FCPSOn Phase One Evaluation: Year Three

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EXECUTIVE SUMMARY
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The purpose of the present study was to gather formative and summative data related to the FCPSOn initiative during its third year of implementation in the 2018-19 school year within Fairfax County Public Schools (FCPS). The present study documents program implementation in 15 Phase One schools and stakeholder feedback for future FCPSOn schools. Key components of FCPSOn 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

Overall, teachers in both groups are highly complementary and appreciative of the professional development opportunities they have had related to technology integration and technology-enhanced instruction. Importantly, definitive and substantial increases in teachers' perceptions of their own preparedness to incorporate technology and other teaching practices consistent with the initiative were observed from Chantilly Pyramid and eLearning Backpack groups. This finding represented a major success for the district and school-based leaders. Notable this year, in light of recommendations made by teachers last year, is the increased choice teachers described having in the focuses of their professional development opportunities.

We infer from multiple data sources that the day-to-day role of Phase One principals and SBTSs in supporting PD and program implementation has appropriately shifted. Principals have largely transitioned from managing the physical roll out of a 1:1 learning environment and providing "hands-off" cheerleading support to more actively encouraging and contributing to teachers' development toward efficacious instructors in a technology-enhanced teaching/learning environment. SBTSs, while taking on more student-facing responsibilities this year, described a transition to providing more specific resources for individual teachers and functioning more as an instructional coach. Similar to last year, multiple data sources indicate that SBTSs are central to teacher growth and the overall success of the initiative in schools.

Intermediary Outcomes

Our findings suggest that teachers in both groups have become "smarter" users of technology tools and resources. Principals and SBTSs indicated that teachers' growth and improvement are to be celebrated and are considered to be major successes of the initiative so far. Teachers described themselves as more confident and effective technology users; they were notably more likely this year than previously to indicate that technology is important to teaching and learning. Implementation appears to have

instigated positive changes in teacher practices, the physical classroom, and how students learn. Importantly, we observed that the majority of teachers are highly supportive of technology integration in general.

In terms of frequency of device use, the majority of SBTSs stated in their interview that teachers employ students' personal devices less this year than years prior. However, teachers indicated that students are on their devices more than ever; student questionnaire and focus group responses indicate that students are using their personal devices more this year than years prior and that motivation to use technology for learning remains very high. Our observations of classrooms further suggest that students most often use their personal device in combination with traditional classroom materials or lessons.

Increased student engagement, especially stronger student accountability for their learning, represents one of the most prominent evaluation findings. Types of engagement include accessing school-related content, exercising choice during learning, and being self-directed learners in a "no excuses" learning environment. Across all years of the study, we have only encountered positive reflections by students on how the devices facilitate accessing material, communicating with teachers and peers, completing assignments, and stay on top of their responsibilities at school. Overall, students identified the easy availability of content and materials has been the greatest benefit of the initiative overall.

Student Learning and Achievement

When asked about student learning and achievement, principals, SBTSs and teachers were most likely to describe that the 1:1 environment has profoundly impacted the *way* students learn. Our impression is that respondents are more confident thus far about impacts on student engagement, active learning, autonomy, and accountability than about direct impacts of the initiative on traditional achievement measures, which were rarely mentioned. Focus group and open-ended responses most frequently attributed students' stronger engagement and accountability to increased opportunities to access school-related content and fewer barriers to completing tasks, finding information, and asking questions. Teachers frequently indicated that technology "enhances" learning through increased flexibility, access to content, communication, and more personalized learning experiences. The value of such increased engagement and active learning for increasing student achievement receives strong support from prior research (Baroody, Rimm-Kaufman, Larsen, & Curby, 2016; Duncan et al., 2007; Hao, Yunhoo, & Wenye, 2018; Roorda, Jox, Zee, Oort, & Kroomen, 2017).

Portrait of a Graduate Skills

Findings related to *Portrait of a Graduate* attributes indicated that the framework is more prominent in the language of Phase One educators than last year. Teachers from both groups were more likely than last year to agree that their students demonstrated these attributes. Multiple data sources confirm that students as communicators and collaborators are the most encouraged and demonstrated attributes. Students as ethical and global citizens is the attribute that educators are most interested in cultivating in the future.

