agree than high school teachers.
- **Collaborator.** Similar to perceptions of improvements in communication, Chantilly Pyramid teachers (74.6%) were significantly more likely to agree than eLearning Backpack teachers (61.5%) that students had improved as collaborators. Again, Chantilly Pyramid elementary teachers were significantly more likely to agree than high school teachers.

- **Ethical and Global Citizen.** Chantilly Pyramid teachers (56.7%) were also significantly more likely to agree that there had been an improvement in students' skills as ethical and global citizens as compared with eLearning Backpack teachers (46.8%). Chantilly Pyramid elementary teachers were significantly more likely to agree than high school teachers.
- **Creative and Critical Thinker.** Again, Chantilly Pyramid teachers were significantly more likely to agree to an improvement in creative and critical thinking skills (CP: 72.1%; eLB: 59.1%). Further, Chantilly Pyramid elementary teachers were significantly more likely to agree to an improvement than CP high school teachers.
- **Goal Directed Individual.** Teachers were less likely to indicate agreement that there had been an impact in students' skills at being goal-directed and resilient individuals, and results were comparable across the two groups (CP: 59.0%; eLB: 51.5%). Chantilly Pyramid elementary teachers, though, were significantly more likely to agree to an improvement than Chantilly Pyramid middle and high school teachers.

When asked to comment during focus groups on perceived impact of the FCPSON initiative on *Portrait of a Graduate* skills, students becoming goal-directed individuals was the most frequent theme to emerge from Chantilly Pyramid teachers and the second-most frequent theme from eLearning Backpack teachers. Teachers from both Chantilly Pyramid and eLearning Backpack schools conveyed that having content accessible on a digital platform like Google Classroom allow students to be self-directive in their learning. Teachers felt that when students are given the opportunity to move at their own pace, choose their own way to demonstrate learning, and decide on their own when to access class content, the result is a more responsible and engaged learner. One teacher said, "I teach all three levels—AA, Honors and Gen Ed—so giving students the opportunity to go at their own pace...it empowers students and has helped with conceptual understanding." Another said,

*I post everything that I'm going to use in my class on Google Classroom. All my lessons, all my homework, all my PowerPoints: Everything is there. So it also allows a child who is slower to open up a PowerPoint, open up the guided notes, and even though I am teaching and talking about the same stuff, they can go at their own pace. Students can work however they need to.*

Self-guided learning goes beyond pacing. Teachers are also referring to students' ability to work independently and to demonstrate learning in ways that are meaningful to them. One teacher said,

*I have been really impressed because they have same instructions for a project, but their presentations have been so different. They have the information but how they present it has been amazing. Some do PowerPoint, one did an art project that was beautiful. Their presentations have been different and unique.*

Chantilly Pyramid teachers spoke at length about the degree to which a digital classroom forces students to take a more accountable role in their studies. To be clear, teachers did not describe a magical increase in student accountability concurrent with implementation. Rather, the move to Google Classroom has provided a level of transparency and access that has

eliminated many of the legitimate and imaginary barriers that kept students from stepping into a role they were capable of all along. One teacher said,

*For the student that's very disorganized, and we have many like that, the fact that everything is in one location, they're not losing papers. That was a huge problem before. And now, they know where to go, they know where to find their work and assignments aren't going to just disappear.*

Teachers explained that the ability to turn in homework online and complete assignments from home has removed unexcused absences as an excuse for falling behind. Teachers also spoke about accountability during collaborative work, "You can see where students have marked up group-work and you can understand the division of student labor. This proof makes it less likely for one student to shoulder all the work."

Chantilly Pyramid teachers also believed that a digital classroom creates more opportunities for collaborative learning. Google Classroom was central in Chantilly Pyramid teachers' comments about student collaboration ("Using Google Classroom, the student[s] just know what to do in there. They are collaborating with each other, partnering up, and I'm checking in with them constantly").

eLearning Backpack teachers frequently mentioned the acquisition of job-related skills as an important impact of the 1:1 initiative on students. Teachers talked about technical skills ("Students are excited that they can add computer skills to resume"), as well as critical thinking ("I think they're starting to appreciate the depth of information that is there...it's eye opening for some of them"). eLearning Backpack teachers also mentioned other skills like conducting research and multi-tasking. One teacher explained,

*A lot of our students are not necessarily digital natives. They can navigate on their phone, but it is hard to visualize another platform, like Google Classroom, if you are not coming from a place of knowing. They may be used to one pathway to a site but not know how to find it themselves if they are on another device. This is another skill that's being built.*

**Administrator perceptions.** Principals and SBTS echoed the somewhat positive impact on *Portrait of a Graduate* skills conveyed by teachers. All Chantilly SBTS indicated growth in and/or attention to *Portrait of a Graduate* skills, though perceptions varied. SBTS referenced communication ( $n = 2$ ), collaboration ( $n = 2$ ), global citizenship ( $n = 1$ ), creativity ( $n = 1$ ), and critical thinking ( $n = 1$ ). Principals at Chantilly Pyramid and eLearning Backpack schools noted both an increase in collaboration and communication. As one Chantilly principal pointed out, "Just because you have a device in front of you, doesn't mean you are on your own." In fact, devices have fostered a collaboration in group projects and communication between students and between teachers. In terms of the approach to develop these skills in students, one school emphasizes one *Portrait of a Graduate* skill each year school-wide, with each grade also focusing on a different skill. Other schools draw on rubrics ( $n = 2$ ), instructional activities that address *Portrait of a Graduate* skills as well as academic content ( $n = 1$ ), and more frequent teacher feedback ( $n = 1$ ). Two eLearning Backpack schools focus on *Portrait of a Graduate*

skills, specifically collaboration, including online collaboration and critical thinking. One Chantilly Pyramid principal described the *Portrait of a Graduate* skills as “a to-be list, not a to-do list.” As a result, the focus has resulted in project-based and problem-based learning in several Chantilly Pyramid and eLearning Backpack schools. Another principal commented, “*Portrait of a Graduate* is taught using problem-based learning through computers. [Students] can do research that they couldn’t do before.”

**Student perceptions.** During focus groups, students were not asked to comment directly on *Portrait of a Graduate* skills but they were prompted to describe how the 1:1 initiative has impacted communication and interaction at school. Mixed findings emerged from Chantilly Pyramid students. They most frequently felt that the devices increase the amount of interaction they have with their peers because teachers have increased the frequency of collaborative projects. One student said, “I think if anything, more [interaction with peers]. I feel like group projects were pretty rare before computers. But now it’s like every day I have something different.” Another student said, “You work with people more because the computers make it easier to collaborate. Everybody can be working on the document all at the same time.” But Chantilly Pyramid students also reported with relatively high frequency that the introduction of personal devices at their school had no impact on their interaction with peers. A middle school student explained, “I don’t think the computers really change the amount of time we talk to each other. Whether it’s with each other or on the computer, students still talk to each other. It’s just different.”

Students in eLearning Backpack schools were equally as likely to feel that the computers have no impact on frequency or quality of communication as they were to feel that computers increased interaction between peers. One student explained, “I do think in some cases it definitely increases the amount of collaboration between students. But in class you still do work together about the same amount of time, you just work together differently.” Another said, “More but I just feel like the teachers find it a lot easier to assign group projects.”

Students responded to survey items directly on *Portrait of a Graduate* skills. While students in both Chantilly Pyramid and eLearning Backpack schools were generally in agreement on these survey items, Chantilly Pyramid students were more likely to agree, often significantly, than eLearning Backpack students. There were often differences between levels of Chantilly Pyramid students, but no clear patterns emerged.

- **Communication.** The majority of students in both Chantilly Pyramid and eLearning Backpack schools agreed that they are a good listener (CP: 78.8%, eLB: 79.0%), that they are able to communicate their needs to other students, their parents, and their teachers (CP: 80.4%, eLB: 72.9%), and that if they want to know more about a topic, they can use resources such as books or computers to gather information (CP: 88.7%, eLB: 84.3%). Chantilly Pyramid students were significantly more likely to agree that they are able to communicate their needs and use resources to gather information. There were also statistically significant differences between levels of Chantilly Pyramid schools for all three communication items. High school students were more likely than elementary and middle school students to agree that they are a good listener. Elementary school students

were more likely than the other two levels to agree that they are able to communicate their needs and that they can use resources to gather information.

- **Collaboration.** Similar to communication, the majority of Chantilly Pyramid and eLearning Backpack school students agreed to collaboration items including that they respect all children in their age group even if they are different (CP: 88.9%, eLB: 85.8%), they like to help others (CP: 85.4%, eLB: 79.4%), and can lead others to reach a goal (CP: 65.4%, eLB: 64.2%). Chantilly Pyramid students were significantly more likely to agree to these items as compared with eLearning Backpack students. There were also statistically significant differences between levels of Chantilly Pyramid schools. Elementary students were more likely to agree than both other levels that they respect all children their age and that they like to help others. High school students were more likely than middle school students to agree that they like to help others. High school students were also significantly more likely to agree than middle school students that they can lead others to reach a goal.
- **Ethical and global citizen.** Students agreed that they consider what might be good for others when making decisions (CP: 74.6%, eLB: 69.9%), that they are able to follow the rules at school (CP: 89.1%, eLB: 86.5%), and that they know how to be a good friend to classmates (CP: 91.3%, eLB: 85.2%). Chantilly Pyramid students were significantly more likely to agree to these statements as compared with eLearning Backpack students. High school Chantilly Pyramid students were significantly more likely than middle school students to consider others when making decisions and were significantly more likely than elementary and middle school students to agree that they are able to follow the rules at school. Elementary students, however, were more likely than both middle and high school students to agree that they know how to be a good friend to classmates.
- **Creative and critical thinker.** Students in both groups agreed that they are able to find out if something they read or hear about is true or not (CP: 81.0%, eLB: 77.5%), they can change their actions when things do not go how they want (CP: 75.4%, eLB: 74.7%), and that they are able to develop their own opinions about what is right and wrong when events happen in the world (CP: 83.1%, eLB: 77.9%). Chantilly Pyramid students were significantly more likely than eLearning Backpack students to agree that they are able to find out the truth regarding something they read or hear and that they are able to develop their own opinions about what is right and wrong. While levels of Chantilly Pyramid agreed to all three items, statistically significant differences were observed. High school students were more likely than the other two levels to agree that they are able to find out the truth to what they read or hear. Middle school students were less likely than the other two levels to agree that they can change their actions for the better when things do not go how they want.
- **Goal-directed individual.** Roughly two-thirds of Chantilly Pyramid (67.8%) and slightly fewer eLearning Backpack (60.9%) students agreed that they use their time wisely when working on their own. More students in both groups, however, agreed that they can reach their own goals for learning (CP: 81.9%, eLB: 76.9%) and that they will try again or ask for help after failing at something (CP: 82.6%, eLB: 77.7%). Chantilly Pyramid students were significantly more likely than eLearning Backpack students to indicate agreement for each of these three items. We also observed significant differences between levels of Chantilly Pyramid students. Elementary students were more likely than the other two levels to agree they use their time wisely when working on their own and middle school

students were more likely to agree than high school students. Elementary students were also significantly more likely to agree than the other two levels that they can reach their own goals for learning and will try again or seek help if they fail at something.

**Summary.** Findings related to *Portrait of a Graduate* skills suggest that the district stands to improve on emphasizing specific teacher practices and student outcomes that are articulated by FCPSO and *Portrait of a Graduate*. Observations suggest that roughly half of classrooms explicitly demonstrate practice of these skills. Teacher perceptions of specific skills acquisition generally match classroom observations: teacher agreement with increases in specific student skills hovers around 50% for all skills included (students as communicators, collaborators, ethical and global citizens, creative thinkers, and goal-directed and resilient individuals). When prompted to expand on student acquisition of *Portrait of a Graduate* skills as a result of the initiative, teachers most frequently mentioned students as goal-directed individuals. Teachers also mentioned an increase in collaborative opportunities.

Interviews with principals and SBTS suggest that schools have designed structures and processes that support an emphasis on these skills for teachers and students. Principals mention rubrics for instruction and feedback that are designed around the student outcomes articulated by *Portrait of a Graduate*. Principals and SBTS tend to agree that students have increased in specific skill acquisition.

Students were asked to self-report on the degree to which they agree that they personally possess certain skills related to *Portrait of a Graduate*. Based on survey responses, students generally agree that they are good communicators, collaborators, ethical and global citizens, creative thinkers, and goal-directed and resilient individuals. Interestingly, the skill students agreed with the least is the tendency to use time wisely while on their own. This finding is supported by other data from interviews and focus groups, which suggests students are having difficulty staying on task with their personal device.

### **FCPSO Perceptions**

Participants were asked to describe strengths, challenges, and recommendations for improvement regarding the FCPSO initiative during its second year. Themes that emerged from various stakeholder groups are discussed below and included the following stakeholders: principals, SBTS, teachers, students, and parents.

**Principals.** Principals identified strengths that included: increased student engagement and access to technology, increased communication throughout the school, and a positive environment for teachers and staff. Principals also identified weaknesses that included: concerns about the longevity of the initiative, recovering laptops, and creating digital citizenship standards.

**Strengths.** During interviews, principals listed a variety of strengths of the initiative including increases in student engagement, equitable access to technology, communication between students and teachers and between students and students, staff collaboration, and retention and course completion. Additionally, principals noted an improvement in teacher



morale and comradery. A Chantilly Pyramid principal said the greatest strength of the initiative has been increasing the

*...cohesiveness of the Chantilly team. I know we are a pilot, but I think we are really special. Everyone has been so supportive and accountable, being open and flexible and sharing. Everyone is on board to connect. Our teachers are contacting each other, doing things on their own. When you have that type of action, it's incredible.*

**Weaknesses.** Principals expressed concern about the already-aging technology and the long-term care plan for devices. Two principals specifically foreshadowed a transition to the use of tablets to capitalize on the potential of technology in the classroom. Principals note the absence of a plan for longevity alongside general concerns for who (the district or individual schools) will be responsible for maintaining the initiative in the future. Principals also noted an absence of digital curriculum norms and standards, for teachers and students, that come from the district. One principal explained she struggles to evaluate her teachers when it comes to tech integration; other explained his school was unprepared to manage digital citizenship issues among students and had to quickly develop a plan for the school after the year already started. Digital citizenship concerns were almost systemic in interviews with CP elementary school principals. While principals did not describe this point as a weakness of the initiative in general, they did consistently mention management of student behavior online when prompted to describe challenges faced by the school and teachers during implementation.

**SBTS.** SBTS identified strengths that included: curricular changes; increased student creativity, engagement, and voice; a greater focus on learning; and increased access. SBTS also identified weaknesses that included: a lack of digital citizenship guidelines, quality devices, and teacher buy-in and preparation.

**Strengths.** All SBTS seemed to express enthusiasm and pride in the strengths they identified. A Chantilly and eLearning Backpack SBTS both noted the benefits of professional collaboration and support. SBTS from both groups referenced the shift from teacher-centered, whole-class direct instruction to more small-group differentiated instruction. Chantilly SBTS also noted increased student engagement ( $n = 3$ ), voice and choice or control ( $n = 2$ ), collaboration ( $n = 1$ ), exercise of creativity ( $n = 1$ ), strengthened development of *Portrait of a Graduate* skills ( $n = 3$ ), a focus on learning and not the devices ( $n = 1$ ), and access to technology at any time of day ( $n = 1$ ). Specific strengths noted by eLearning Backpack SBTS included use of Google tools ( $n = 1$ ), increased personalized learning ( $n = 1$ ), increased equity in student computer and internet access ( $n = 1$ ), and higher completion rates of class assignments ( $n = 1$ ). One SBTS also noted that the initiative had been more about improving instruction and less about computers.

**Weaknesses.** When prompted to identify weaknesses of the initiative, SBTS cited a lack of digital citizenship guidelines for students, concerns with the quality of computers provided to students, and a need for more buy-in and preparation for teachers. Related to SBTS concerns about teacher buy-in and preparation, SBTS indicated that they feel they are personally responsible for cultivating teacher enthusiasm and addressing individual teacher needs, mostly through one-on-one coaching and instructional support. SBTS want more time with teachers to

address these individual needs; the weakness of the initiative is not about the teachers themselves, but about how much work is left to be done to support teachers as they maximize their potential as educators. Teachers want to learn; SBTS feel that they are not able to meet the needs of all the teachers at their school because they must split their time between teachers, students, administration, and special projects.

**Teachers.** Strengths of the initiative that emerged from teacher responses included increased engagement, access, digital/online programs, convenience, and differentiation. Weaknesses of the initiative that emerged from teacher responses included: student's responsible use, lack of curricular support, technical glitches, and lack of professional development.

**Strengths.** Teachers ( $n = 829$ ) commented on the strengths of the initiative in open-ended survey responses and during focus groups. Themes that emerged as strengths included increased student engagement in learning, increased access to technology tools and digital programs by all students regardless of socioeconomic status, the convenience of technology access in the classroom, the ability to differentiate instruction and content through students' personal devices, and the ease of access to online content and resources.

- **Engagement.** On the survey, teachers in Chantilly Pyramid schools (128) and eLearning Backpack schools (61) noted an increase in student engagement as a result of having 1:1 devices. They found that the devices were an effective tool in providing interactive activities along with a wealth of resources for their students. Increased engagement also increased collaboration, excitement, and organization among students. As one Chantilly teacher noted, "The ability to use and utilize so many great technology activities with our students on a regular basis. I have seen student engagement improved tenfold with my students."
- **Access.** Teachers repeatedly mentioned on the survey access to computers and technology as a strength, both for students as well as teachers (CP: 84, eLB: 98). Most commonly noted was how the initiative provided the opportunity for equitable access to all students regardless of socioeconomic status. This strength was found to "level the playing field," and "closes the technology gap," among students. Widespread access allowed for more collaboration among students and teachers, as well as instant communication between and among these groups. One Chantilly Pyramid teacher noted as a strength, "Being able to give ALL 140+ of my World Language students a voice and platform in which they can be collaborative, communicative, expressive, and heard." Teachers commented on the ease and efficiency of accessing a wider variety of resources, which assisted them in lesson planning and implementation. Finally, teachers commented that having a device and access to technology resulted in a "no excuse" mentality, as one eLearning Backpack teacher reported: "Now that every student has a laptop, they rarely have an excuse for not having access to their classwork, missing work, or teaching materials."
- **Digital and online programs.** Chantilly Pyramid (105) and eLearning Backpack (99) teachers responded positively regarding the availability of digital and online programs that they could integrate into instruction. Google Classroom was mentioned repeatedly as a popular program for teachers and students alike. A Chantilly teacher noted the use of "fun practice/reinforcement programs like Kahoot and Quizlet," while another Chantilly teacher stated, "Students have benefited from having more access to math programs, like

Dreambox, to refine skills.” Data collection tools, collaborative activities, and programs that helped teachers differentiate instruction were also noted as strengths. An eLearning Backpack teacher specifically noted the availability of resources in science as a benefit, “...finding online labs that allow students to experience scientific processes virtually.” A math teacher also explained, “We have been able to incorporate online resources for math like never before, and we constantly use resources...to facilitate student learning in my classes.” Finally, the availability of online resources was seen as providing equity across the student population, as every student could access online resources at anytime from anywhere.

- *Convenience.* Sixty-seven teachers from each group surveyed noted the convenience of having laptops as a strength, primarily because it eliminates the need for a laptop cart or issues with reserving time in a computer lab. Other positive attributes included a reduction in paper, no longer having to grade paper tests, the ease of collecting assignments and giving feedback, and streamlining student collaboration. One eLearning Backpack teacher succinctly summed up this strength this way:

*It helps to have ready access to hardware. Previously, computer carts had to be reserved for individual lessons. The logistics of moving, charging, and repacking the carts took a lot of valuable time. There exists more flexibility and transition-friendly opportunities today.*

- *Differentiation.* The ability to individualize instruction to meet the needs of their diverse student population, especially students with special needs was a final strength noted by teachers surveyed (CP: 66, eLB: 34). The ability to differentiate for certain student populations aligned with the increased level of engagement according to one Chantilly teacher:

*Being a Special Education co-teacher with a general education teacher with the FCPSON technology has been a positive experience in that we are able to meet the needs of each of our students. Students can be actively engaged in an activity on the computer while we are working with small groups.*

**Weaknesses.** The themes in open-ended survey responses described by teachers ( $n = 1140$ ) as weaknesses of the initiative included: students’ responsible device use, lack of curricular support, technical glitches, and lack of professional development.

- *Students’ responsible use of devices.* The extent to which students misuse their device, and do not take proper care of and/or responsibility for it, was the most commonly reported weakness of the initiative (CP: 162; eLB: 200). The most often reported comments were that the devices were broken, not charged, students forgot their chargers, had limited access to charging stations, and/or that students forgot to bring their devices to school altogether. Teachers noted that any one of these conditions could prevent students from completing their classwork. Another device-related weakness noted by teachers was the high level of distraction and off-task behavior endemic to device use. Gaming, watching videos, and socialization were noted as inappropriate off-task behaviors faced by many teachers, who struggled to keep students on-task and engaged.

As one Chantilly teacher explained, “It has provided the kids another device (aside from their phones) to completely ignore instruction.” Finally, teachers in both groups noted an increase in cheating and plagiarism as a result of device use, and how this detrimentally affected student learning. An eLearning Backpack teacher summed it up this way:

*The students are cheating more (cut and paste despite explicit instructions not to), thinking less (cut and paste or passively adding their name to a collaborative document), and actively seeking ways to use the technology inappropriately (order food, texting, etc.).*

- *Lack of curricular support.* There were 161 Chantilly Pyramid teachers and 61 eLearning Backpack teachers who cited a lack of curricular support as a weakness, particularly for students with special needs, early learners, and elective courses (e.g., music, art). This resulted in their having to find time to search out resources, create lessons, and understand how to implement the lesson incorporating technology. For many, there simply was not enough time to do this or do it well, as one eLearning Backpack teacher explained, “Finding the time to find/create/learn how to use and implement software/technology in my classrooms in addition to the other ongoing responsibilities we have as teachers.” Many noted how overwhelming the amount of resources could be and having to learn the technology itself was daunting for some. As one Chantilly teacher noted, “Keeping up with the technology, there is never enough time to stay on top of everything.” Teachers noted the difficulty they encountered in creating personalized learning experiences and developing blended, student-centered lessons while meeting the expectations to become proficient in a wide variety of programs in a short period of time. One eLearning Backpack teacher put it this way: “The most challenging for me has been the use of technology to analyze and utilize real time data to differentiate instruction, customize learning and engage students in a deeper learning.”
- *Technical glitches.* Teachers in both groups reported problems with technical glitches while using devices (CP: 65; eLB: 32). Teachers stated that broken devices take too long to fix, leaving students without a device, and that there is not enough IT staff in each building to support the initiative. Nonworking devices were a disruption to the classroom, as one Chantilly teacher noted, “If one student has technical difficulties it slows all of us down – it’s hard to meet their individual needs and keep the lesson moving.” Other technical problems included slow boot-up time, losing Wi-Fi, new programs not being properly loaded, and devices not being updated.
- *Lack of professional development.* Forty-five teachers in Chantilly Pyramid schools and 27 teachers in eLearning Backpack schools reported that they did not receive enough PD to support the 1:1 initiative. Teachers needed more training in how to incorporate the technology into their classrooms, how to create differentiated lessons for their students, how to troubleshoot technical problems, and how to manage their classrooms since the introduction of devices. Early learning and special needs educators particularly noted the dearth of PD for their areas. Older teachers and those less tech-savvy felt left behind. Teachers noted that following the limited initial PD, they were left to learn things on their own. When PD was offered, teachers often could not find the time to attend.

**Students.** Students identified strengths that included: increased access, communication, collaboration, and independence. Students also identified weaknesses that included: technology issues (e.g., charging, Wi-Fi), content restrictions, a negative impact on instruction, and devices as a distraction.

**Strengths.** All students who participated in a focus group were asked explicitly what they liked most about using their computers and other technologies for learning. In addition, students provided aspects of the initiative they viewed positively through open-ended survey responses. Elementary students in the Chantilly Pyramid focus groups reported typing and access to digital content as their favorite activities. Younger students appreciated the relief from writing by hand (“I’m more confident during tests because my handwriting is bad.”) and the ability to learn through digital applications and websites such as Myon, Read Theory, and Type to Learn. Middle school students from the Chantilly Pyramid were enthusiastic about creating digital content using multimedia programs like PowerPoint and Google.

High school students in both groups described their favorite component of the initiative during focus groups in terms of increased and ease of access to school-related content their personal device provides them. High school students talked about the ease of “looking stuff up” and how, “if you didn’t have time to write notes, teachers always put on [Google] Classroom.” High school students seem to most appreciate their device for its contribution to the tasks they have to complete to be successful. One student couples this notion with feeling like he is more independent as a learner now: “There’s that independence and self-reliance to do your own learning, especially with access to YouTube and other academic materials that we can use now.”

Open-ended survey responses corroborate the themes identified in focus groups. There were 592 students who indicated that they found the school-issued device to be beneficial to their learning, and made it easier to conduct research, complete assignments, communicate, collaborate, and turn in work. One student summed it up this way: “Although I am a junior, it is my first year here and my first time having school issued laptops and so far, it has helped me a lot with presentations, quizzes, homework, and collaborating with peers.” Students noted that having a laptop helped with organization, reduced the amount of paper they had to carry, and increased their sense of responsibility.

In addition, generically positive comments by 361 students included terms such as “good,” “great,” and “awesome” when describing their device. There were 62 students who expressed gratitude at receiving a laptop, especially if they did not have access to one otherwise. Another 29 students said they were entirely reliant on their laptops for completing school work and did not know how they would function without it.

**Weaknesses.** During focus groups, criticisms of the initiative offered by students in the Chantilly Pyramid were predominantly related to charging and Wi-Fi connection. In addition, both Chantilly Pyramid and eLearning Backpack students shared criticisms related to access to features of the computer and content on the internet. Students explained that certain features such as screen brightness are disabled on school-issued laptops, and that websites and images that may be useful are blocked. Students don’t understand why screen brightness isn’t adjustable;

they are frustrated that some teachers let students charge while others treat a low battery akin to misbehavior. Also, students do not disagree that content should be blocked but feel that some content should be blocked that is not, and some content is blocked that should not be. Students seemed to accept the responsibility and boundaries associated with a school-issued device and no student felt that they were overly restricted. Criticisms centered on the perceived randomness or inconsistencies in policies that regulate their use of their computer.

Open-ended survey responses ( $n = 2110$ ) also focused on technology issues, along with restricted access, impact on instruction, and that the device was occasionally a distraction.

- *Technology issues.* While generally glad to have the device, there were many technological issues associated with it, primarily that the laptops are slow, the battery charge does not last very long, and the audio frequently drops. In total, 368 students mentioned tech problems with their laptops, including difficulty in getting tech assistance, the length of time to repair the laptop, Internet access both within the school building as well as from home, the devices taking too long to boot-up, and that they can update at inconvenient times, such as during an online quiz or test. A small number of students (13) also required general tech help, as one student explained: “Please note that not everybody who comes to this school has experience working with computers.”
- *Content restrictions.* As might be expected, students (156) protested that there are too many restrictions placed on their device, especially when they are required to complete homework on sites that are blocked, such as YouTube. However, students also complained that the restrictions prevent access to games, music, and social media. A smaller number of students (42) want more access to features on their laptop, such as being able to adjust the settings, download apps, or to personalize their device.
- *Impact on instruction.* Students (105) were fairly outspoken about the overuse of technology and its negative impact on curriculum and instruction. They believe that their teachers overly rely on technology to teach versus direct instruction, as one student stated:

*I think they're taking over the learning environment in a negative way. Teachers are using them as a substitute for teaching and interacting with students- creating hyper-docs online for students to follow rather than teaching the class.*

One student commented that using a computer to teach “...puts a barrier between me and my teacher.” Further negative perceptions include teachers using technology as a way to increase workloads, set unreasonable deadlines, and leaving students feeling like they are teaching themselves. Some students commented that their teachers are not necessarily tech-savvy or comfortable with using technology, which was also seen as a detriment to their learning. Still others noted that they missed interaction with their peers due to so much computer use.

Another 68 students describe the impact on instruction based on a preference for using paper, largely because handwriting helps them with retention of the material, believing that their learning experience is strengthened by using paper and pencil. One student explained:

*Although they are very helpful, many students, including myself, would much rather just use paper and pencil instead of doing all of our homework online. Typing on the keyboard can be very annoying and staring at a screen for hours can make us lose focus sometimes.*

Students also commented that the laptops are heavy, that dependence on them for much of their school work causes eye strain, they experience too much screen time, and the device is just generally bad for their health. A few commented that the funding could have been better spent, such as providing classroom resources like textbooks. Finally, 12 students believe that the over-reliance on technology is causing them to lose previously learned fundamental skills, like reading and writing, or prevents them from learning new skills.

- *Distracting.* There were 79 students who found the devices to be distracting, either to themselves or when students around them exhibit off-task behaviors, as one student noted:

*Many times, school-issued devices cause distractions for not only the person using them, but all of the people behind them in class. A reduced use of computers would be more beneficial, as they do not aid focus, but take it away.*

Others believe that the school-issued laptops are not being used appropriately, such as when students watch videos or play games during class. In addition, students believe that having a personal laptop facilitates cheating on tests and quizzes.

**Parents.** Strengths of the initiative that emerged from parent responses included the importance of technology skills and digital literacy, the facilitation of learning, increased equity, and improved student attitudes and motivation. Weaknesses of the initiative that emerged from parent responses included: curriculum and instruction concerns, screen time and other health concerns, devices as a distraction, a lack of transparency, and infrastructure/security issues.

**Strengths.** Parents commented on the strengths of the initiative through open-ended survey responses and during focus groups. Predominant themes that emerged as strengths included: the importance of technology skills and digital literacy, facilitation of learning, equity, improved student attitudes, and increased motivation at school.

- *Importance of technology skills and digital literacy.* Survey respondents in Chantilly Pyramid schools (75) and eLearning Backpack schools (4) noted the importance of learning to use technology as an “essential part of education.” Parents suggested that technology skills would be critical for this generation of students going forward. A middle school parent stated that students must have “the tools to function in a society that is ruled by technology,” while another middle school parent stated that the initiative “provides an excellent platform for children to grow into the needs of a society driven by technological advances.” This theme was also the most frequent type of positive feedback from parent focus groups. Chantilly Pyramid parents specifically appreciate their child’s opportunity to use digital tools to communicate with teachers and classmates. One parent

said, “One positive is the opportunity to work in collaborative style, which is the way the business world works. Exposing kids at this stage is very positive. My kids are doing PowerPoint presentations with their peers and other collaborative projects due to access to technology.” Several parents also noted the importance of teaching students digital citizenship skills, with one parent even calling it “essential.” An elementary school parent commented that the initiative helped students to know “what their limits/boundaries are for computer and online use.” A few parents emphasized the value of opportunities to practice digital citizenship in a safe, supportive environment. Several parents remarked in the parent survey that their child exhibited advanced digital learning and technology skills. One Chantilly Pyramid parent stated that they were impressed with their elementary and middle school students’ advanced skills and ability to navigate the computer and technology resources available to them. For example, the parent stated, “My 7th grader also has gained various skills from her digital learning at school. She can search, research, and update her class material at one place and does not need tons of paper material to do the same.” Other parents noted increased comfort levels, familiarity, and faster learning rates among their children. One elementary school parent noted the importance of building foundational technology skills and stated that students “are learning keyboarding and technical skills at a very young age, which will help them build a solid foundation with computers for their whole lives.”

- *Facilitates learning.* Parents in Chantilly Pyramid schools (23) and eLearning Backpack schools (2) provided generic comments about how technology access and use enhances the learning experience of students, suggesting that the initiative was helpful and “great for learning.” One elementary school parent stated: “I think the value of this program is phenomenal and will allow students to grow in many ways.” Additionally, some parents noted that the initiative makes class assignments easier to access, organize, and submit. For example, an elementary school parent stated, “Kids are more independent and organized in terms of doing and submitting their work.” A few parents also commented on specific technology tools that helped to enhance their child’s learning experience, such as blended learning, Google Drive, Quizlet, and video-based instruction. One middle school parent explained that the initiative allowed all of her children to be productive at home, as each child had their own device to work on.

Parents elaborated on this theme in focus groups. Chantilly Pyramid parents and eLB parents frequently mentioned the positive impact of the personal device on their child’s independence as students and accountability for their own learning. More specifically, parents compliment the use of Google Classroom and the access the device provides to educational content in facilitating independence and accountability. Parents provided example after example of ways their child can “help themselves” and “initiate contact between teachers and students.” Parents expressed appreciation for the accessibility of homework and other class content. One parent said, “I see her use it every day. If she misses an assignment, she goes and finds it. The teachers are great about posting.”



- *Equity.* Parents from Chantilly Pyramid schools (19) and eLearning Backpack schools (3) noted that the initiative provided students with needed access to devices. Parents commented that it was great that all families and students had access to devices. Two Chantilly Pyramid middle school parents made the analogy that the initiative created an “even field” between students, as all students had access to the same devices. Several Chantilly Pyramid parents expressed the personal financial benefits that the initiative provided. For example, an elementary school parent stated, “I have been incredibly appreciative having the devices to use since it is something we wouldn't have been able to afford in our home.” A few parents also noted that the initiative provided equity for students with disabilities or other health concerns. For example, an eLearning Backpack high school parent stated, “For those who are in special education and non-verbal technology is lifesaving.” Also, a middle school parent stated, “Our child has been sick for many days this year and having access to classes online has been extremely beneficial to keep him on track in his classes.”

Parents from both focus groups, ELB and the Chantilly Pyramid, also frequently comment that the initiative has “leveled the playing field” for all students in the school. Parents commented about access for all students, not just their child, to a necessary tool for future success. One parent said, “The fact that everyone has access to one. It’s equal. Everyone has one. There is no one left behind.” Another said, “For my kids, I would have bought them a laptop SB it’s nice I didn’t have to. But a lot of people were probably worried about that, how were they going to provide for their kids something so necessary.” In a slight shift in emphasis, parents also mentioned the level playing field in terms of completing assignments and accessing content. One parent explained, “A level playing field is the biggest benefit. The teachers know the kids are going to have it and they can assign projects and homework based on that.”