While awareness and implementation of the framework has improved overall, there is varied emphasis on the framework across schools within and between Chantilly Pyramid and eLearning Backpack groups. Of the two groups, the framework was much more prominent in Chantilly Pyramid schools. In general, teachers in Phase One schools appear to need more professional development in specifically developing the *Portrait of a Graduate* attributes (e.g., actual activities, teaching practices, and instructional methods). Such focuses extend teachers' merely knowing about the framework and its goals.

FCPSOn Perceptions

Overall, stakeholders remain optimistically invested in the success of the initiative at their school. Although parents expressed mostly positive views in their questionnaire responses, those participating in the focus group raised concerns about issues such as distractions and off-task-behavior, sufficient peer interactions, and acquiring basic instructional skills and handwriting. These concerns appear common and understandable in association with technology infusion initiatives, particularly among more involved and vocal parents. Increasing communications to parents about the FCPSOn initiative, including major evaluation results, should be valuable in allaying many of the concerns and explaining the rationale for key practices. Teachers prioritize the positive changes the initiative has brought to their instructional practice and students' learning routines. Teachers' concerns about distractions were relatively limited and minor in severity. However, these issues should be monitored to ensure they do not become more prevalent as students become increasingly skilled in using devices for classwork, social activities, and gaming.

Similar to last year, educators are united in recognizing the greatest benefit of the initiative—the equity it has brought to students of varying socio-economic backgrounds and learning needs. Guaranteed access to a computer, and the ability of technology-enhanced education to meet the unique needs of students, was described by teachers, principals, SBTSs, and students as significantly impacted the lives of students in Phase One schools. Another success, most prominently voiced by principals and SBTSs, is the progress of their teachers in more effectively meeting student needs.

Recommendations

The present findings from schools now in their third year (2018-19) of implementing FCPSOn indicate that stakeholders are strongly invested in the initiative's success and are more comfortable overall with the 1:1 learning environment. Important differences in implementation are observed between the two groups that comprise Phase One that appear to be the result of a more cohesive and intentional approach to implementation in the Chantilly Pyramid than in eLearning Backpack schools. Nonetheless, SBTSs and principals in both types of schools commended their teachers for being more effective users of technology tools and, as a result, more flexible and effective teachers.

Findings also suggest that students are more engaged and accountable learners. Students have gained important skills and have embraced an emerging emphasis on self-guided learning. Guaranteed access to a personal computer has succeeded in "leveling the playing field" among students of varying socio-economic backgrounds, learning interests, and needs.

Based on the findings presented in this preliminary report, the following recommendations are offered for future FCPSOn implementation:

- As advocated by teachers', increase opportunities for peer-to-peer professional development; encourage intra-pyramid PD opportunities that involve teachers from across grade levels and types of schools.
- Continue to invest in the SBTS role; clarify the SBTS role as primarily in support of teachers relative to FCPSOn practices and goals, and encourage principals to protect the time of SBTSs for those purposes.
- Invest in teacher proficiency in Google Classroom; intentionally cultivate students' digital literacy through mandatory computer skills courses that address typing and basic troubleshooting skills

FCPSOn Phase One Evaluation Report: Year Three

The purpose of the present study was to gather formative and summative data related to Phase One of the FCPSOn initiative. FCPSOn is a technology-based initiative that supports the *Portrait of a Graduate* adopted by the FCPS school board in 2014. The *Portrait of a Graduate*, while still focusing on academic achievement, allows FCPS to move beyond high-stakes testing and cultivate 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. Key components of FCPSOn include the distribution of personal laptops to all students in Phase One schools (referred to as 1:1 or "one-to-one"), professional development and additional supports for classroom teachers making a shift toward blended learning, and the resulting impact on intermediary outcomes relating to the goals of improving students' content area knowledge and *Portrait of a Graduate* skills.

Fifteen schools in Fairfax County Public Schools comprise Phase One of the initiative. These schools include all nine schools in Chantilly Pyramid and six high schools throughout the district. Laptop distribution began in selected schools and among selected groups of students in schools in 2016-2017. By fall of 2017, all students in all Phase One schools received a laptop. Support for teacher collaboration, the installment of technology specialists at each Phase One school, and professional development were provided by the district during this second year. PD by FCPS and local schools supported teachers' efforts to integrate technology and digital curriculum into their classrooms and students' development of *Portrait of a Graduate* skills. Phase One schools were provided funding for substitute teachers to encourage peer collaboration and the district offered professional development specifically related to FCPSOn and *Portrait of a Graduate* skills for Phase One teachers. At the time of data collection (the 2018-19 school year), Phase One schools were in the third year of implementation of FCPSOn.