- *Student attitudes and motivation.* Parents also felt that the initiative improved student attitudes and motivation. Parents commented that their child exhibited increased enjoyment and enthusiasm toward school. A middle school parent stated, “My student likes to read on his device. He is a big fan.” Other parents noted that their child exhibited increased motivation toward completing schoolwork. An elementary school parent remarked that her child was motivated “to do any schoolwork that involves his laptop.” Additionally, a few parents noted that their child exhibited increased focus during homework, testing, and also in being “proactive about finding solutions to problems.” Parent focus groups also revealed parents’ perceptions of increased motivation to complete schoolwork. Parents described their children as simply excited to use the computer and motivated to complete tasks involving its use. One parent explained that her elementary child usually struggled with math but that the introduction of math games provided a way for the child to feel successful in math and gain exposure to content in a way that was less frustrating. Her child wanted to play math games on the computer.

*Weaknesses.* Parents commented ( $n = 495$ ) on the weaknesses of the initiative in open-ended survey responses and during the focus groups. Themes included concerns with curriculum and instructional methods employed by teachers, increased screen time and other health

concerns, distractions caused by the devices, and a lack of transparency between parents and the district and parents and teachers.

- *Curriculum and instruction concerns.* Respondents at Chantilly Pyramid schools (70) and eLearning Backpack schools (2) overwhelmingly identified concerns related to curriculum and instruction. This theme was predominant within focus groups for Chantilly Pyramid parents. Parents are concerned by the perception that teachers have an over-reliance on using the devices for instruction, resulting in decreased student-teacher interaction and deficits in other important skills. Parents are also frustrated by perceived inconsistencies in the degree to which teachers integrate technology and digital tools effectively into learning. For example, one eLearning Backpack high school parent stated,

*Classroom teachers aren't using the technology available to them as a core part of the instructional process. Providing machines is only one small part of implementing effective technology driven education. I would urge FCPS to institute an aggressive training program for faculty to show them how to effectively integrate the technology into their classroom planning.*

Several parents noted a lack of common instructional methods and felt that there should be standards “about how the computers are incorporated into learning between teachers.” Parents felt that standardized instructional methods, teacher differences in implementation, and inconsistent technology use led to a confusing experience for their child.

Chantilly Pyramid elementary school parents had the most concerns about curriculum, with the most prevalent being that students were not receiving enough direction and support in developing foundational skills, such as handwriting, spelling, and writing. Parents felt that their child was not learning to communicate or write well before becoming dependent on using technology. Parents noted that learning how to write using paper and pencil was critical to developing fine motor skills. Chantilly Pyramid elementary parents expressed concerns around foundational skills in general, expressing disappointment in the “passive learning experiences” that relied too heavily on technology and did not provide students with proper instruction. They felt that technology was “being used more as a substitution for what was being done instead of as a tool to enrich and expand on curriculum.” One parent noted that “while computers are great research tools, they do not replace learning the basics especially for younger children,” and another parent was worried that technology was being implemented “for the sake of technology and replacing all traditional methods.” Other foundational skill development parents found lacking due to the technology integration were socialization, critical thinking, and reading comprehension. As one parent stated:

*What has happened to teaching? The children are not taught how to spell nor how to write nor many other fundamental elements of education. I understand that education has changed from when I went to school similarly to how it changed from when my parents went to school, but there should still be a solid foundation from which to build. Yes, they may know how to use technology but they cannot write a coherent sentence.*

Chantilly Pyramid parents felt that technology should be part of a “healthy balance” of instructional materials. Middle school parents specifically mentioned the lack of reading and writing as problematic. Parents complained that students had “forgotten how to read and write” and that they can no longer “problem solve and think independently” because of technology use. Some parents felt that the reliance on videos instead of books meant a decrease in student interest in reading, and thus a decrease in student reading comprehension. For example, one parent felt that “regular books serve as a superior form of technology when trying to develop the ability to focus and think deeply.”

- *Screen time and other health concerns.* Respondents in Chantilly Pyramid elementary schools (47), middle schools (30), and high schools (1) expressed concern over the amount of screen time the initiative resulted in for their child each day. This theme also emerged during focus groups with Chantilly Pyramid parents. One parent stated that students are “on the computers more than any other way of teaching.” Parents are worried about the negative effects this could have. While some parents recognized that technology integration was “critical,” many felt that too much computer use was “harmful and counterproductive.” Parents reported other health concerns. The most reported concern was that the laptops were too heavy, especially to carry back and forth from different classes and from school to home. Posture issues and possible neck injury were seen as negative side effects. A second physical health concern included an increase in eye problems with several parents reporting that their child and other children had decreased vision, particularly since participating in the initiative. Parents noted “bloodshot eyes often from the overuse” and that their child’s “eye health suddenly decreased.” Some students had to wear glasses, while other parents just stated that they were worried about vision problems in the future. Many parents also expressed psychological health concerns, with one elementary school parent asking, “what effect this has on their brains, attention span, and social skill development?” Finally, some parents noted that their child had problems with anxiety or development due to technology use and that technology was “rewriting their brains.”
- *Devices as a distraction.* Respondents in Chantilly Pyramid schools (27) and eLearning Backpack schools (1) noted that devices were a distraction to students’ learning. One high school parent, from the eLearning Backpack school, noted this concern, but all other comments came from Chantilly Pyramid middle and high school parents. Parents believed the inherent distracting nature of computers caused students to waste more time, making it more difficult for them to complete schoolwork or pay attention in class. A middle school parent noted that “work that could be accomplished in 30 minutes will sometimes take 2-3 hours.” Parents further noticed a “lack of concentration” and their child “not using their time wisely in class.” Parents noted the increased challenges of managing their child’s usage due to ADHD or compulsive behaviors. In addition, several parents mentioned access to online games as an example of how using the laptop distracts their child, because either their own child is playing online games or other children in the classroom are conducting off-task behavior. Parents mentioned this at the elementary and middle school level, and it appeared to be a problem both in the classroom and at home. Devices were also seen as a mechanism for cheating and deceptive behavior in the

classroom, while some parents expressed a more general concern that “people do not pay attention to the teacher” and devices “create an atmosphere of deceit and distraction.”

- *Lack of transparency.* Respondents in Chantilly Pyramid schools (30) and eLearning Backpack schools (4) noted a lack of transparency with the initiative. Elementary school parents (26) had the most complaints about the lack of transparency within the program, but it was also expressed as a concern at middle and high school levels. Parents noted that there should be “more interaction between parents and teachers” and that school administration and teachers should “model technology use in their communication with families” regarding school activities. Transparency concerns also arose related to curriculum and school materials. Parents worried that all schoolwork was being completed entirely online. As such, parents do not receive any paperwork and often do not see student grades on assignments, making it more difficult to monitor their child’s progress. An elementary school parent stated that it was “hard to review classwork” on their child’s device and that they had “far less insight into my children’s school work.” Another elementary school parent stated that it is “difficult to help our elementary age child with homework without a textbook or a digital resource of how lessons are being taught at school.” Similarly, an eLearning Backpack high school parent stated:

*Many teachers are not posting grades so the system shows late and zero grades when assignments have been submitted but not graded and entered. The idea that teachers have time for weekly data entry reports is NOT working and causing extreme stress between student and parents. Parents are completely in the dark about current grades for their student children.*

- *Infrastructure and security.* Parents in Chantilly Pyramid schools (54) and eLearning Backpack high schools (5) noted concerns related to the technical capacities of the devices and network security. Parents expressed dislike for the provided device, stating that it was “outdated and extremely slow” or that the screen was “too small.” A few parents mentioned that they bought their child a separate laptop to use at home because the device that the school provided was inadequate. Another common issue parents described was difficulty with connecting or configuring devices at home. When parents could not connect school devices to home networks, then students were unable to use devices at home, thus making it more difficult to complete schoolwork. Additional infrastructure issues mentioned included battery life, charging issues, printing problems, and insufficient technical support at school. One elementary school parent expressed concern that an infrastructure plan was not developed before the initiative was implemented.

Respondents at all school levels noted security problems related to the initiative. As one middle school parent stated there “aren’t enough controls in place to ensure devices are used for the purposes intended.” One Chantilly Pyramid parent noted that their older child was able to bypass all the controls on his laptop and therefore was able to “use it 24/7 no restrictions.” Many parents were concerned that existing filters and security systems were insufficient for protecting students from undesirable content, such as gaming sites, streaming services (e.g., Netflix, YouTube), and websites with developmentally inappropriate content. A few parents also noted concerns with social

issues resulting from lack of filters on the devices, as students were able to chat and communicate with each other unmonitored. eLearning Backpack parents expressed concerns during focus groups about their child's use of devices to access social media throughout the school day.

Due to school control over the security management of school-owned devices, several parents shared that a lack of control made it difficult for them to manage their child's technology usage at home. For instance, a middle school parent felt a "reduction in parental control, transferring that judgement to the school system." An elementary school parent also shared:

*At home, there is no firewall on these FCPS computers and we are not allowed to install anything as parents on FCPS computers. This is understandable. However, the ads that pop up at home, even when my son is on coolmathgames.com or some other similar site, are completely inappropriate. I heard an advertisement playing and went to check and found that there was a pop up ad that was playing a movie trailer with multiple four-letter words being said. This was on a math website!*

**Summary.** All participant groups were prompted to reflect on the strengths of the initiative overall. Principals and SBTS were generally the most consistently positive and supportive populations in the study toward the initiative. Interviews with both groups revealed increased student engagement and a general shift in teacher practice toward collaborative, student-centered classrooms as strengths of the initiative. Principals commented that the shift in focus has improved teacher morale and increased the quality of teacher relationships. SBTSs tended to emphasize an increase in the quality of teacher instruction as teachers have received professional development and become more comfortable with technology integration in their classrooms. Teachers echo these strengths: increased student engagement and more ease in providing differentiated content to students were central themes in teacher focus groups.

SBTS, principals, teachers and parents all commented on the notion of equity among students as a major strength of the initiative, representing one of few themes that emerged from all four adult stakeholder populations in the current study. What is more, this theme also emerged from the student focus group held at the district's adult high school. Adults understand that FCPSON provides a personal device to students that otherwise may not have exposure to an important way of learning and doing in the current social and economic context. Access to technology is described as the starting point—as the neutral point where all students have the opportunity to be successful. Parents especially were expressive when making their point.

Students and teachers both saw the assistive components of their personal devices as major strengths of the initiative. Teachers appreciate the ease of distributing content to students online and students' ability to access content and other resources; students appreciate how easy it is to conduct research and complete assignments. Parents agree that a major strength of the initiative is the positive impact of the personal device on their child's learning, including their child's motivation to complete tasks involving the computer.

Not surprising given the relative newness of the FCPSON initiative, stakeholders expressed a variety of weaknesses regarding the program. Principals and teachers conveyed concerns related to students' responsible use of their device, including the degree to which students consistently keep their device charged and in working order. Teachers are also concerned about a perceived lack of curriculum resources and PD opportunities related to designing high-quality blended learning opportunities for students, especially students with special needs. In previous sections, we discussed the type of PD opportunities teachers would most prefer including peer-to-peer models and more planning time. Principals also expressed concerns about the longevity of the initiative, particularly about who will be responsible for the cost of maintaining 1:1 at their schools.

A lack of consistent use by teachers, deficits in direct instruction and foundational skills, and a general lack of high-quality digital resources were reported as curriculum and instruction concerns by parents. Parents are also concerned about screen time and the negative impact of computer use on overall health, a lack of transparency, and the security of the device.

**Recommendations.** Stakeholders were asked to provide recommendations, whether for further expansion of the initiative in new schools or how to improve the implementation in existing schools. Common themes included continued and increased support of teachers, particularly through PD and peer collaboration opportunities, a need for a stronger focus on digital citizenship and regulation of student content access, and standards for blended learning and technology integration.

**Principals.** Responses from interviews with Chantilly Pyramid and eLearning Backpack principals varied regarding recommendations, but overall, responses centered on supporting teachers. First, principals referenced the need to start small, letting teachers drive the implementation and changes to their practices. They also noted the importance of creating a safe environment where teachers have the freedom to take risks and fail with innovation and experimentation. Second, they suggested schools provide ample PD opportunities, along with creating small network groups of teachers in order to facilitate collaboration and planning amongst peers. They stressed the importance of focusing intently on PD before gaining access to the technology with an understanding of *why* before *how*.

**SBTS.** As with principals, Chantilly Pyramid and eLearning Backpack SBTS also referenced PD in their recommendations during interviews. Chantilly Pyramid SBTS were specific, noting the need for PD for new teachers, along with PD for *Portrait of a Graduate* skills, using devices with students, blended learning in both core content areas and specials, and digital citizenship for students. Chantilly Pyramid SBTS also suggested the ability for schools to share their experiences with other FCPSON schools and requested expectations or benchmarks for the FCPSON initiative. One Chantilly Pyramid SBTS suggested not placing SBTS on the master schedule with teaching responsibilities. An eLearning Backpack SBTS noted that administrators have not been incorporated as much with the initiative and suggested that the district look into training for this group to further support teachers.

**Teachers.** Both Chantilly Pyramid and eLearning Backpack teachers recommended increased time for teachers to collaborate and plan for integrating technology into instruction.

They also both referenced the need to better regulate students' access to off-task content on their devices and emphasize digital citizenship with students. In addition, one Chantilly Pyramid teacher focus group encouraged the district to carefully consider pyramid demographics for the next phase of the initiative to ensure a more diverse student population. An eLearning Backpack focus group referenced the desire for FCPS to define best practices for blended learning and technology integration, along with guidelines for how FCPS On may integrate with other school or district initiatives.

**Parents.** All parents were asked during the focus groups to provide specific recommendations for future phases of the initiative. Recommendations from Chantilly Pyramid parents fall into three categories: improving curriculum and instructional practices, integrating computer skills into coursework, and curbing student access to inappropriate content at school. eLearning Backpack parents also recommended consistency between teachers on technology use.

- *Regulate access to content.* While it was the least frequently mentioned of the three emergent themes, Chantilly Pyramid parents were concerned about access to social media and video streaming (e.g., Netflix) while at school.
- *Computer skills instruction.* Chantilly Pyramid parents were also concerned about the transition to computers without a foundation of basic computer skills. Keyboard skills were mentioned as central to this recommendation. Relatedly, parents recommended that students learn how to use features of computers and computer software so that they can use these tools at more advanced levels.
- *Curriculum and instruction.* Chantilly Pyramid parents most frequently made recommendations for the improvement of curriculum and instruction related to the influx of technology into learning. Specifically, parents recommended greater balance during instruction such as balancing digital content delivery with traditional writing and reading, and the emphasis on higher-order skills such as communication or collaboration with mastering basic facts related to science and math. In a related vein, Chantilly Pyramid parents would like to see set guidelines for teachers in blended learning classrooms and curriculum that is aligned with learning standards for students. Parents reported perceptions of inconsistencies in learning goals and were critical of certain content provided by teachers.
- *Ensure consistency between teachers' technology use.* When prompted to offer recommendations to the school district as the initiative continues, eLearning Backpack parents aligned almost unanimously behind increasing the degree of consistency across teachers in how the laptop and other digital tools are used to deliver content and manage student learning. Parents want to know that all teachers, not just a few each semester, will consistently update grades and be available to parents via email. Parents want to know that all their child's homework, not just a few classes, is accessible through Google Classroom. Parents find the inconsistency in integration of digital tools, especially those related to classroom management, to be a burden for their child *and* an additional load for parents as they support their child. eLearning Backpack parents also want to see more consistency in the quality of digital educational content. Parents frequently explain, "It's different with each teacher." They expressed admiration of teachers who deliver high quality digital content—some described being "blown away" by the programs and projects their children are capable of through the laptop—but parents seem to hold the

belief that a teacher who chooses not to integrate technology into their classroom is not reaching their potential as an educator. Further, eLearning Backpack parents felt that they could distinguish between useful and useless digital content. Parents recommended further PD and the establishment of learning standards that ensure all teachers are consistently using laptops to deliver high-quality digital content.

**Summary.** Principals' primary recommendations mirror the apparently effective approach to implementation currently employed by most: to support teachers as the drivers of implementation, to encourage teachers to take risks, and to cultivate an environment where teachers feel supported in the place they personally are with technology integration. Principals, SBTS, and teachers recommend the provision of PD opportunities that address the *why* and the *how*. This recommendation reflects general best practices related to changing teacher practices: teachers should be given opportunity to explore the evidence for why they are being asked to employ certain practices *and* how to implement specific practices with fidelity. SBTS specifically mention a need for professional development related to the philosophical underpinnings of current district activities—FCPSO and *Portrait of a Graduate*. Teachers also recommend a thoughtful approach to further expansion, should the district proceed with a pyramid-by-pyramid implementation plan.

Parent recommendations mirror their perceptions of the initiative weaknesses: parents recommend increased security and regulation of student access to social media and off-task content while at school. Parents also recommend more emphasis from the district on teachers' consistent delivery of high-quality digital content and resources. Given that schools encouraged teachers to experiment with technology integration and purposefully did not set standards for technology use, this identified weakness and coinciding recommendation is not surprising. Last, as part of a general digital curriculum, parents recommend the introduction of instruction related to basic computer skills.

## Conclusion

The purpose of the present study was to gather formative data on the FCPSO initiative during its second year of implementation in the 2017-18 school year within Fairfax County Public Schools. In the present section, we draw from the comprehensive results of the second-year study to present broader conclusions regarding the main findings and their implications. The evaluation questions that guided the study are used as an organizing framework.