The current evaluation examined 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. The intermediary and long-term outcomes represented in the evaluation model (see Figure 1) reflect the FCPS Learning Model. The FCPS Learning Model includes the major components of a learner-centered environment, a concept-based curriculum, meaningful learning experiences, and purposeful assessment of student learning.

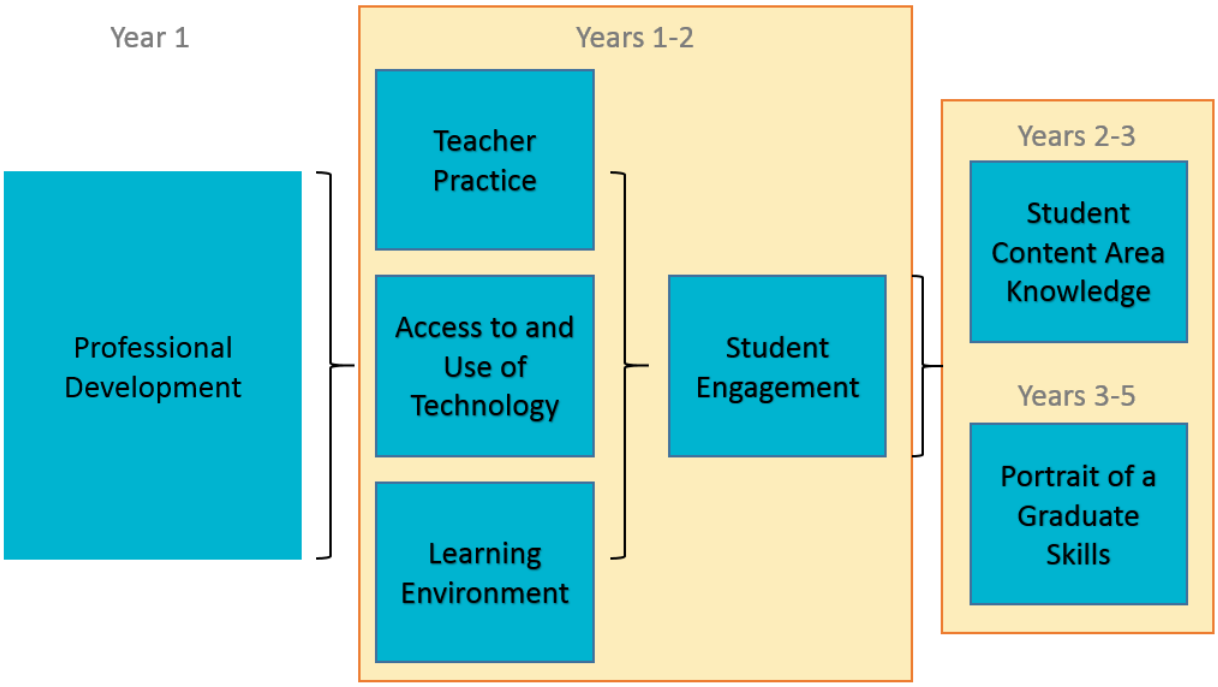

Figure 1. FCPSOn evaluation model.

The following evaluation questions guided the current research:

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?

The current report includes findings from data collected in Spring 2019. Data sources are described in detail the following section.

Method

Research 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 (SBTSs). The full evaluation design addressed the summative needs of providing evidence of implementation and the formative needs of providing recommendations for program improvement. This current report presents findings from all data sources including interviews with principals and SBTSs; student, teacher, and parent focus groups; student, teacher, and parent questionnaires; and classroom observations.

Participants

FCPS is a large suburban school district serving approximately 187,000 students in 198 schools and learning centers, including 141 elementary schools, 23 middle schools, 29 high schools, and over 40 non-traditional schools. As of fall 2018, just over 30% of students were eligible for free and reduced-price meals, and approximately 29% of students received English for speakers of other languages (ESOL) instruction. FCPS serves predominantly White students (40.7%), followed by Hispanic (27.4%), Asian American (20.8%), Black (10.6%), and students who are multiracial, American Indian, or Native Hawaiian (5.8%). FCPS is among the largest school districts in the country and largest employers in Virginia. The district is located directly south of Washington, D.C.

The current evaluation included 15 schools that comprise Phase One of FCPSOn. Phase One schools include all nine schools in the Chantilly Pyramid and six high schools participating in the Virginia Department of Education eLearning Backpack Grant. The Chantilly Pyramid (CP) is located in region 5 of FCPS; eLearning Backpack (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.