### Professional Development and Support for Implementation

Our findings indicate that teachers feel highly supported in their implementation of FCPSO by both SBTS and principals. Interviews and focus groups with stakeholders reveal that SBTS are central to the success of the initiative in Phase One schools and SBTS themselves convey excitement and motivation to support implementation. Principals are also very supportive of their teachers, encouraging them to experiment and innovate in their classrooms, an approach that teachers value.

While teachers conveyed feeling supported during the initiative, there were questions raised regarding professional development for educators in both Chantilly Pyramid and



eLearning Backpack schools. Specifically, findings indicated needs for professional development regarding various teaching and learning approaches to support FCPSO n and *Portrait of a Graduate* skills development. Teachers are consistent in viewing principals as creating a positive environment for teachers to explore new practices. However, they conveyed they may not be fully prepared to enact these practices to create learning experiences that directly reflect the goals of FCPSO n and *Portrait of a Graduate*.

We also noted discrepancies in knowledge of the initiative between Chantilly Pyramid and eLearning Backpack teachers and parents. Chantilly Pyramid stakeholders conveyed a stronger awareness of the initiative and related outcomes as compared with eLearning Backpack stakeholders. This finding may be partially explained by the fact that three of the six eLearning Backpack schools are in their first year of school-wide implementation; other eLearning Backpack schools partially implemented last year and the entire Chantilly Pyramid is in the second full year of implementation. It seems teachers in eLearning Backpack schools and parents within both groups would benefit from increased communication from the district regarding the FCPSO n initiative and expectations for implementation.

### **Intermediary Outcomes**

Findings related to teacher practices suggest that teachers in Phase One schools provide students with multiple approaches for accessing content and use varied strategies to facilitate and guide student learning. In focus groups, teachers described a shift in their classroom to a more flexible, personalized approach to content and students. The introduction of personal devices may be, at the very least, an additional tool in the general toolkit of instructional practice to use when designing and delivering content.

Teachers have also become more fluent with technology integration. Our findings suggest that, importantly, the majority of teachers and students have overall positive views towards the use of technology and learning. Further, teachers generally report high levels of efficacy related to technology integration. While teachers have opportunities to employ technology integration practices consistent with FCPSO n, the vast majority (95%) also are confident in their ability to learn new tools and resources with proper training. Taken with the findings related to professional development needs, it appears that the district is well positioned to leverage the positive perceptions of both teachers and students to more fully expand on the technology integration practices presently in place.

Regarding students' use of technology, the majority indicated almost daily use of devices for communication, assessment, and media (e.g., music, videos, games). The majority also conveyed that the devices make learning more interesting and often facilitate students' turning in homework, completing assignments, and collaborating with peers. However, students at all levels conveyed that devices may be distracting at times and given the relatively frequent self-reported use of devices for media-based activities, this finding is not too surprising. Relatedly, a consistent concern expressed by many stakeholders (e.g., SBTS, parents, and teachers) was the use of devices for inappropriate and off-task behaviors.

The impact of the initiative on student engagement was evidenced from multiple data sources. Findings suggest that Chantilly Pyramid teachers appear to be more firmly convinced than eLearning Backpack teachers that student engagement has increased due to the initiative. Principals of both groups, however, reported increased engagement among their students. Principals tended to attribute increased engagement to an increase in the degree to which students are directing their own learning experiences and interacting with personalized content. Importantly, parents from both groups also described positive impacts of the initiative on their child's engagement in school including high motivation to use the device to complete tasks and practice new computer skills.

### **Student Content Knowledge**

Stakeholders provided mixed views regarding whether there has been an impact of FCPSON on student learning. Teachers from the Chantilly Pyramid and eLearning Backpack schools reported different impacts on student devices on learning, with teachers from eLearning Backpack schools reporting less positive impressions. Parent perceptions are also mixed. In both groups, they expressed concerns about the consistency of quality of instruction and curriculum delivered through their child's device. Principals from both groups, however, had an overall positive view of the impact of the initiative on learning. For example, in the eLearning Backpack group, they mentioned with notable frequency the positive impact on students with special education needs. SBTS from both groups also spoke positively about the impact on student learning. Last, students appeared to equate higher engagement with improved learning, noting that the devices have made learning more fun and the devices provided them greater flexibility in how they demonstrate their learning. Teachers referenced this flexibility in terms of how their instructional practices have changed.

### **Portrait of a Graduate Skills**

Given the relative newness of the initiative, we would not yet expect to see an impact on *Portrait of a Graduate* skills. Indeed, our observations suggest that only about half of the classrooms explicitly demonstrate practice of these skills. Teacher perceptions of specific skills acquisition generally match classroom observations: roughly half of teachers indicated agreement on survey items regarding impacts on the various skills. When prompted to expand on student acquisition of *Portrait of a Graduate* skills as a result of the initiative, teachers most frequently mentioned "students as goal-directed individuals" and an increase in collaborative opportunities.

Interviews with principals and SBTS suggest that schools have designed structures and processes that support an emphasis on *Portrait of a Graduate* skills for teachers and students. Principals noted usage of rubrics for instruction and feedback that are designed around expected student outcomes. Principals and SBTS tended to agree that students have increased acquisition of associated skills.

Students were asked to rate the degree to which they personally possess certain skills related to *Portrait of a Graduate*. Based on their survey responses, they generally agree that they are good communicators, collaborators, ethical and global citizens, creative thinkers, and goal-

directed and resilient individuals. Interestingly, the skill students agreed with the least is the tendency to use time wisely on their own.

### **FCPSOn Perceptions**

Overall, stakeholders appeared highly positive towards the initiative in its second year. Strengths referenced included increased student engagement and motivation to learn, equitable access to technology, collaboration among teachers and students, differentiated instruction, student acquisition of technology skills, and exposure to digital programs and online resources, including course-related content by students.

Not surprisingly given the relative newness of the FCPSOn initiative, stakeholders identified several weaknesses. Across data sources and participant groups, concerns were raised regarding the curriculum and instructional approaches, device issues (both technical and involving students' off-task behaviors), and communication and relationships between parents and the district/individual schools.

Stakeholders did offer recommendations that were consistent with the concerns expressed about the initiative. First, teachers are in need of professional development related to FCPSOn and *Portrait of a Graduate* skills along with increased opportunities to collaborate with peers. Second, the district needs a stronger focus on digital citizenship and may consider better regulating the content students may access both in and outside of schools. Third, educators would benefit from clear and consistent standards for blended learning and technology integration.

### **Summary and Recommendations**

This evaluation report has presented findings for schools now in their second year (2017-18) of implementing FCPSOn. Findings indicate an impact on evaluation model components, most notably in changing teacher practices and increasing access to technology, which have in turn positively impacted student engagement. Based on the findings, the following recommendations are offered for future FCPSOn implementation:

- **Professional development.** Teachers would benefit from more targeted professional development specific to practices prescribed by FCPSOn. They would also benefit from professional development on increasing *Portrait of a Graduate* skills.
- **Increase teacher collaboration.** Teachers noted the importance of learning from their peers and should be given ample time to do so in order to share experiences and plan lessons.
- **Student digital citizenship.** FCPS should consider a stronger emphasis on digital citizenship, along with regulating access to online content.
- **District communication.** FCPS may consider increased communication with eLearning Backpack teachers regarding FCPSOn and *Portrait of a Graduate* skills. In addition, parents in both Chantilly Pyramid and eLearning Backpack schools would benefit from increased communication regarding the initiative, particularly in terms of the

instructional approach employed by teachers, program goals, and expected educational benefits.

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## Appendix A: Student Focus Group Protocol

### General Topic: Implementation and Orientation

1. When you first started using your personal device for learning, what did you think about it?
2. What was the adjustment process like, moving from pencil and paper to computer?
3. Now that you've had some time to get used to using to your device, what do you think about it?

### General Topic: Impact on Learning

1. Do you think having a personal device has made learning easier? Why or why not?
2. Do you think using your personal device made learning more fun? Why or why not?
3. What do you like most about using computers and other technologies for learning?
4. What do you like least about using computers for learning?

### General Topic: Other Impressions

1. How do you feel about the amount of time you use your personal device in a typical day—too much, too little, just right? Explain.
2. How has using your personal device changed the amount of time you have to interact talk, socialize with classmates (more, less, the same)? Explain.
3. What has been your most exciting program or task that you've done on your personal device?
4. Is there anything else you want to say about your personal device?

**Appendix B: Parent Focus Group Protocol**

1. Please tell us what you know about the FCPSOn initiative. As you understand it, what are its main purposes and objectives?
2. How did you learn about the initiative? What did your child's school or the district tell you about the program?
3. What are you seeing as different in terms of learning and instruction this year as compared with prior years?
4. How, if at all, is the initiative affecting your child's learning?
5. How, if at all, is the initiative affecting your child's enjoyment of school?
6. What do you think is going well this year with the FCPSOn initiative?
7. What do you think needs to be improved?

### Appendix C: Classroom Teacher Focus Group Protocol

#### General Topic: Implementation of FCPSOn

- Describe the implementation process of FCPSOn, as you experienced it.
- What type of support is available to teachers throughout implementation?
- What does FCPSOn look like in your school/classroom today?

#### General Topic: Professional Development

- Were you adequately prepared to implement the FCPSOn initiative?
  - If yes, what went/is going well?
  - If not, what should have gone differently?
- What type of professional development opportunities do you feel would benefit you and other teachers?

#### General Topic: Impact of FCPSOn on Students

- How has the FCPSOn initiative impacted students (in terms of engagement and achievement)?
- Do you feel the FCPSOn initiative meets the needs of most of your students? Why or why not?
- What improvements, if any, have you seen in your students' mastery of *Portrait of a Graduate* skills?

#### General Topic: Impact of FCPSOn on Teacher Practices

- How has the initiative changed your instructional practices? What types of changes has it forced/allowed you to make?
- How has FCPSOn affected your instruction of students receiving special services, such as ELLs, students with a 504 or IEP, as well as G/T students?

#### General Topic: Overall Perceptions

- To what degree do you believe the FCPSOn initiative benefits your school overall, and why?
- What suggestions would you have to improve the initiative?
- Is there anything else you would like to add?



## Appendix D: SBTS Focus Group Protocol

### General Topic: Introduction

- What does a normal day look like for you?
- How has your role changed over time?
- Do you feel you were/are prepared to perform your role? Why or why not?
- What is your school doing really well, in your opinion, related to FCPSO?
- What are the challenges you or your schools currently face?

### General Topic: Implementation of FCPSO

- Can you describe the implementation of FCPSO, as you experienced it?
- How were/are you involved in the day-to-day implementation of the FCPSO initiative?
- What does FCPSO look like right now in your school? How are things going?

### General Topic: Impact of FCPSO on Students

- How has the FCPSO initiative impacted students (in terms of engagement and achievement)?
- Do you feel the FCPSO initiative meets the needs of most students? Why or why not?
- What improvements, if any, have you seen in students' mastery of *Portrait of a Graduate* skills?

### General Topic: Impact of FCPSO on Teachers

- Describe the process of teachers adapting to the 1:1 program.
- What does technology integration look like in an average classroom at your school?
- What changes have you observed in teachers' instructional practices, since the introduction of 1:1 technology?
- In your opinion, were teachers and other staff prepared to implement the FCPSO initiative?
  - If yes, what is going well?
  - If not, what are the challenges?
- In your opinion, what areas do teachers need more support, professional development or access, in order to reach their potential as educators?

### General Topic: Overall Perceptions

- What do you see as the strengths of the FCPSO initiative? What have been the greatest successes you have observed at your school?
- What suggestions would you have to improve the initiative?
- Is there anything else you would like to add?

### Appendix E: Principal Focus Group Protocol

- Please briefly describe the school with regard to size, types of students, the community, and student outcomes.
- How long have you been principal there?

#### General Topic: Implementation of FCPSO

- Can you describe the implementation of FCPSO at your school, as you experienced it?
  - What were the challenges?
  - How were/are you involved in the day-to-day implementation of the FCPSO initiative?
- In your opinion, were teachers and other staff prepared to implement the FCPSO initiative?
  - If yes, what went well?
  - If not, what were the challenges?
- What does FCPSO look like right now in your school; how are things going?

#### General Topic: Impact of FCPSO on Students

- How has the FCPSO initiative impacted students overall (in terms of engagement and achievement)? What are the positive and negatives you're currently seeing?
- Do you feel the FCPSO initiative meets the needs of most students? Why or why not? What about your students with 504s and IEPs, or ELLs?
- What improvements, if any, have you seen in your students' mastery of *Portrait of a Graduate* skills? Can you talk a little bit about your schools approach to these skills in general?

#### General Topic: Impact of FCPSO on Teachers

- What has been your approach to supporting teachers as they embark on this shift in instructional practice?
- How do you perceive teachers respond to the initiative overall?
- What changes have you observed in teachers' instructional practices since the implementation of FCPSO?
- In your opinion, what areas do teachers need more support, professional development or access, in order to reach their potential as educators?

#### General Topic: Overall Perceptions

- What do you see as the strengths of the FCPSO initiative? What have been the greatest successes you have observed?
- What changes, if any, do you recommend?
- Is there anything else you would like to add?

## Appendix F: Classroom Teacher Reaction Survey

### Section One: Basic Information

1. I am knowledgeable of the FCPSON initiative. (Yes/Somewhat/No)
2. I am knowledgeable of the Portrait of a Graduate attribute as they apply to my students. (Yes/Somewhat/No)
3. I feel confident that Portrait of a Graduate attributes will contribute to greater success for FCPS students, in later education and work experiences. (Yes/Somewhat/No)
4. I am an active participant in the FCPSON initiative in Fairfax County Public Schools. (Yes/Somewhat/No)

### Section Two: Technology Beliefs and Efficacy

Use the scale to indicate the degree to which you agree or disagree with each statement regarding the use of technology by teachers and students. Select “Not applicable” if a statement does not apply to you or your classroom. In this section, “technology” refers broadly to electronic and digital tools used in the classroom. Technology includes laptops, computers, hardware, software and computer programs, intranet platforms (e.g., Blackboard or G Suite for Education) and any other web-based collaborative tools.

- 0 = Not Applicable
- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree
- 4 = Agree
- 5 = Strongly Agree

1. Integrating technology into instruction supports learning.
2. Students are motivated to use technology during learning in my classroom.
3. Technology has contributed positively to student achievement in my classroom this year.

Use the scale to indicate how true the statements below are about you.

- 1 = Not True At All
- 2 = Mostly Not True
- 3 = Somewhat True
- 4 = Mostly True
- 5 = Very True

5. I am confident that I integrate 1:1 technology effectively in my classroom.
6. I can deal with most technical difficulties I encounter when using computers and other digital resources and tools available to me.
7. I enjoy using technology in my classroom.
8. With proper training, I am confident in my ability to learn new digital resources and tools.
9. I am aware of the different digital resources and tools available to use in my classroom.

**Section Three: Professional Development**

Use the scale to indicate the degree to which you agree or disagree with each statement regarding the professional development you have received in the last 12 months. Select “Not applicable” if a statement does not apply to you or your classroom.

- 0 = Not Applicable
- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree
- 4 = Agree
- 5 = Strongly Agree

1. I was adequately informed of the expected role of my school as an FCPSO Phase One school
2. I feel my school was successful this year in fulfilling its role as an FCPSO Phase One School
3. The culture of my school supports the use of technology-enhanced instruction to support personalized student learning experiences.
4. I have received sufficient professional development on the following practices:
  - a. Personalizing the time, place, and pace of student learning
  - b. Engaging my students in high-order (inquiry, problem-solving, analysis/synthesis) learning activities
  - c. Creating collaborative learning experiences with my students
  - d. Differentiating instruction through technology-rich, blended learning activities
  - e. Designing personalized learning experiences for students based on students’ goals, strengths, needs, interests, and learning styles
  - f. Implementing effective digital citizenship practices
  - g. Developing learner-centered physical and virtual environments

**Section Four: Current Teacher Practices**

Use the scale to indicate to what extent you use the following types of teaching practices this year. Select “Not applicable” if a statement does not apply to you or your classroom.

- 0 = Not Applicable
- 1 = Never
- 2 = Rarely
- 3 = Moderately
- 4 = Frequently

In an average week/month, how frequently do you...

1. Provide direct instruction or lecture for 20 minutes or longer?
2. Facilitate cooperative/collaborative learning?

3. Facilitate project-based or other inquiry based approaches to learning?
4. Promote individualized/personalized learning (e.g., students working alone at desk or personal computer)?
5. Involving students in designing their own learning experiences according to personal goals, needs, and interests?
6. Fostering cross-curricular connections? (e.g., using topical content across several subjects; integrating 2 or more subjects in one learning or play activity)?
7. Facilitate differentiated learning experiences?
8. Use online textbook resources?
9. Deliver electronic tests or quizzes?

Use the scale to indicate the degree to which you agree or disagree with each statement regarding your instructional practices in an average week/month. Select “Not applicable” if a statement does not apply to you or your classroom.

- 0 = Not Applicable
- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree
- 4 = Agree
- 5 = Strongly Agree

10. The use of technology is an integral part of my instructional practices this year.
11. Technology is an integral part of my instructional planning and administration (preparing lessons, grading, data management, etc.) this year?
12. Technology is an integral part of my classroom learning environment (e.g., online resources, document management, student collaboration, etc.) this year?
13. Technology is supportive of personalizing the time, place, path, and pace of instruction for my students this year?

### **Section Five: Students and Student Impact**

Use the following scale to indicate the degree to which you agree or disagree with each statement regarding your student behaviors. Select “Not applicable” if a statement does not apply to you or your classroom.

- 0 = Not Applicable
- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree
- 4 = Agree
- 5 = Strongly Agree

14. My students have improved in their use of technology as a learning tool this year.
15. My students have improved in their demonstration of Portrait of a Graduate skills this year as a communicator.

16. My students have improved in their demonstration of Portrait of a Graduate skills this year as a collaborator.
17. My students have improved in their demonstration of Portrait of a Graduate skills this year as an ethical and global citizen.
18. My students have improved in their demonstration of Portrait of a Graduate skills this year as a creative and critical thinker.
19. My students have improved in their demonstration of Portrait of a Graduate skills this year as a goal directed and resilient individual.
20. The student engagement in my classroom has improved this year.

### **Section Six: General Questions**

1. What has been the most positive aspect(s) of being a FCPSON Phase One School? (open-ended)
2. What has been the most challenging? (open-ended)

## Appendix G: Student Reaction Survey

### Section One: Technology and Learning

Use the following scale to indicate the degree to which you agree or disagree with each statement regarding the use of technology by teachers and students.

- 0 = I don't know
- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Agree
- 4 = Strongly Agree

1. School is more interesting when I use my computer for learning.
2. My personal device makes turning in homework and completing assignments easy.
3. Using my computer during learning feels natural to me.
4. My school-issued personal device is an important part of every school day.
5. My personal device distracts me from learning.
6. My personal device works well.
7. I know how to use my school-issued personal device to complete assignments and homework.
8. Without a computer, it would be difficult to be successful at school.
9. Using a computer for learning encourages me to be responsible for my success in school.
10. My school-issued personal device makes collaborating with my peers easy.

### Section Two: 21<sup>st</sup> Century [*Portrait of a Graduate*] Learning Skills

We want to know how you feel about your abilities at school. Use the scale below to indicate the extent to which you agree or disagree with each statement.

- 0 = I don't know
- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither agree nor disagree
- 4 = Agree
- 5 = Strongly Agree

1. I am a good listener.
2. I am able to communicate my needs to other students, my parents, and my teachers.
3. If I want to know more about a topic, I can use books or computers to gather information.
4. I respect all children my age, even if they are different from me.
5. I like to help others.
6. I can lead others to reach a goal.
7. When I make decisions, I think about what is good for other people.
8. I am able to follow the rules at school.
9. I know how to be a good friend to my classmates.
10. If I need to, I can find out if something I read or hear about is true or not.

11. When things do not go how I want, I can change my actions for the better.
12. When important events happen in the world, I am able to develop my own opinions about what is right and wrong.
13. I use my time wisely when working on my own.
14. I can reach my own goals for learning.
15. If I fail at something, I will try again or ask for help.

### Section Three: Reflections on 1:1 Initiative

Use the scale below to describe how you use your school-issued personal device.

- 0 = Never
- 1 = Once a week
- 2 = 2-3 times per week
- 3 = Almost everyday
- 4 = Daily

1. How often do you use your school-issued laptop to:
  - a. Work on school work at home?
  - b. Download notes or presentations from teachers?
  - c. Submit homework?
  - d. Take a test or quiz?
  - e. Design PowerPoint presentations, drawings, or web pages?
  - f. Collaborate with other students during class?
  - g. Look up information on classroom assignments or current events?
  - h. Complete homework?
  - i. Type a paper?
  - j. Type notes during class?
  - k. Receive feedback from teachers?
  - l. Receive feedback from other students?
  - m. Send or receive email?
  - n. Listen to music?
  - o. Surf the web?
  - p. Watch TV or Youtube videos?
  - q. Access social media?
  - r. Play games?
2. What classes do you use your personal device in the most? (open-ended)
3. What classes do you use your device in the least? (open-ended)
4. Do you have internet at home? (Yes/No/I Don't Know)
5. Is there anything else you want to say about your personal device? (open-ended)



## Appendix H: Parent Reaction Survey Protocol

### Section One: Impact of 1:1 Technology on Children's Experiences at School

1. Please select which grade(s) your child(ren) currently attend(s) in Fairfax County:  
(check all that apply)
2. Overall, how would you say the school year is going for your child in CHILD IN X GRADE?
  - a. Great!
  - b. Pretty well
  - c. Average
  - d. Pretty bad
  - e. Terrible

Use the following scale to indicate the degree to which you agree or disagree with each statement regarding the use of the personal device provided by FCPS to your CHILD IN X GRADE:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree
- 4 = Agree
- 5 = Strongly Agree

4. The personal device provided by FCPS has contributed positively to my child's achievement in school this year.
5. My child(ren) is/are motivated to use their personal device to complete homework, assignments, and other school-related tasks.
6. The personal device provided by FCPS is an integral part of my child's learning experiences.
7. If necessary, I can assist my child(ren) with homework, assignments, and other school-related tasks they must complete using their personal device.

### Section Three: Knowledge of FCPS On and *Portrait of a Graduate*

1. I am knowledgeable of the FCPS On initiative. (Yes/Somewhat/No)
2. Prior to completing this survey, I was aware my child(ren) is/are enrolled at an FCPS On Phase One school. (Yes/Somewhat/No)
3. I am knowledgeable of the *Portrait of a Graduate* attributes as they apply to my child(ren). (Yes/Somewhat/No)

### Section Four: Overall Impressions

Use the following scale to indicate the degree to which you agree or disagree with each statement regarding Fairfax County Public Schools

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree

4 = Agree

5 = Strongly Agree

1. I feel that *Portrait of a Graduate* describes attributes that will result in greater success for my child, in later education and/or work experiences. (*question does not populate if respondent indicates they are not knowledgeable of PoG initiative*)
2. It is important to me as a parent that my child is exposed to technology as part of their learning experiences.
3. Positive digital citizenship and appropriate online behaviors are important for my child(ren) to acquire as part of their overall positive growth and development.
4. Technology skills are important for my child(ren) to acquire as a 21<sup>st</sup> century citizen(s).

### **Section Five: Conclusion**

1. What else would you like to share about your experiences with FCPS and/or your child's experiences as a student in an FCPS On Phase One school? (open-ended/optional)
2. Would you be interested in joining a virtual focus group for parents to elaborate on your experiences with FCPS and/or your child's experiences as a student in an FCPS On Phase One school? (Y/N/Maybe)

## Appendix I: Classroom Teacher Survey Descriptive Statistics and Frequencies

### Background

	<i>N</i>	<i>M</i>	<i>SD</i>	Yes	Somewhat	No
I am knowledgeable of the FCPSON initiative.						
Chantilly Pyramid	414	1.16a	0.40	85.0%	13.8%	1.2%
Elementary	205	1.17	0.40	84.4%	14.6%	1.0%
Middle	100	1.11	0.31	89.0%	11.0%	0.0%
High	109	1.20	0.47	82.6%	14.7%	2.6%
eLearning Backpack	350	1.54	0.67	56.3%	33.4%	10.3%
I am knowledgeable of the Portrait of a Graduate attribute as they apply to my students.						
Chantilly Pyramid	414	1.17a	0.38	83.1%	16.7%	0.2%
Elementary	205	1.14c	0.34	86.3%	13.7%	0.0%
Middle	100	1.13	0.34	87.0%	13.0%	0.0%
High	109	1.28	0.47	73.4%	25.7%	0.9%
eLearning Backpack	350	1.31	0.53	72.9%	23.7%	3.4%
I feel confident that Portrait of a Graduate attributes will contribute to greater success for FCPS students, in later education and work experiences.						
Chantilly Pyramid	414	1.29 <sup>a</sup>	0.52	74.2%	22.7%	3.1%
Elementary	205	1.20 <sup>c</sup>	0.42	80.0%	19.5%	0.5%
Middle	100	1.24	0.49	79.0%	18.0%	3.0%
High	109	1.50	0.65	58.7%	33.0%	8.3%
eLearning Backpack	350	1.44	0.60	61.7%	32.9%	5.4%
I am an active participant in the FCPSON initiative in Fairfax County Public Schools.						
Chantilly Pyramid	414	1.22 <sup>a</sup>	0.46	80.4%	17.4%	2.2%
Elementary	205	1.17 <sup>c</sup>	0.39	83.4%	16.1%	0.5%
Middle	100	1.17	0.40	84.0%	15.0%	1.0%
High	109	1.35	0.60	71.6%	22.2%	6.4%
eLearning Backpack	350	1.63	0.74	52.9%	31.4%	15.7%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools. <sup>d</sup>statistically significant difference between middle and high CP schools.

### Technology beliefs and efficacy

	<i>N</i>	<i>M</i>	<i>SD</i>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Integrating technology into instruction supports learning</b>								
Chantilly Pyramid	407	4.32	0.69	1.0%	0.5%	5.7%	51.4%	41.5%
Elementary	201	4.41 <sup>c</sup>	0.66	1.0%	0.5%	2.0%	49.8%	46.8%
Middle	99	4.36 <sup>d</sup>	0.60	0.0%	1.0%	3.0%	54.6%	41.4%
High	107	4.11	0.79	1.9%	0.0%	15.0%	51.4%	31.8%
eLearning Backpack	341	4.33	0.71	0.6%	1.2%	6.7%	47.8%	43.7%
<b>Students are motivated to use technology during learning in my classroom</b>								
Chantilly Pyramid	404	4.25	0.85	1.2%	3.0%	10.6%	40.4%	44.8%
Elementary	199	4.47 <sup>bc</sup>	0.73	1.0%	1.0%	5.0%	36.2%	56.8%
Middle	98	4.21 <sup>d</sup>	0.78	0.0%	2.0%	15.3%	41.8%	40.8%
High	107	3.86	0.99	2.8%	7.5%	16.8%	46.7%	26.2%
eLearning Backpack	341	4.16	0.84	0.9%	3.5%	12.9%	44.6%	38.1%
<b>Technology has contributed positively to student achievement in my classroom this year</b>								
Chantilly Pyramid	405	4.01	0.87	1.7%	2.5%	19.3%	46.2%	30.4%
Elementary	200	4.12 <sup>c</sup>	0.82	1.5%	1.5%	15.0%	47.5%	34.5%
Middle	100	4.04	0.80	0.0%	3.0%	21.0%	45.0%	31.0%

	High	105	3.77	0.96	3.8%	3.8%	25.7%	44.8%	21.9%
eLearning Backpack		341	4.04	0.96	3.2%	2.9%	15.8%	43.1%	34.9%
<b>I am confident that I integrate 1:1 technology effectively in my classroom</b>									
Chantilly Pyramid		400	3.95	0.82	1.0%	4.8%	16.3%	54.3%	23.8%
	Elementary	195	3.96	0.76	1.0%	3.1%	15.4%	59.5%	21.0%
	Middle	99	4.04	0.75	0.0%	3.0%	17.2%	52.5%	27.3%
	High	106	3.84	0.98	1.9%	9.4%	17.0%	46.2%	25.5%
eLearning Backpack		339	4.01	0.89	0.6%	5.9%	17.4%	43.7%	32.5%
<b>I can deal with most technical difficulties I encounter when using computers and other digital resources and tools available to me.</b>									
Chantilly Pyramid		408	3.78	0.94	1.0%	11.0%	18.4%	48.0%	21.6%
	Elementary	201	3.77	0.88	0.5%	11.0%	16.4%	55.2%	16.9%
	Middle	100	3.83	0.93	2.0%	6.0%	23.0%	45.0%	24.0%
	High	107	3.76	1.06	0.9%	15.9%	17.8%	37.4%	28.0%
eLearning Backpack		341	3.85	0.97	2.1%	8.8%	16.4%	47.2%	25.5%
<b>I enjoy using technology in my classroom.</b>									
Chantilly Pyramid		408	4.16	0.80	0.5%	1.7%	16.9%	42.7%	38.2%
	Elementary	201	4.23 <sup>c</sup>	0.72	0.0%	1.5%	12.4%	47.3%	38.8%
	Middle	100	4.20	0.79	0.0%	1.0%	20.0%	37.0%	42.0%
	High	107	4.00	0.92	1.87%	2.8%	22.4%	39.3%	33.6%
eLearning Backpack		341	4.19	0.85	0.88%	4.1%	11.1%	43.1%	40.8%
<b>With proper training, I am confident in my ability to learn new digital resources and tools.</b>									
Chantilly Pyramid		408	4.36	0.63	0.5%	0.3%	4.7%	51.7%	42.9%
	Elementary	201	4.36	0.66	1.0%	0.0	4.0%	51.7%	43.3%
	Middle	100	4.39	0.55	0.0%	0.0%	3.0%	55.0%	42.0%
	High	107	4.34	0.66	0.0%	0.9%	7.5%	48.6%	43.0%
eLearning Backpack		341	4.42	0.65	0.6%	0.3%	4.4%	45.8%	49.0%
<b>I am aware of the different digital resources and tools available to use in my classroom.</b>									
Chantilly Pyramid		408	4.06	0.77	0.7%	3.9%	10.5%	58.1%	26.7%
	Elementary	201	4.03	0.75	1.0%	3.0%	11.4%	61.2%	23.4%
	Middle	100	4.18	0.67	0.0%	2.0%	9.0%	58.0%	31.0%
	High	107	4.01	0.88	0.9%	7.5%	10.3%	52.3%	29.0%
eLearning Backpack		341	4.08	0.81	1.2%	3.2%	12.6%	52.8%	30.2%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools. <sup>d</sup>statistically significant difference between middle and high CP schools.

## Preparation and Support

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N/A</i>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>I was adequately informed of the expected role of my school as an FCPSON Phase One school.</b>									
Chantilly Pyramid	402	5.12 <sup>a</sup>	0.84	0.74%	2.0%	3.0%	8.6%	53.3%	32.4%
	Elementary	199	5.14	0.77	0.50%	1.5%	2.5%	7.0%	58.5%
	Middle	98	5.21	0.76	0.00%	1.0%	2.0%	8.2%	52.0%
	High	105	5.00	1.00	1.87%	3.7%	4.7%	12.2%	44.9%
eLearning Backpack	340	4.53	1.10	0.00%	6.2%	11.2%	24.1%	40.9%	17.7%
<b>I feel my school was successful this year in fulfilling its role as an FCPSON Phase One School.</b>									
Chantilly Pyramid	404	5.25 <sup>a</sup>	0.74	0.3%	0.7%	1.5%	9.1%	48.6%	39.8%
	Elementary	200	5.35 <sup>c</sup>	0.66	0.0%	0.5%	1.0%	4.5%	51.5%
	Middle	98	5.31 <sup>d</sup>	0.65	0.0%	0.0%	1.0%	7.1%	52.0%
	High	106	5.04	0.91	0.9%	1.9%	2.8%	19.6%	40.2%

eLearning Backpack	336	4.80	0.87	1.2%	2.4%	2.4%	27.9%	45.9%	20.3%
<b>The culture of my school supports the use of technology-enhanced instruction to support personalized learning experiences</b>									
Chantilly Pyramid	404	5.37 <sup>a</sup>	0.68	0.3%	0.7%	0.5%	5.4%	47.9%	45.2%
Elementary	200	5.38	0.68	0.0%	1.0%	0.5%	4.0%	49.0%	45.5%
Middle	98	5.42	0.59	0.0%	0.0%	0.0%	5.1%	48.0%	46.9%
High	106	5.30	0.75	0.9%	0.9%	0.9%	8.4%	45.8%	43.0%
eLearning Backpack	339	5.10	0.80	0.3%	1.2%	3.8%	8.8%	55.6%	30.3%
<b>I have received sufficient professional development on personalizing the time, place, and pace of student learning.</b>									
Chantilly Pyramid	397	4.70	0.96	2.0%	1.7%	10.9%	21.0%	45.9%	18.5%
Elementary	196	4.64	0.94	2.0%	2.0%	10.5%	23.5%	47.0%	15.0%
Middle	96	4.79	0.98	2.0%	2.0%	10.2%	16.3%	46.9%	22.5%
High	105	4.73	0.97	1.9%	0.9%	12.2%	20.6%	43.0%	21.5%
eLearning Backpack	337	4.56	1.02	0.9%	3.5%	12.1%	25.0%	42.4%	16.2%
<b>I have received sufficient professional development on engaging my students in higher-order (inquiry, problem-solving, analysis/synthesis) learning activities</b>									
Chantilly Pyramid	396	4.66	0.97	2.2%	1.5%	13.1%	19.5%	46.4%	17.3%
Elementary	194	4.60	0.93	3.0%	1.5%	11.5%	25.0%	45.0%	14.0%
Middle	96	4.76	1.01	2.0%	1.0%	16.3%	9.2%	50.0%	21.4%
High	106	4.69	1.00	0.9%	1.9%	13.1%	18.7%	45.8%	19.6%
eLearning Backpack	340	4.56	1.03	0.0%	4.1%	11.5%	25.9%	41.5%	17.1%
<b>I have received sufficient professional development on creating collaborative learning experiences with my students</b>									
Chantilly Pyramid	398	4.78	0.92	1.7%	1.2%	10.1%	16.5%	51.4%	19.0%
Elementary	196	4.76	0.87	2.0%	1.5%	8.5%	17.5%	55.5%	15.0%
Middle	96	4.83	0.96	2.0%	1.0%	12.2%	11.2%	51.0%	22.5%
High	106	4.78	0.97	0.9%	0.9%	11.2%	19.6%	43.9%	23.4%
eLearning Backpack	339	4.67	1.00	0.3%	2.9%	10.6%	22.1%	45.0%	19.1%
<b>I have received sufficient professional development on differentiating instruction through technology-rich, blended learning activities</b>									
Chantilly Pyramid	399	4.64	0.98	1.5%	1.7%	13.6%	20.7%	44.9%	17.5%
Elementary	197	4.60	0.97	1.5%	1.5%	14.0%	22.0%	45.5%	15.5%
Middle	96	4.74	0.97	2.0%	1.0%	13.3%	15.3%	49.0%	19.4%
High	106	4.61	1.04	0.9%	2.8%	13.1%	23.4%	40.2%	19.6%
eLearning Backpack	340	4.51	1.09	0.0%	4.7%	15.3%	20.9%	42.1%	17.1%
<b>I have received sufficient professional development on designing personalized learning experiences for student</b>									
Chantilly Pyramid	398	4.52 <sup>a</sup>	0.98	1.7%	15.8%	24.2%	42.5%	14.1%	1.7%
Elementary	196	4.46	0.96	2.0%	2.0%	16.0%	25.0%	44.5%	10.5%
Middle	96	4.63	0.98	2.0%	1.0%	14.3%	22.5%	42.9%	17.3%
High	106	4.54	1.03	0.9%	1.9%	16.8%	24.3%	38.3%	17.8%
eLearning Backpack	339	4.33	1.10	0.3%	5.9%	17.9%	27.7%	34.1%	14.1%