The Chantilly Pyramid (CP) includes nine schools located in center-west Fairfax County. The Pyramid is comprised of six elementary schools, two middle 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. With the exception of Brookfield Elementary, CP schools include fewer students eligible for free or reduced-price meals than the district average. With the exception of Brookfield and Greenbriar East, CP schools include fewer English language learners (ELLs) than the district average. With a few exceptions, CP schools tend to have a larger percentage of white students and smaller percentage of black and Hispanic students than the district average. Again, Brookfield Elementary is the exception, with just under 45% of student

enrolled identified as Hispanic. CP schools serve a relatively large population of Asian students compared to the district average. While not displayed in Table 1, less than 1% of students enrolled in Chantilly Pyramid schools are homeless, in foster care, or part of migrant families, compared to roughly 1.5% of students enrolled in all FCPS schools.

Table 1

Chantilly Pyramid school demographics (2018-19)

		Race/Ethnicity							
School Name	Enrollment	White %	Black %	Hispanic %	Asian %	Other[1] %	FRM %	ELL %	SPED %
Brookfield El	833	19.81	9.72	43.82	22.45	4.20	61.70	56.10	12.36
Greenbriar East El	922	39.70	9.44	17.46	27.66	5.75	27.22	35.68	16.38
Greenbriar West El	805	29.07	4.47	9.69	51.68	5.09	13.54	27.45	9.19
Lees Corner El	776	44.46	3.87	12.63	31.19	7.86	16.24	28.87	14.30
Oak Hill El	859	41.33	2.68	7.57	41.56	6.87	5.70	15.13	12.92
Poplar Tree El	736	42.80	3.67	6.93	42.39	4.21	8.42	13.45	14.81
Franklin Middle	892	47.87	5.38	13.57	27.24	5.94	17.15	25.67	15.13
Rocky Run Middle	1,281	31.69	4.06	11.94	47.46	4.84	14.13	21.39	7.88
Chantilly High	2,865	39.20	6.63	13.33	36.06	4.75	18.43	12.95	16.16
FCPS	187,830	38.48	10.05	25.94	19.65	5.88	31.44	29.63	14.51

[1] "Other" includes American Indian, Alaska Native, Native Hawaiian, Pacific Islander, and multi-racial students.
Data retrieved from www.schoolquality.virginia.gov

The eLearning Backpack cohort of schools includes six high schools in FCPS that applied and were selected to receive 1:1 technology in the 2015-2016 school year, prior to the official launch of FCPSOn. eLearning Backpack schools received funding from the Virginia Department of Education to implement 1:1 technology in one grade; schools expanded the presence of 1:1 technology to all students in the following years. Fairfax Adult, Justice, and Mount Vernon high schools expanded to school-wide implementation in the 2016-2017 school year. Annandale, Falls Church, and Lee high schools began "soft" implementations during the 2016-17 school year and expanded school-wide during 2017-18. Demographics for eLearning Backpack schools are presented in Table 2. One school (Fairfax Adult) serves adult and non-traditional students across all regions in the district. The remaining eLearning Backpack schools are in Region 2 (n = 3) and Region 3 (n = 2). eLearning Backpack schools have, on average, fewer white students than the district average. They serve a relatively large population of Hispanic students; in three eLearning Backpack schools, Hispanic students make up over half of the student population. With the exception of Fairfax Adult High School, over half of the student population in each eLearning Backpack school is eligible for free or reduced-price meals. eLearning Backpack schools also include a higher percentage of ELLs than the district average; the majority serve a higher population of students with special education needs.

Table 2

eLearning Backpack school demographics (2018-19).

		Race/Ethnicity							
School Name	Enrollment	White %	Black %	Hispanic %	Asian %	Other[1] %	FRM %	ELL %	SPED %
Annandale HS	2,240	15.00	16.38	45.76	20.98	1.88	65.58	45.67	17.37
Fairfax Adult HS	151	2.65	3.97	82.12	9.93	1.32	31.13	94.70	--
Falls Church HS	2,111	18.66	6.40	51.07	19.75	4.12	58.22	41.92	16.44
Justice HS	2,241	22.31	9.42	54.98	11.33	1.96	67.96	51.67	13.25
Lee HS	1,765	16.54	13.43	43.57	23.85	2.61	60.28	40.85	17.62
Mount Vernon HS	2,022	18.20	26.01	45.30	6.87	3.61	59.84	33.68	20.38
FCPS	187,830	38.48	10.05	25.94	19.65	5.88	31.44	29.63	14.51

[1] "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.