<b>I have received sufficient professional development on implementing effective digital citizenship practices.</b>									
Chantilly Pyramid	401	4.74 <sup>a</sup>	0.96	2.2%	9.9%	18.5%	49.4%	19.0%	2.2%
Elementary	197	4.72	0.91	1.5%	2.0%	9.0%	19.0%	53.0%	15.5%
Middle	98	4.79	0.97	0.0%	2.0%	10.2%	16.3%	50.0%	21.4%
High	106	4.73	1.04	0.9%	2.8%	11.2%	19.3%	42.1%	23.4%
eLearning Backpack	338	4.30	1.15	0.6%	7.9%	17.9%	22.7%	37.7%	13.2%
<b>I have received sufficient professional development on developing learner-centered physical and virtual environments</b>									
Chantilly Pyramid	398	4.66 <sup>a</sup>	0.97	1.7%	2.5%	10.6%	21.7%	46.2%	17.3%
Elementary	196	4.60	0.94	2.0%	2.5%	10.0%	25.5%	46.0%	14.0%
Middle	96	4.76	0.95	2.0%	1.0%	12.2%	15.3%	50.0%	19.4%
High	106	4.69	1.05	0.9%	3.7%	10.3%	20.6%	43.0%	21.5%
eLearning Backpack	340	4.41	1.08	0.0%	5.3%	16.2%	24.7%	39.4%	14.4%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools.

<sup>d</sup>statistically significant difference between middle and high CP schools.

N/A was not included in the calculation of the M and SD.

## Teacher Practices

	<i>N</i>	<i>M</i>	<i>SD</i>	N/A	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>The use of technology is an integral part of my instructional practices this year.</b>									
Chantilly Pyramid	398	4.25	0.88	0.0%	0.8%	4.5%	11.6%	35.2%	48.0%
Elementary	196	4.35 <sup>c</sup>	0.79	0.0%	0.5%	2.6%	9.2%	37.2%	50.5%
Middle	97	4.31	0.87	0.0%	0.0%	5.2%	11.3%	30.9%	52.6%
High	105	4.02	1.02	0.0%	1.9%	7.6%	16.2%	35.2%	39.1%
eLearning Backpack	336	4.35	0.80	0.0%	0.9%	2.4%	7.7%	39.3%	49.7%
<b>Technology is an integral part of my instructional planning and classroom administration (using technology to prepare lessons, grading, data management, etc.).</b>									
Chantilly Pyramid	401	4.31	0.88	0.0%	1.0%	4.5%	9.0%	33.9%	51.6%
Elementary	198	4.34	0.83	0.0%	0.5%	4.0%	7.6%	36.4%	51.5%
Middle	97	4.42	0.80	0.0%	0.0%	4.1%	7.2%	30.9%	57.7%
High	106	4.13	1.03	0.0%	2.8%	5.7%	13.2%	32.1%	46.2%
eLearning Backpack	337	4.48 <sup>a</sup>	0.72	0.0%	0.9%	1.5%	3.6%	37.1%	57.0%
<b>Technology is an integral part of my classroom learning environment (e.g., online resources, document management, student collaboration, etc.).</b>									
Chantilly Pyramid	398	4.18	0.92	0.0%	1.0%	5.3%	12.6%	36.9%	44.2%
Elementary	195	4.23	0.87	0.0%	1.0%	3.6%	12.3%	38.0%	45.1%
Middle	97	4.32 <sup>d</sup>	0.82	0.0%	0.0%	4.1%	10.3%	35.1%	50.5%
High	106	3.97	1.04	0.0%	1.9%	9.4%	15.1%	36.8%	36.8%
eLearning Backpack	336	4.38 <sup>a</sup>	0.81	0.0%	1.2%	2.7%	6.0%	37.5%	52.7%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools.

<sup>d</sup>statistically significant difference between middle and high CP schools.

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N/A was not included in the calculation of the M and SD.

	<i>N</i>	<i>M</i>	<i>SD</i>	Never	Rarely	Sometimes	Often
<b>How frequently do you: Provide direct instruction or lecture for 20 minutes or longer</b>							
Chantilly Pyramid	392	2.75	0.97	11.2%	28.3%	34.4%	26.0%
Elementary	190	2.65 <sup>c</sup>	0.99	14.2%	29.5%	33.7%	22.6%
Middle	97	2.64 <sup>d</sup>	0.84	8.3%	35.1%	41.2%	15.5%
High	105	3.05	0.98	8.6%	20.0%	29.5%	41.9%
eLearning Backpack	339	2.84	0.88	6.5%	28.6%	39.2%	25.7%
<b>How frequently do you: Facilitate cooperative/collaborative learning</b>							
Chantilly Pyramid	400	3.61	0.56	0.3%	3.3%	31.8%	64.8%
Elementary	197	3.67 <sup>b</sup>	0.50	0.0%	1.5%	30.0%	68.5%
Middle	97	3.51	0.65	1.0%	5.2%	36.1%	57.7%
High	106	3.59	0.58	0.0%	4.7%	31.1%	64.2%
eLearning Backpack	338	3.70	0.47	0.0%	0.6%	29.0%	70.4%
<b>How frequently do you: Facilitate project-based or other inquiry-based approaches to learning</b>							
Chantilly Pyramid	398	3.21	0.71	1.3%	13.1%	49.0%	36.7%
Elementary	197	3.22	0.62	0.5%	9.1%	57.9%	32.5%
Middle	96	3.18	0.77	1.0%	18.8%	41.7%	38.5%
High	105	3.22	0.81	2.9%	15.2%	39.1%	42.9%
eLearning Backpack	338	3.27	0.78	2.7%	12.1%	40.5%	44.7%
<b>How frequently do you: Promote individualized/personalized learning (e.g., students working alone at desk or personal computer)</b>							
Chantilly Pyramid	392	3.45	0.63	0.8%	5.1%	42.4%	51.8%
Elementary	192	3.46	0.64	1.0%	4.7%	41.2%	53.1%
Middle	96	3.48	0.63	1.0%	4.2%	40.6%	54.2%
High	104	3.40	0.62	0.0%	6.7%	46.2%	47.1%
eLearning Backpack	337	3.46	0.62	0.6%	4.8%	42.7%	51.9%
<b>How frequently do you: Involve students in designing their own learning experiences according to personal goals, needs, and interests</b>							
Chantilly Pyramid	391	2.79	0.77	5.6%	25.6%	52.9%	15.9%
Elementary	191	2.89 <sup>b</sup>	0.69	2.6%	22.0%	59.2%	16.2%
Middle	97	2.68	0.84	9.3%	27.8%	48.5%	14.4%
High	103	2.71	0.84	7.8%	30.1%	45.6%	16.5%
eLearning Backpack	333	2.75	0.88	8.4%	29.1%	41.1%	21.3%
<b>How frequently do you: Foster cross-curricular connections</b>							
Chantilly Pyramid	395	3.05 <sup>a</sup>	0.80	4.1%	17.5%	48.1%	30.4%
Elementary	195	3.33 <sup>bc</sup>	0.65	1.0%	6.7%	50.8%	41.5%
Middle	97	2.81	0.79	4.1%	29.9%	46.4%	19.6%
High	103	2.74	0.89	9.7%	26.2%	44.7%	19.4%
eLearning Backpack	330	2.77	0.91	8.8%	29.4%	38.2%	23.6%
<b>How frequently do you: Facilitate differentiated learning experiences</b>							

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Chantilly Pyramid	398	3.40	0.65	1.0%	6.0%	45.0%	48.0%
Elementary	197	3.59 <sup>bc</sup>	0.55	0.5%	1.5%	36.0%	61.9%
Middle	97	3.29	0.59	0.0%	7.2%	56.7%	36.1%
High	104	3.13	0.75	2.9%	13.5%	51.0%	32.7%
eLearning Backpack	337	3.34	0.67	0.9%	8.6%	45.7%	44.8%
<b>How frequently do you: Use online or digital textbook resources</b>							
Chantilly Pyramid	365	2.99	0.96	9.6%	18.4%	35.9%	36.2%
Elementary	178	2.94	0.99	10.7%	19.7%	34.3%	35.4%
Middle	85	3.09	0.87	5.9%	15.3%	42.4%	36.5%
High	102	2.97	1.00	10.8%	18.6%	33.3%	37.3%
eLearning Backpack	323	2.96	1.03	13.0%	15.8%	33.1%	38.1%
<b>How frequently do you: Use digital or web-based tools to deliver tests or quizzes</b>							
Chantilly Pyramid	375	3.14	0.97	8.8%	14.9%	29.9%	46.4%
Elementary	177	3.32 <sup>c</sup>	0.79	2.8%	11.3%	36.7%	49.2%
Middle	94	3.45 <sup>d</sup>	0.88	6.4%	6.4%	23.4%	63.8%
High	104	2.55	1.10	21.2%	28.9%	24.0%	26.0%
eLearning Backpack	331	3.28	0.89	6.3%	10.6%	31.4%	51.7%
<b>How frequently do you: Use digital or web-based collaborative tools to provide feedback to students</b>							
Chantilly Pyramid	379	2.93	0.90	8.2%	19.0%	44.1%	28.8%
Elementary	180	2.89 <sup>b</sup>	0.87	8.3%	18.3%	48.9%	24.4%
Middle	96	3.10	0.89	6.3%	15.6%	39.6%	38.5%
High	103	2.84	0.94	9.7%	23.3%	39.8%	27.2%
eLearning Backpack	333	3.24 <sup>a</sup>	0.81	3.0%	14.1%	38.4%	44.4%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools. <sup>d</sup>statistically significant difference between middle and high CP schools.

## Student Outcomes

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N/A</i>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>My students have improved in their use of technology as a learning tool this year.</b>									
Chantilly Pyramid	388	5.07	0.82	358%	1.0%	2.7%	14.9%	47.8%	30.1%
Elementary	190	5.36 <sup>bc</sup>	0.62	4.5%	0.5%	0.0%	4.5%	50.3%	40.2%
Middle	95	5.04 <sup>d</sup>	0.77	2.1%	0.0%	2.1%	20.6%	46.4%	28.9%
High	103	4.56	0.93	2.8%	2.8%	8.5%	29.3%	44.3%	12.3%
eLearning Backpack	334	4.96	0.87	1.8%	1.8%	4.4%	15.3%	51.5%	25.3%
<b>The student engagement in my classroom has improved this year.</b>									
Chantilly Pyramid	391	4.77 <sup>a</sup>	0.88	2.7%	1.5%	5.2%	26.6%	44.5%	19.4%
Elementary	193	4.97 <sup>bc</sup>	0.78	3.0%	0.5%	2.5%	20.1%	49.8%	24.1%
Middle	95	4.69	0.83	2.1%	0.0%	6.2%	34.0%	41.2%	16.5%
High	103	4.47	1.01	2.8%	4.7%	9.4%	32.1%	37.7%	13.2%



eLearning Backpack	337	4.62	1.01	0.9%	3.2%	8.8%	30.3%	37.1%	19.7%
<b>My students have improved in their demonstration of Portrait of a Graduate skills this year: as a communicator.</b>									
Chantilly Pyramid	391	4.82 <sup>a</sup>	0.79	2.7%	0.8%	4.0%	24.1%	51.7%	16.7%
Elementary	193	4.99 <sup>c</sup>	0.65	3.0%	0.0%	1.5%	16.6%	60.3%	18.6%
Middle	96	4.77	0.73	1.0%	0.0%	3.1%	30.9%	50.5%	14.4%
High	102	4.54	0.97	3.8%	2.8%	9.4%	32.1%	36.8%	15.1%
eLearning Backpack	333	4.64	0.89	2.1%	1.5%	7.1%	32.1%	41.8%	15.6%
<b>My students have improved in their demonstration of Portrait of a Graduate skills this year: as a collaborator.</b>									
Chantilly Pyramid	392	4.91 <sup>a</sup>	0.73	2.5%	0.5%	2.7%	19.7%	57.0%	17.7%
Elementary	193	5.04 <sup>c</sup>	0.63	3.0%	0.0%	1.5%	12.6%	63.3%	19.6%
Middle	96	4.90	0.69	1.0%	0.0%	3.1%	19.6%	60.8%	15.5%
High	103	4.67	0.88	2.8%	1.9%	4.7%	33.0%	41.5%	16.0%
eLearning Backpack	332	4.70	0.86	2.4%	1.5%	5.9%	28.8%	45.6%	15.9%
<b>My students have improved in their demonstration of Portrait of a Graduate skills this year: as an ethical and global citizen</b>									
Chantilly Pyramid	389	4.62 <sup>a</sup>	0.83	3.2%	1.0%	7.0%	32.1%	44.8%	11.9%
Elementary	192	4.74 <sup>c</sup>	0.71	3.5%	0.5%	2.5%	29.2%	53.8%	10.6%
Middle	96	4.55	0.88	1.0%	1.0%	9.3%	36.1%	39.2%	13.4%
High	101	4.45	0.96	4.7%	1.9%	13.2%	34.0%	33.0%	13.2%
eLearning Backpack	331	4.46	0.89	2.7%	2.7%	7.4%	41.0%	35.9%	10.9%
<b>My students have improved in their demonstration of Portrait of a Graduate skills this year: as a creative and critical thinker.</b>									
Chantilly Pyramid	392	4.86 <sup>a</sup>	0.81	2.5%	1.0%	4.5%	19.9%	53.7%	18.4%
Elementary	194	4.95 <sup>c</sup>	0.70	2.5%	0.0%	3.0%	17.1%	58.8%	18.6%
Middle	96	4.89	0.77	1.0%	0.0%	5.2%	19.6%	55.7%	18.6%
High	102	4.67	0.99	3.8%	3.8%	6.6%	25.5%	42.5%	17.9%
eLearning Backpack	332	4.66	0.87	2.4%	1.5%	6.8%	30.3%	44.1%	15.0%
<b>My students have improved in their demonstration of Portrait of a Graduate skills this year: as a goal directed and resilient individual.</b>									
Chantilly Pyramid	391	4.66 <sup>a</sup>	0.81	2.7%	0.8%	6.0%	31.6%	46.3%	12.7%
Elementary	193	4.80 <sup>c</sup>	0.71	3.0%	0.0%	4.0%	24.1%	56.3%	12.6%
Middle	96	4.54	0.83	1.0%	0.0%	9.3%	39.2%	38.1%	12.4%
High	102	4.51	0.92	3.8%	2.8%	6.6%	38.7%	34.9%	13.2%
eLearning Backpack	331	4.55	0.89	2.7%	2.4%	6.5%	37.1%	38.2%	13.2%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools.

<sup>d</sup>statistically significant difference between middle and high CP schools.

N/A was not included in the calculation of the M and SD.

**Appendix J: Student Reaction Survey Descriptive Statistics and Frequencies**

	<i>N</i>	<i>M</i>	<i>SD</i>	N/A	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
<b>School is more interesting when I use my computer for learning.</b>									
Chantilly Pyramid	4332	4.96	0.93	2.2%	2.1%	4.3%	19.3%	42.2%	29.9%
Elementary	1367	5.06 <sup>bc</sup>	0.90	1.7%	1.4%	4.0%	16.9%	41.2%	34.8%
Middle	1521	4.98 <sup>d</sup>	0.90	2.9%	1.8%	3.5%	19.3%	43.3%	29.2%
High	1444	4.84 <sup>d</sup>	0.98	2.0%	3.2%	5.4%	21.5%	42.2%	25.9%
eLearning Backpack	2775	4.91	0.96	2.6%	2.9%	4.0%	19.6%	42.9%	28.0%
<b>My personal device makes turning in homework and completing assignments easy.</b>									
Chantilly Pyramid	4321	5.07	0.96	2.5%	2.1%	4.9%	14.0%	39.2%	37.3%
Elementary	1328	4.97 <sup>bc</sup>	1.01	4.5%	2.8%	5.5%	17.3%	35.9%	34.0%
Middle	1543	5.13	0.91	1.5%	1.7%	4.2%	12.6%	40.8%	39.2%
High	1450	5.10	0.94	1.6%	1.9%	5.1%	12.6%	40.5%	38.4%
eLearning Backpack	2775	5.08	0.92	2.6%	2.2%	4.3%	11.2%	45.5%	34.2%
<b>Using a computer during learning feels natural to me.</b>									
Chantilly Pyramid	4328	4.85	1.01	2.3%	2.7%	7.1%	20.4%	39.6%	27.9%
Elementary	1349	4.80 <sup>b</sup>	1.04	3.0%	3.1%	7.9%	22.0%	36.1%	27.9%
Middle	1532	4.90	0.95	2.2%	1.7%	6.3%	20.2%	41.9%	27.8%
High	1447	4.84	1.03	1.8%	3.3%	7.3%	19.1%	40.5%	28.0%
eLearning Backpack	2793	4.82	0.99	1.9%	3.2%	7.2%	18.2%	45.0%	24.5%
<b>My school-issued personal device is an important part of every school day.</b>									
Chantilly Pyramid	4331	5.09 <sup>a</sup>	0.96	2.3%	2.2%	4.5%	14.4%	37.7%	38.8%
Elementary	1352	4.93 <sup>bc</sup>	1.06	2.8%	3.3%	6.1%	19.6%	33.2%	34.9%
Middle	1533	5.20 <sup>d</sup>	0.86	2.2%	1.2%	3.1%	11.7%	40.4%	41.4%
High	1446	5.11	0.96	1.8%	2.3%	4.5%	12.4%	39.2%	39.7%
eLearning Backpack	2738	5.00	0.95	3.9%	2.2%	5.1%	15.5%	41.4%	32.0%
<b>My personal device distracts me from learning.</b>									
Chantilly Pyramid	4193	3.27	1.08	5.4%	25.7%	34.2%	21.6%	9.7%	3.4%
Elementary	1307	3.03 <sup>bc</sup>	1.00	6.0%	32.6%	35.9%	17.5%	5.8%	2.2%
Middle	1480	3.21 <sup>d</sup>	1.03	5.6%	25.9%	35.7%	22.4%	7.6%	2.8%
High	1406	3.55	1.14	4.5%	18.9%	31.0%	24.7%	15.7%	5.2%
eLearning Backpack	2674	3.44 <sup>a</sup>	1.11	6.1%	20.9%	32.2%	24.3%	12.0%	4.5%
<b>My school-issued personal device works well.</b>									
Chantilly Pyramid	4358	5.00 <sup>a</sup>	0.93	1.6%	2.6%	5.1%	12.4%	48.3%	30.0%
Elementary	1372	5.22 <sup>bc</sup>	0.84	1.4%	1.6%	2.6%	9.1%	44.8%	40.6%
Middle	1537	4.89	0.93	1.9%	2.9%	5.7%	14.0%	51.8%	23.7%
High	1449	4.90	0.98	1.6%	3.3%	6.7%	13.8%	48.1%	26.6%
eLearning Backpack	2738	4.78	1.00	3.9%	3.7%	7.8%	15.5%	47.9%	21.2%
<b>I know how to use my school-issued personal device to complete assignments and homework.</b>									

Chantilly Pyramid	4373	5.49 <sup>a</sup>	0.69	1.3%	0.7%	0.9%	3.9%	37.1%	56.0%
Elementary	1370	5.51	0.70	1.5%	0.8%	1.0%	4.3%	33.6%	58.7%
Middle	1549	5.50	0.66	1.1%	0.5%	1.0%	3.1%	38.5%	55.8%
High	1454	5.45	0.71	1.3%	1.0%	0.9%	4.3%	39.0%	53.6%
eLearning Backpack	2769	5.27	0.79	2.8%	1.3%	2.0%	6.8%	46.0%	41.1%
<b>Without a computer, it would be difficult to be successful at school.</b>									
Chantilly Pyramid	4268	4.04	1.23	3.7%	12.3%	19.6%	30.3%	20.0%	14.2%
Elementary	1327	3.81 <sup>bc</sup>	1.19	4.6%	15.5%	21.6%	33.9%	14.5%	9.8%
Middle	1504	4.13	1.19	4.0%	10.3%	17.2%	32.8%	20.9%	14.9%
High	1437	4.17	1.27	2.4%	11.3%	20.4%	24.1%	24.3%	17.5%
eLearning Backpack	2751	4.49	1.18	3.4%	6.6%	13.7%	24.5%	29.6%	22.2%
<b>Using a computer for learning encourages me to be responsible for my success in school.</b>									
Chantilly Pyramid	4234	4.61	1.00	4.4%	3.2%	8.1%	30.0%	35.5%	18.7%
Elementary	1318	4.63	1.01	5.2%	3.7%	7.0%	29.5%	34.8%	19.7%
Middle	1490	4.62	0.97	4.9%	2.7%	7.3%	31.2%	35.8%	18.0%
High	1426	4.58	1.01	3.2%	3.2%	10.0%	29.3%	36.0%	18.4%
eLearning Backpack	2745	4.71	1.00	3.6%	3.4%	6.8%	25.3%	40.0%	20.9%
<b>My school-issued personal device makes collaborating with my peers easy.</b>									
Chantilly Pyramid	4291	5.09 <sup>a</sup>	0.96	3.2%	2.2%	4.0%	15.3%	36.4%	38.9%
Elementary	1327	4.93 <sup>bc</sup>	1.07	4.6%	3.7%	5.2%	20.1%	31.3%	35.0%
Middle	1523	5.10 <sup>d</sup>	0.92	2.8%	1.7%	4.0%	14.8%	39.1%	37.6%
High	1441	5.24	0.86	2.2%	1.3%	2.9%	11.3%	38.5%	43.9%
eLearning Backpack	2714	4.94	0.94	4.7%	2.5%	4.0%	17.9%	43.3%	27.6%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools. <sup>d</sup>Statistically significant difference between middle and high CP schools.

	<i>N</i>	<i>M</i>	<i>SD</i>	N/A	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
<b>I am a good listener.</b>									
Chantilly Pyramid	4221	4.99	0.79	1.6%	1.1%	3.1%	15.4%	54.5%	24.3%
Elementary	1333	4.98 <sup>c</sup>	0.78	1.8%	1.0%	2.2%	18.6%	52.6%	23.8%
Middle	1481	4.95 <sup>d</sup>	0.81	1.8%	1.1%	4.2%	15.6%	55.2%	22.2%
High	1407	5.06	0.78	1.1%	1.2%	2.7%	12.3%	55.6%	27.1%
eLearning Backpack	2595	4.98	0.79	2.8%	1.4%	3.4%	13.4%	57.1%	21.9%
<b>I am able to communicate my needs to other students, my parents, and my teachers.</b>									
Chantilly Pyramid	4215	5.04 <sup>a</sup>	0.82	1.7%	1.1%	3.8%	12.9%	52.3%	28.1%
Elementary	1329	5.13 <sup>bc</sup>	0.82	2.1%	1.4%	2.7%	10.8%	50.0%	33.1%
Middle	1486	5.00	0.80	1.5%	0.8%	4.5%	13.7%	54.9%	24.7%
High	1400	5.01	0.83	1.6%	1.2%	4.1%	14.3%	51.7%	27.1%

eLearning Backpack	2574	4.88	0.87	3.6%	1.8%	5.2%	16.5%	52.2%	20.7%
<b>If I want to know more about a topic, I can use books or computers to gather information.</b>									
Chantilly Pyramid	4236	5.28 <sup>a</sup>	0.73	1.2%	0.6%	1.6%	7.8%	48.2%	40.6%
Elementary	1340	5.35 <sup>bc</sup>	0.71	1.3%	0.6%	1.0%	7.3%	44.5%	45.4%
Middle	1489	5.22	0.74	1.3%	0.8%	1.9%	7.8%	52.3%	35.9%
High	1407	5.28	0.73	1.1%	0.4%	2.0%	8.3%	47.4%	40.9%
eLearning Backpack	2598	5.14	0.82	2.7%	1.9%	2.0%	9.0%	51.8%	32.5%
<b>I respect all children my age, even if they are different from me.</b>									
Chantilly Pyramid	4228	5.37 <sup>a</sup>	0.75	1.4%	0.8%	1.4%	7.5%	40.0%	48.9%
Elementary	1337	5.45 <sup>bc</sup>	0.70	1.5%	0.6%	0.6%	6.5%	37.0%	53.8%
Middle	1486	5.35	0.75	1.5%	0.9%	1.1%	7.5%	42.4%	46.6%
High	1405	5.32	0.79	1.3%	0.8%	2.3%	8.6%	40.3%	46.8%
eLearning Backpack	2603	5.28	0.81	2.5%	1.4%	1.8%	8.4%	42.3%	43.6%
<b>I like to help others.</b>									
Chantilly Pyramid	4226	5.25 <sup>a</sup>	0.75	1.5%	0.6%	1.2%	11.4%	45.2%	40.2%
Elementary	1336	5.33 <sup>bc</sup>	0.71	1.6%	0.5%	0.6%	9.2%	43.7%	44.4%
Middle	1485	5.17 <sup>d</sup>	0.77	1.5%	0.9%	1.1%	13.4%	47.9%	35.2%
High	1405	5.25	0.76	1.3%	0.4%	1.8%	11.4%	43.7%	41.4%
eLearning Backpack	2608	5.10	0.86	2.4%	1.5%	2.9%	13.8%	45.5%	34.0%
<b>I can lead others to reach a goal.</b>									
Chantilly Pyramid	4156	4.83 <sup>a</sup>	0.88	3.1%	1.3%	4.7%	25.5%	43.4%	22.0%
Elementary	1306	4.82	0.87	3.8%	1.0%	4.5%	27.2%	41.7%	21.8%
Middle	1452	4.77	0.88	3.7%	1.2%	5.5%	26.9%	43.1%	19.6%
High	1398	4.89 <sup>d</sup>	0.88	1.8%	1.5%	4.1%	22.5%	45.5%	24.6%
eLearning Backpack	2576	4.78	0.90	3.6%	1.7%	5.3%	25.2%	44.1%	20.0%
<b>When I make decisions, I think about what is good for other people.</b>									
Chantilly Pyramid	4208	4.97 <sup>a</sup>	0.80	1.9%	0.6%	3.0%	20.0%	49.7%	24.9%
Elementary	1324	4.97	0.79	2.5%	0.7%	2.5%	20.3%	49.3%	24.7%
Middle	1479	4.92	0.79	1.9%	0.7%	3.0%	21.8%	50.6%	22.1%
High	1405	5.02 <sup>d</sup>	0.80	1.3%	0.4%	3.4%	17.8%	49.1%	28.0%
eLearning Backpack	2563	4.90	0.84	4.0%	1.0%	3.8%	21.2%	47.7%	22.2%
<b>I am able to follow the rules at school.</b>									
Chantilly Pyramid	4243	5.31 <sup>a</sup>	0.71	1.1%	0.6%	0.9%	8.3%	46.1%	43.0%
Elementary	1347	5.27 <sup>c</sup>	0.76	0.8%	1.0%	1.2%	9.2%	46.2%	41.7%
Middle	1489	5.28 <sup>d</sup>	0.71	1.3%	0.5%	0.9%	9.2%	47.9%	40.2%
High	1407	5.39	0.67	1.1%	0.4%	0.6%	6.6%	44.1%	47.3%
eLearning Backpack	2608	5.24	0.74	2.4%	0.7%	1.5%	8.9%	48.5%	38.0%
<b>I know how to be a good friend to my classmates.</b>									
Chantilly Pyramid	4230	5.35 <sup>a</sup>	0.68	1.4%	0.5%	0.8%	6.0%	47.3%	44.1%

Elementary	1340	5.42 <sup>bc</sup>	0.68	1.3%	0.6%	0.6%	5.4%	42.1%	50.0%
Middle	1484	5.31	0.67	1.6%	0.5%	1.0%	5.9%	51.3%	39.7%
High	1406	5.34	0.68	1.2%	0.4%	0.8%	6.7%	47.9%	43.0%
eLearning	2596	5.20	0.74	2.8%	0.8%	1.7%	9.5%	50.9%	34.3%
Backpack									
<b>If I need to, I can find out if something I read or hear about is true or not.</b>									
Chantilly	4196	5.11 <sup>a</sup>	0.77	2.2%	0.6%	2.3%	14.0%	50.0%	31.0%
Pyramid									
Elementary	1315	5.06	0.82	3.2%	0.7%	2.9%	16.2%	46.6%	30.3%
Middle	1478	5.08	0.76	2.0%	0.6%	2.2%	15.1%	51.5%	28.7%
High	1403	5.18 <sup>cd</sup>	0.73	1.4%	0.6%	1.7%	10.8%	51.7%	33.9%
eLearning	2578	5.02	0.80	3.5%	1.2%	2.4%	15.5%	51.3%	26.2%
Backpack									
<b>When things do not go how I want, I can change my actions for the better.</b>									
Chantilly	4176	4.97	0.79	2.6%	0.9%	2.6%	18.5%	51.7%	23.8%
Pyramid									
Elementary	1311	5.00	0.82	3.5%	1.2%	2.7%	17.8%	48.5%	26.4%
Middle	1464	4.92 <sup>cd</sup>	0.78	2.9%	0.9%	2.5%	20.4%	52.8%	20.5%
High	1401	5.01	0.76	1.5%	0.5%	2.6%	17.1%	53.5%	24.7%
eLearning	2579	4.95	0.80	3.4%	1.3%	2.5%	18.1%	52.6%	22.2%
Backpack									
<b>When important events happen in the world, I am able to develop my own opinions about what is right and wrong.</b>									
Chantilly	4198	5.19 <sup>a</sup>	0.78	2.1%	0.7%	2.1%	12.0%	46.3%	36.7%
Pyramid									
Elementary	1323	5.21	0.79	2.6%	0.4%	2.4%	12.2%	43.7%	38.7%
Middle	1476	5.17	0.77	2.1%	0.7%	1.9%	12.1%	48.3%	34.9%
High	1399	5.19	0.79	1.7%	0.8%	2.0%	11.9%	46.7%	36.8%
eLearning	2568	5.06	0.81	3.9%	1.2%	2.3%	14.8%	49.0%	28.9%
Backpack									
<b>I use my time wisely when working on my own.</b>									
Chantilly	4220	4.80 <sup>a</sup>	0.97	1.6%	2.4%	7.6%	20.6%	44.3%	23.5%
Pyramid									
Elementary	1341	5.05 <sup>bc</sup>	0.84	1.3%	1.4%	2.7%	16.1%	48.2%	30.4%
Middle	1478	4.75 <sup>d</sup>	0.96	2.0%	2.1%	8.5%	22.5%	43.8%	21.1%
High	1401	4.62	1.04	1.5%	3.7%	11.5%	22.8%	41.0%	19.5%
eLearning	2591	4.66	1.01	3.0%	3.4%	9.3%	23.4%	42.0%	18.9%
Backpack									
<b>I can reach my own goals for learning.</b>									
Chantilly	4228	5.10 <sup>a</sup>	0.77	1.4%	0.7%	2.2%	13.7%	52.0%	29.9%
Pyramid									
Elementary	1332	5.22 <sup>bc</sup>	0.75	1.9%	0.6%	1.9%	10.0%	48.7%	36.9%
Middle	1489	5.06	0.74	1.3%	0.6%	2.2%	14.1%	55.7%	26.2%
High	1407	5.02	0.80	1.1%	1.0%	2.5%	16.9%	51.2%	27.3%
eLearning	2583	4.99	0.79	3.3%	0.9%	3.4%	15.5%	52.8%	24.2%
Backpack									
<b>If I fail at something, I will try again or ask for help.</b>									
Chantilly	4226	5.14 <sup>a</sup>	0.80	1.5%	0.9%	2.6%	12.5%	48.7%	33.9%
Pyramid									
Elementary	1339	5.27 <sup>bc</sup>	0.76	1.4%	0.9%	1.4%	9.6%	45.0%	41.8%
Middle	1488	5.09	0.78	1.3%	0.5%	3.1%	13.5%	51.1%	30.5%
High	1399	5.05	0.84	1.7%	1.3%	3.4%	14.1%	49.5%	30.0%

eLearning Backpack	2587	5.05	0.85	3.1%	1.4%	3.2%	14.5%	47.8%	29.9%
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<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools. <sup>d</sup>Statistically significant difference between middle and high CP schools.