Measures

Data sources reported on in the current report include classroom observations; focus groups with students, teachers, and parents; questionnaires administered to students, teachers, and parents; and phone interviews with principals and school-based technology specialists. Observations (n = 44), student focus groups (n = 7), teacher focus groups (n = 7), parent focus groups (n = 4), and SBTSs interviews (n = 7) occurred in a randomly selected subsample of Chantilly Pyramid and eLearning Backpack schools. All principals were asked to participate in an interview. Questionnaires were administered to all teachers and students in Phase One schools, with one exception (explained below). Questionnaires were administered to parents of students in Phase One schools who had previously provided their email address to their child's school. All instruments included in the current report 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 March of 2019. They lasted approximately 20 minutes each and occurred in four to eight randomly selected classrooms at each school. A total of 30 observations conducted in Chantilly Pyramid schools and 14 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 (see Appendix A).

Principal interviews. A principal interview protocol (see Appendix B) 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 in February 2019 with 13 of the 15 Phase One school principals. Two principals declined to participate.

SBTSs 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 FCPSOn initiative, including facilitating professional learning for teachers in formal sessions and as needed throughout each school day. Seven SBTSs were randomly selected for an interview. SBTSs represented two elementary, one middle, and four high schools. An interview protocol (see Appendix C) provided opportunity for SBTS to describe their experiences and provide impressions of the initiative. Interviews with SBTSs lasted approximately 45 minutes and were conducted by phone in February of 2019.

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 eight teachers and lasted approximately 45 minutes. The interview protocol (see Appendix D) solicited teachers' descriptions of and reactions to PD offered prior to and during FCPSOn implementation, changes in teaching practices, and perceived impacts of the initiative on student outcomes. We spoke with a total of 34 teachers (see Table 3), including nine elementary school teachers, five middle school teachers, and 20 high school teachers. Across all grade levels, we spoke with teachers in grades 1-3, 5 and 6, a librarian, five ESOL teachers, several teachers of special populations (e.g., remedial classrooms and subjects, G/T classrooms, IB classrooms), six mathematics teachers, six teachers of the humanities (e.g., history, social studies, psychology, foreign language, literature), six science teachers, three English teachers, and one physical education coach.

Table 3

Description of teacher focus group sample (2018-19)

	First	Second	Third	Fourth	Fifth	Sixth	Other	Total
Elementary Teachers	1	3	1	0	1	2	1 (Library)	9

	ESOL	Math	P.E.	Humanities	Science	English	Other	
Middle School Teachers	1	1	1	1	1			5
High School Teachers (eLB)	4	4	0	3	5	2	1 (SPED)	19
High School Teachers (CP)	0	1	0	2		1		4
Total								34[1]

[1] Several ESOL teachers and the SPED teacher are counted twice because they are also teachers of a core content classroom.

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. In elementary schools, students in grades 4 and higher were eligible for random selection for focus group interviews. The focus group protocol (see Appendix E) 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. We spoke with a total of 38 students including 13 students in grades 4-6, six middle school students, and 15 high school students.

Parent focus groups. Parents of students in a subsample of elementary, middle, and high schools were recruited via email to participate in one of four parent focus groups. Parent contact information was obtained through the parent questionnaire. Parents of students in the subsample of schools selected for a parent focus group were administered a modified version of the parent questionnaire, which included a prompt related to 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. Ten parents were invited to each focus group. Two focus groups were conducted for parents of students in the Chantilly Pyramid; two focus groups were conducted for parents of students in eLearning Backpack schools. A total of 6 parents (3 from the Chantilly Pyramid and 3 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 F) solicited parents' descriptions of the initiative's purposes and objectives, their overall impressions of the initiative, and how it has impacted their child(ren)'s experience(s) at school.

Teacher questionnaire. The CRRE Teacher Reaction Questionnaire (see Appendix G) was co-developed by CRRE and FCPS. The questionnaire consisted of 50 Likert-type items focusing on preparation and PD, teacher practices, technology integration, and perceived student impacts. In addition, three open-ended items asked about participants' successes and challenges with the FCPSOn initiative. The questionnaire was administered to 687 classroom teachers in the Chantilly Pyramid and 771 classroom teachers from eLearning Backpack schools. Total completion rate was 60.6%, with a completion rate of 64.3% in the Chantilly Pyramid and 57.2% in the eLearning Backpack schools. Descriptive statistics and frequencies for the questionnaire are presented in Appendix J.

Student questionnaire. The CRRE Student Reaction Questionnaire (see Appendix H) was co-developed by CRRE and FCPS. The questionnaire consisted of 50 Likert-type items focusing on students' perceptions of the initiative, their personal computer uses, and the instructional and learning activities associated with FCPSOn. Several items in the student questionnaire were adapted from the Student Attitudes toward STEM (S-STEM) Questionnaire (Friday Institute for Educational Innovation,

2012). In addition, two open-ended items asked students to elaborate on their computer use at school. The questionnaire was intended to be administered by teachers to 9,969 Chantilly Pyramid students (Grade 4 and higher) and 10,379 eLearning Backpack students (one eLearning Backpack school opted out of administering the survey to their students). A total of 7,125 students completed the student reaction questionnaire: 4,319 responses are from Chantilly Pyramid students (43.3% completion rate) and 2,002 responses are from eLearning Backpack students (19.3% completion rate). Descriptive statistics and frequencies for the student questionnaire are presented in Appendix K.

Parent questionnaire. The CRRE Parent Reaction Questionnaire (Appendix I) was co-developed by CRRE and FCPS. The questionnaire consisted of 12 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 FCPSOn 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 questionnaire was administered to parents via email; parent email addresses were provided by each Phase One school. A total of 1,940 parents completed the questionnaire, 1,549 from Chantilly Pyramid schools and 391 from eLearning Backpack schools. Descriptive statistics and frequencies for the parent questionnaire are presented in Appendix L.

Analytical Approach

All qualitative data were analyzed using a grounded theory approach (Glaser & Strauss, 1967). Recorded data were transcribed and handwritten observation notes were compiled using analysis software NVivo (QSR International). Qualitative data were organized by data source and analyzed using an iterative coding process. Within each data source, a structure of codes emerged from patterns in participant voices and/or team members' notes. All codes were consistently reviewed for uniqueness and cohesion. The qualitative findings reported on in the current preliminary report are themes which emerged prominently from classroom observations, student, teacher, and parent focus groups, and interviews with principals and SBTSs.

Questionnaire data were analyzed using quantitative software (SPSS). Questionnaire responses were first analyzed descriptively to explore trends across time and between Chantilly Pyramid and eLearning Backpack students, teachers, and parents. We employed analysis of variance (ANOVA) or Kruskal Wallis tests to examine whether there were differences in responses between elementary, middle, and high school Chantilly Pyramid teachers and students. Significant differences from ANOVA were followed up with pairwise comparisons and a Bonferroni adjustment was employed to account for multiple comparisons. Frequencies and descriptive statistics for all questionnaires are presented in Appendices J, K, and L, respectively.

Results

We begin this section with results pertaining to background and contextual information for the FCPSOn initiative. Then, we present findings regarding professional development and support, followed by the impact of FCPSOn on measurable outcomes presented in the Logic Model (see Figure 1). The results section concludes with stakeholders' perceptions of FCPSOn.

The reader should note that where applicable, we report descriptive trends in questionnaire responses over time. In addition, we report statistically significant differences within levels (e.g., elementary, middle, and high school) of the Chantilly Pyramid group. Comparisons were not conducted within eLearning Backpack schools as this group is comprised entirely of high schools.

Background: Year Three of FCPSOn

Data collected from observations, focus groups, and interviews provide a general picture of the third year of implementation of the FCPSOn initiative. As a whole, feedback from stakeholders remains positive about the overall value of the program for students. Educators, including teachers, principals, and SBTSs, appeared to be more comfortable with and knowledgeable of technology-enhanced instruction compared to last year. Rather than focusing on adjustment to the initiative, educators seemed to be primarily concerned with increasing their mastery of technology tools and the quality of technology-enhanced instruction in classrooms.

Implementation. Similar to last year, principals and SBTSs from both groups were unanimously positive toward the initiative in general. Principals reported that the majority of teachers have responded positively to the initiative. Some phrases included "they love it", "teachers are re-energized", "turnover is low", and "they are bought in." Several principals attributed teachers' positive reactions to their own flexibility and a genuine practice of allowing teachers to implement new ideas and activities at their own speed.