### How often do you use your school-issued laptop to...

	<i>N</i>	<i>M</i>	<i>SD</i>	Never	Once a week	2-3 times per week	Almost everyday	Daily
<b>Work on schoolwork at home?</b>								
Chantilly Pyramid	4159	4.46 <sup>a</sup>	0.72	0.0%	0.0%	13.5%	27.0%	59.5%
Elementary	1324	4.42	0.76	0.0%	0.0%	16.5%	24.8%	58.7%
Middle	1464	4.47	0.69	0.0%	0.0%	11.7%	29.8%	58.5%
High	1371	4.49	0.71	0.0%	0.0%	12.6%	26.1%	61.3%
eLearning Backpack	2537	4.32	0.78	0.0%	0.0%	19.6%	28.3%	52.1%
<b>Download notes or presentations from teachers?</b>								
Chantilly Pyramid	4159	4.37	0.81	0.0%	0.0%	21.6%	20.0%	58.4%
Elementary	1324	4.54 <sup>bc</sup>	0.74	0.0%	0.0%	15.2%	15.8%	69.0%
Middle	1464	4.28	0.84	0.0%	0.0%	25.1%	21.6%	53.3%
High	1371	4.30	0.83	0.0%	0.0%	23.9%	22.5%	53.6%
eLearning Backpack	2537	4.35	0.84	0.0%	0.0%	23.6%	17.7%	58.8%
<b>Submit homework?</b>								
Chantilly Pyramid	4159	4.39 <sup>a</sup>	0.74	0.0%	0.0%	15.4%	30.2%	54.3%
Elementary	1324	4.46 <sup>c</sup>	0.72	0.0%	0.0%	13.4%	27.6%	59.1%
Middle	1464	4.40 <sup>d</sup>	0.72	0.0%	0.0%	13.9%	32.0%	54.1%
High	1371	4.31	0.77	0.0%	0.0%	19.0%	30.9%	50.0%
eLearning Backpack	2537	4.23	0.81	0.0%	0.0%	24.0%	29.2%	46.9%
<b>Take a test or quiz?</b>								
Chantilly Pyramid	4159	4.25 <sup>a</sup>	0.89	0.0%	0.0%	30.0%	15.5%	54.5%
Elementary	1324	4.46 <sup>bc</sup>	0.82	0.0%	0.0%	21.5%	10.9%	67.6%
Middle	1464	4.08 <sup>d</sup>	0.91	0.0%	0.0%	37.8%	16.7%	45.5%
High	1371	4.22	0.87	0.0%	0.0%	29.7%	18.8%	51.5%
eLearning Backpack	2537	4.13	0.88	0.0%	0.0%	33.1%	20.5%	46.4%
<b>Design PowerPoint presentations, drawings, or web pages?</b>								
Chantilly Pyramid	4159	4.49	0.79	0.0%	0.0%	18.7%	13.1%	68.2%
Elementary	1324	4.51	0.78	0.0%	0.0%	17.5%	14.2%	68.3%
Middle	1464	4.53 <sup>d</sup>	0.77	0.0%	0.0%	17.4%	12.5%	70.1%
High	1371	4.45	0.82	0.0%	0.0%	21.3%	12.5%	66.2%
eLearning Backpack	2537	4.46	0.82	0.0%	0.0%	21.2%	11.8%	67.0%
<b>Collaborate with other students during class?</b>								
Chantilly Pyramid	4159	4.31	0.79	0.0%	0.0%	20.3%	28.8%	50.9%
Elementary	1324	4.39 <sup>bc</sup>	0.75	0.0%	0.0%	15.9%	29.4%	54.7%
Middle	1464	4.29	0.79	0.0%	0.0%	21.1%	28.5%	50.4%
High	1371	4.24	0.81	0.0%	0.0%	23.6%	28.6%	47.8%
eLearning Backpack	2537	4.31 <sup>a</sup>	0.81	0.0%	0.0%	22.1%	24.9%	53.1%
<b>Look up information related classroom assignments or current events?</b>								
Chantilly Pyramid	4159	4.38 <sup>a</sup>	0.76	0.0%	0.0%	17.2%	28.0%	54.9%
Elementary	1324	4.35 <sup>c</sup>	0.77	0.0%	0.0%	18.2%	28.4%	53.4%
Middle	1464	4.34 <sup>d</sup>	0.77	0.0%	0.0%	18.2%	29.0%	52.7%
High	1371	4.44	0.74	0.0%	0.0%	15.0%	26.4%	58.6%
eLearning Backpack	2537	4.33	0.78	0.0%	0.0%	19.4%	27.8%	52.8%

**Complete homework?**

Chantilly Pyramid	4159	4.57 <sup>a</sup>	0.65	0.0%	0.0%	9.1%	24.4%	66.5%
Elementary	1324	4.63 <sup>c</sup>	0.62	0.0%	0.0%	7.5%	22.4%	70.2%
Middle	1464	4.61 <sup>d</sup>	0.61	0.0%	0.0%	7.0%	24.7%	68.4%
High	1371	4.48	0.71	0.0%	0.0%	12.9%	26.2%	60.9%
eLearning Backpack	2537	4.37	0.76	0.0%	0.0%	16.9%	29.3%	53.8%

**Type a paper?**

Chantilly Pyramid	4159	4.40	0.82	0.0%	0.0%	21.7%	17.0%	61.3%
Elementary	1324	4.39	0.81	0.0%	0.0%	20.8%	19.1%	60.0%
Middle	1464	4.42	0.82	0.0%	0.0%	21.1%	16.2%	62.7%
High	1371	4.38	0.84	0.0%	0.0%	23.2%	15.8%	61.0%
eLearning Backpack	2537	4.36	0.82	0.0%	0.0%	22.3%	19.2%	58.5%

**Type notes during class?**

Chantilly Pyramid	4159	4.43	0.79	0.0%	0.0%	19.3%	18.0%	62.7%
Elementary	1324	4.51 <sup>b</sup>	0.77	0.0%	0.0%	17.2%	14.8%	68.0%
Middle	1464	4.34	0.83	0.0%	0.0%	23.0%	20.2%	56.8%
High	1371	4.47 <sup>d</sup>	0.77	0.0%	0.0%	17.4%	18.6%	64.0%
eLearning Backpack	2537	4.41	0.79	0.0%	0.0%	19.1%	21.0%	59.8%

**Receive feedback from teachers?**

Chantilly Pyramid	4159	4.37	0.82	0.0%	0.0%	21.7%	19.4%	59.0%
Elementary	1324	4.41	0.80	0.0%	0.0%	19.6%	19.5%	60.9%
Middle	1464	4.36	0.82	0.0%	0.0%	22.0%	20.1%	57.9%
High	1371	4.35	0.83	0.0%	0.0%	23.3%	18.5%	58.3%
eLearning Backpack	2537	4.34	0.82	0.0%	0.0%	22.3%	21.4%	56.2%

**Receive feedback from other students?**

Chantilly Pyramid	4159	4.55	0.74	0.0%	0.0%	15.3%	13.9%	70.8%
Elementary	1324	4.57	0.72	0.0%	0.0%	13.6%	15.3%	71.1%
Middle	1464	4.54	0.76	0.0%	0.0%	16.3%	13.1%	70.6%
High	1371	4.55	0.75	0.0%	0.0%	16.0%	13.3%	70.7%
eLearning Backpack	2537	4.54	0.75	0.0%	0.0%	16.0%	13.4%	70.5%

**Send or receive email?**

Chantilly Pyramid	4159	4.56 <sup>a</sup>	0.74	0.0%	0.0%	14.9%	14.2%	70.9%
Elementary	1324	4.66 <sup>bc</sup>	0.68	0.0%	0.0%	12.1%	9.8%	78.1%
Middle	1464	4.53	0.75	0.0%	0.0%	16.0%	15.4%	68.6%
High	1371	4.50	0.76	0.0%	0.0%	16.3%	17.2%	66.4%
eLearning Backpack	2537	4.46	0.78	0.0%	0.0%	18.3%	17.8%	63.9%

**Listen to music?**

Chantilly Pyramid	4159	4.68 <sup>a</sup>	0.65	0.0%	0.0%	10.0%	12.5%	77.5%
Elementary	1324	4.81	0.53	0.0%	0.0%	6.1%	6.7%	87.2%
Middle	1464	4.60	0.69	0.0%	0.0%	11.9%	16.0%	72.1%
High	1371	4.62	0.68	0.0%	0.0%	11.6%	14.4%	74.0%
eLearning Backpack	2537	4.62	0.68	0.0%	0.0%	11.3%	15.4%	73.3%

**Surf the web?**

Chantilly Pyramid	4159	4.61 <sup>a</sup>	0.69	0.0%	0.0%	12.3%	14.1%	73.6%
Elementary	1324	4.73 <sup>bc</sup>	0.61	0.0%	0.0%	9.0%	8.8%	82.3%
Middle	1464	4.57	0.71	0.0%	0.0%	13.3%	16.1%	70.6%
High	1371	4.54	0.73	0.0%	0.0%	14.4%	17.1%	68.5%
eLearning Backpack	2537	4.52	0.74	0.0%	0.0%	14.8%	18.0%	67.2%

**Watch TV or YouTube videos?**

Chantilly Pyramid	4159	4.69 <sup>a</sup>	0.64	0.0%	0.0%	10.0%	10.7%	79.3%
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Elementary	1324	4.80 <sup>bc</sup>	0.54	0.0%	0.0%	6.6%	6.4%	86.9%
Middle	1464	4.69 <sup>d</sup>	0.63	0.0%	0.0%	9.4%	11.9%	78.7%
High	1371	4.59	0.72	0.0%	0.0%	13.7%	13.6%	72.6%
eLearning Backpack	2537	4.56	0.72	0.0%	0.0%	13.9%	16.4%	69.7%
<b>Access social media?</b>								
Chantilly Pyramid	4159	4.84 <sup>a</sup>	0.49	0.0%	0.0%	5.1%	6.1%	88.8%
Elementary	1324	4.92 <sup>bc</sup>	0.37	0.0%	0.0%	2.9%	2.6%	94.6%
Middle	1464	4.83 <sup>d</sup>	0.50	0.0%	0.0%	5.3%	6.8%	87.9%
High	1371	4.77	0.56	0.0%	0.0%	7.1%	8.7%	84.2%
eLearning Backpack	2537	4.70	0.63	0.0%	0.0%	9.3%	11.3%	79.3%
<b>Play games?</b>								
Chantilly Pyramid	4159	4.65	0.70	0.0%	0.0%	12.8%	9.6%	77.5%
Elementary	1324	4.70 <sup>c</sup>	0.66	0.0%	0.0%	11.0%	7.6%	81.4%
Middle	1464	4.65	0.69	0.0%	0.0%	12.6%	9.8%	77.6%
High	1371	4.59	0.73	0.0%	0.0%	14.8%	11.5%	73.7%
eLearning Backpack	2537	4.63	0.70	0.0%	0.0%	13.1%	10.9%	76.0%

<sup>a</sup>Statistically significant difference between CP and eLB schools. <sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools. <sup>d</sup>Statistically significant difference between middle and high CP schools.



### Appendix K: Parent Reaction Survey Descriptive Statistics and Frequencies

	N	M	SD	Terrible	Not so well	Average	Pretty well	Great!
<b>Overall, how would you say the school year is going for your child?</b>								
Chantilly Pyramid	388	4.15 <sup>a</sup>	0.81	0.80%	2.6%	13.9%	46.1%	36.6%
elementary	226	4.23 <sup>c</sup>	0.76	0.0%	2.2%	10.6%	46.9%	39.8%
middle	71	4.20	0.79	0.0%	2.8%	14.1%	43.7%	39.4%
high	91	3.91	0.90	2.2%	3.3%	22.0%	46.2%	26.4%
eLearning Backpack	106	3.63	1.07	3.8%	12.3%	22.6%	39.6%	21.7%
*Statistically significant difference between CP and eLB schools. <sup>c</sup> Statistically significant difference between elementary and high CP schools.								
	N	M	SD	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
<b>The personal device provided by FCPS has contributed positively to my child's achievement in school this year.</b>								
Chantilly Pyramid	388	4.10	1.04	3.1%	5.2%	15.2%	32.0%	44.6%
elementary	226	4.13	1.03	3.1%	5.3%	12.4%	33.6%	45.6%
middle	71	4.17	0.99	1.4%	5.6%	15.5%	29.6%	47.9%
high	91	3.96	1.10	4.4%	4.4%	22.0%	29.7%	39.6%
eLearning Backpack	106	3.92	1.11	5.7%	3.8%	19.8%	34.0%	36.8%
<b>My child(ren) is/are motivated to use their personal device to complete homework, assignments, and other school-related tasks.</b>								
Chantilly Pyramid	388	4.18	1.03	2.8%	4.9%	13.9%	28.4%	50.0%
elementary	226	4.20	0.98	1.8%	4.4%	15.5%	28.3%	50.0%
middle	71	4.27	0.99	2.8%	2.8%	12.7%	28.2%	53.5%
high	91	4.04	1.18	5.5%	7.7%	11%	28.6%	47.3%
eLearning Backpack	106	4.03	1.05	2.8%	4.7%	21.7%	28.3%	42.5%
<b>The personal device provided by FCPS is an integral part of my child's learning experiences.</b>								
Chantilly Pyramid	388	4.11	1.07	3.6%	5.2%	15.5%	28.1%	47.7%
elementary	226	4.12	1.04	3.1%	4.9%	15.0%	31.0%	46.0%
middle	71	4.23	0.97	1.4%	4.2%	16.9%	25.4%	52.1%
high	91	4.00	1.23	6.6%	6.6%	15.4%	23.1%	48.4%
eLearning Backpack	106	4.00	1.12	4.7%	4.7%	19.8%	27.4%	43.4%
	N	M	SD	No	Somewhat	Yes		
<b>I am knowledgeable of the FCPSON initiative.</b>								
Chantilly Pyramid	934	2.43	0.66	9.5%	37.8%	52.7%		
elementary	613	2.45	0.67	9.8%	35.9%	54.3%		
middle	147	2.42	0.61	6.1%	45.6%	48.3%		
high	174	2.39	0.69	11.5%	37.9%	50.6%		
eLearning Backpack	228	2.01	0.79	30.3%	38.6%	31.1%		
<b>Prior to completing this survey, I was aware my child(ren) is/are enrolled at an FCPSON Phase One school.</b>								
Chantilly Pyramid	934	2.60	0.72	14.0%	11.7%	74.3%		
elementary	613	2.59	0.73	14.4%	11.9%	73.7%		
middle	147	2.70	0.64	9.5%	10.9%	79.6%		
high	174	2.55	0.76	16.7%	11.5%	71.8%		

eLearning Backpack	228	2.07	0.92	39.5%	14.5%	46.1%
<b>I am knowledgeable of the Portrait of a Graduate attributes as they apply to my child(ren).</b>						
Chantilly Pyramid	934	2.13	0.81	27.1%	32.8%	40.1%
elementary	613	2.15	0.82	27.1%	30.8%	42.1%
middle	147	2.15	0.81	26.5%	32.0%	41.5%
high	174	2.05	0.77	27.6%	40.2%	32.2%
eLearning Backpack	228	1.93	0.85	39.5%	27.6%	32.9%
<b>I feel that Portrait of a Graduate describes attributes that will result in greater success for my child, in later education and/or work experiences.</b>						
Chantilly Pyramid	934	2.28	0.71	14.8%	42.3%	42.9%
elementary	613	2.29	0.71	15.2%	40.9%	43.9%
middle	147	2.34	0.68	11.6%	42.9%	45.6%
high	174	2.21	0.70	16.1%	46.6%	37.4%
eLearning Backpack	228	2.17	0.76	21.5%	39.9%	38.6%

	N	M	SD	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
<b>It is important to me as a parent that my child(ren) is/are exposed to technology as part of their learning experiences.</b>								
Chantilly Pyramid	923	4.56	0.83	1.5%	3.3%	3.4%	21.3%	70.5%
elementary	605	4.54	0.85	1.3%	4.1%	3.6%	21.2%	69.8%
middle	146	4.64	0.71	1.4%	1.4%	1.4%	24.0%	71.9%
high	172	4.58	0.85	2.3%	1.7%	4.1%	19.8%	72.1%
eLearning Backpack	224	4.64	0.88	2.7%	1.8%	5.8%	8.5%	81.3%
<b>Positive digital citizenship and appropriate online behaviors are important for my child(ren) to acquire as part of their overall positive growth and development.</b>								
Chantilly Pyramid	923	4.76	0.64	1.1%	1.2%	1.4%	13.1%	83.2%
elementary	605	4.78 <sup>bc</sup>	0.62	0.8%	1.5%	0.8%	12.9%	84.0%
middle	146	4.78	0.64	1.4%	0.7%	1.4%	11.6%	84.9%
high	172	4.69	0.73	1.7%	0.6%	3.5%	15.1%	79.1%
eLearning Backpack	224	4.73	0.77	2.7%	0.4%	2.2%	10.3%	84.4%
<b>Technology skills are important for my child(ren) to acquire as a 21st century citizen</b>								
Chantilly Pyramid	923	4.73	0.69	1.6%	0.8%	2.1%	14.2%	81.4%
elementary	605	4.73 <sup>c</sup>	0.69	1.5%	0.8%	2.1%	14.4%	81.2%
middle	146	4.75	0.63	1.4%	0.0%	2.1%	15.1%	81.5%
high	172	4.71	0.77	2.3%	1.2%	1.7%	12.8%	82.0%
eLearning Backpack	224	4.76	0.77	2.7%	0.9%	1.3%	8.0%	87.1%
<b>If necessary, I can assist my child(ren) with homework, assignments, and other school-related tasks they must complete using their personal device.</b>								
Chantilly Pyramid	923	4.48	0.91	2.1%	4.0%	4.7%	22.9%	66.4%
elementary	605	4.52	0.90	2.3%	3.5%	3.5%	21.8%	68.9%
middle	146	4.53	0.75	0.7%	2.1%	5.5%	27.4%	64.4%
high	172	4.29	1.05	2.3%	7.6%	8.1%	22.7%	59.3%
eLearning Backpack	224	4.44	0.94	2.7%	2.7%	7.1%	23.2%	64.3%

<sup>b</sup>Statistically significant difference between elementary and middle CP schools. <sup>c</sup>Statistically significant difference between elementary and high CP schools.