Chantilly Pyramid principals indicated that while the initiative brought a radical shift in culture and practice at their school, it has since become the "new normal." One principal summarized, "It doesn't feel like an initiative, it feels as natural as using pencil and paper." Chantilly Pyramid principals explained that technology-enhanced instruction is deeply embedded in school life and that teachers, despite their levels of experience and current comfort level with technology, have come to understand that the approach is here to stay.

All four Chantilly Pyramid SBTSs indicated their teachers were striving for smarter and more effective technology use this year compared to last year. One SBTS said, "They [teachers] are striving for thoughtful use of technology." Another, referring

to a school-wide emphasis on smarter use of technology said, “Teachers sometimes ask themselves, ‘Would this be more effective as a paper/pencil task? Am I using your tech for the right reasons?’” This SBTS implied that the pendulum had swung too far in one direction, toward overuse of technology, and that the emphasis in the current year was to actually scale back frequency of use while increasing instructional quality.

eLearning Backpack principals were more likely to indicate that there was variety in scope and quality of implementation among their staff. One principal admitted his/her school was still trying to “figure out what [FCPSOn] is supposed to look like.” Another eLearning Backpack principal described the implementation as “piecemeal.” Innovation, devices, and support has trickled into their school, but “it wasn’t like a wave.” All four eLearning Backpack school principals interviewed indicated that cultivating buy-in and educating teachers was still a major task for leadership and technology teams.

Similar to last year, eLearning Backpack SBTSs seemed to be primarily concerned with the need for growth and room for improvement at their school. eLearning Backpack SBTBs unanimously (n = 3) noted variation in teacher implementation when asked to describe what the initiative generally looks like at their school. While Chantilly SBTSs emphasized collective movement toward mastery, eLearning Backpack SBTSs emphasized the wide range of buy-in and implementation among teachers at their school. All eLearning Backpack SBTSs described pockets of high-quality implementation as well as positive growth each year in a critical mass of teachers at their school. Two of the three indicated that the majority of teachers at their school were novice implementers or non-participatory.

Teacher perceptions. Teachers responses to questionnaire items regarding their perceptions of FCPSOn (see Figure 2) affirm that the majority of Phase One educators are supportive of major district frameworks and initiative.

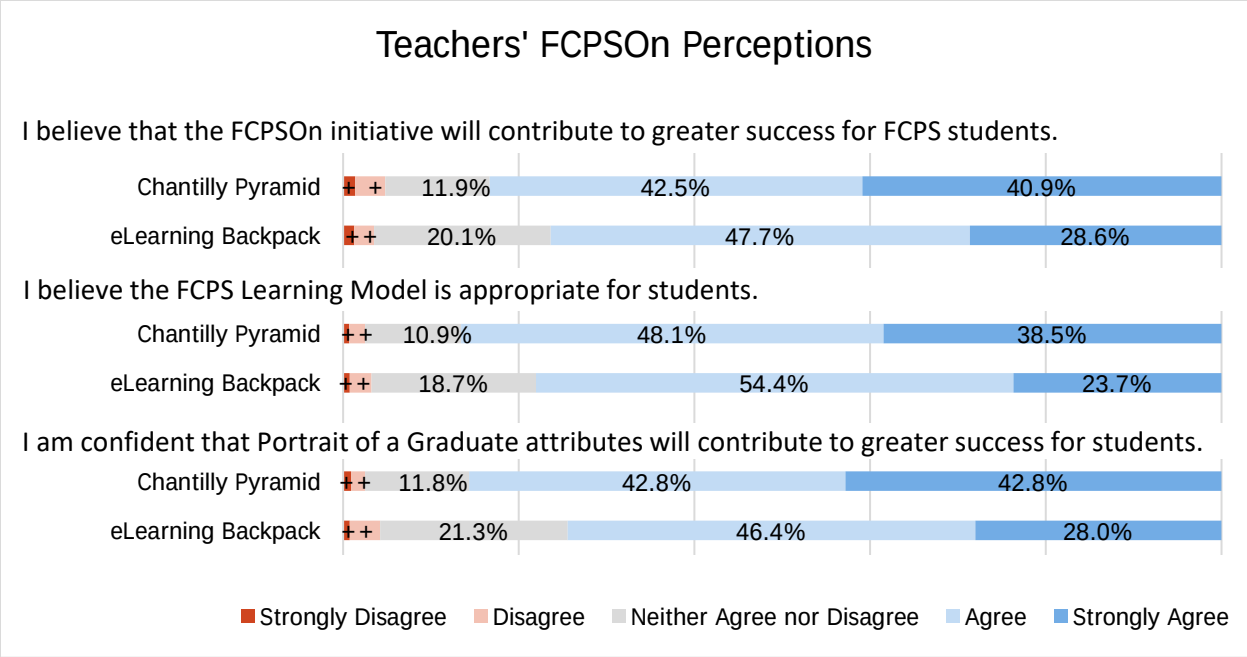

Figure 2. Teachers' questionnaire responses regarding their perceptions of FCPSOn.
Note: + indicates < 5.0%

The majority of teachers in both groups agreed that the FCPSOn initiative will contribute to greater success for FCPS students in later education and work experiences, and also agreed that the FCPS Learning Model is appropriate for students. The majority of teachers in both groups also agreed that *Portrait of a Graduate* attributes will also contribute to greater success for FCPS students in the future. For all three of these items, descriptively, Chantilly Pyramid teachers were more likely to agree as compared with eLearning Backpack teachers.

We found statistically significant differences between teachers within Chantilly Pyramid schools for these three questionnaire items. In all three instances, elementary teachers were significantly more likely to agree to statements as compared with middle and high school teachers. Middle school teachers were significantly more likely to agree than high school teachers.

In focus groups, teachers in both groups recalled that rollout at their school went "fine"; most teachers have positive to indifferent memories of the initiative's launch. Teachers in both groups frequently recalled that rollout was not nearly as stressful or difficult as they imagined it would be ("I remember being super skeptical but my worst fears were not borne out."). While teachers recalled some confusion and anxiety related to the actual hardware—the fact that all students now had a battery-powered piece of equipment with them at all times—they indicated that these concerns had subsided substantially. One teacher said, "For all the struggle in the beginning, I would do it again." Multiple teachers in different focus groups noted that their technology teams had become more efficient and organized regarding laptop distribution and repairs.

Teachers were asked to describe what FCPSOn currently looks like in their school and classroom today. The most frequent response across all teacher focus groups was the centrality of Google Classroom to everyday classroom activities. Teachers at all levels described using Google Classroom to organize resources for students to explore during self-guided learning, "push out assignments," and collate classroom notes and materials for students to review at any time. Regarding current implementation, teachers from both groups also described a more comfortable, balanced approach to technology use in their classrooms; teachers implied that this year, they implemented with more intention, more knowledge, and more confidence. One teacher explained, "The first two years was figuring out what was best done electronically and what's best done not electronically." Another said, "I've wrapped my brain around the fact that both ways are good. I allow choice and I'm more comfortable now." Yet another said, "Every year I'm using technology in a better and more efficient way." Teachers from both groups described current implementation in terms of their growth, especially related to more efficient use of technology tools, more student choice, and more success establishing positive routines around technology in their classroom.

Student perceptions. In focus groups, students were asked to describe their initial impressions of their laptop and their process of adjusting to having a personal device to use during school. Students in eLearning Backpack schools noted an increase of enjoyment of school since implementation. Students frequently noted ease, personalization, and learning independence as reasons for their enjoyment of using devices at school. For instance, one student stated, "It was kind of like shocking and exciting because it got me to do more things and it was much easier," or as another said, "I thought it was something that was cool. I really liked it. It was kind of a free style way of learning."

Students at Chantilly Pyramid schools had mixed opinions regarding overall enjoyment of school since implementation. Across all grade levels, nearly half of Chantilly Pyramid students stated an increase in enjoyment, while nearly half stated a decrease in enjoyment. Students who noted increased enjoyment said, for example, "Definitely still helpful. I couldn't imagine school without it," and, "We do almost all of our daily work on our computer and it helps me a lot. I really enjoy my computer." Students who noted a decrease in enjoyment stated, "In fourth grade everyone got 1:1, so it was no longer very special," and, "[Students] had them before, so it's not so exciting."

Stakeholder knowledge. In the teacher questionnaire, teachers were asked a series of survey items soliciting their current knowledge of the FCPSOn initiative, the FCPS Learning Model, and the P*ortrait of a Graduate*. As shown in Figure 3 below, Chantilly Pyramid teachers indicated more knowledge of the FCPSOn initiative overall, in addition to being more knowledgeable of the FCPSOn Learning Model and FCPS *Portrait of a Graduate*. This trend was also observed in the teacher questionnaire last year (see

Figure 4). This year, few Chantilly Pyramid (< 2.0%) and eLearning Backpack (<10%) teachers indicated not being at all knowledgeable of major initiatives and frameworks.

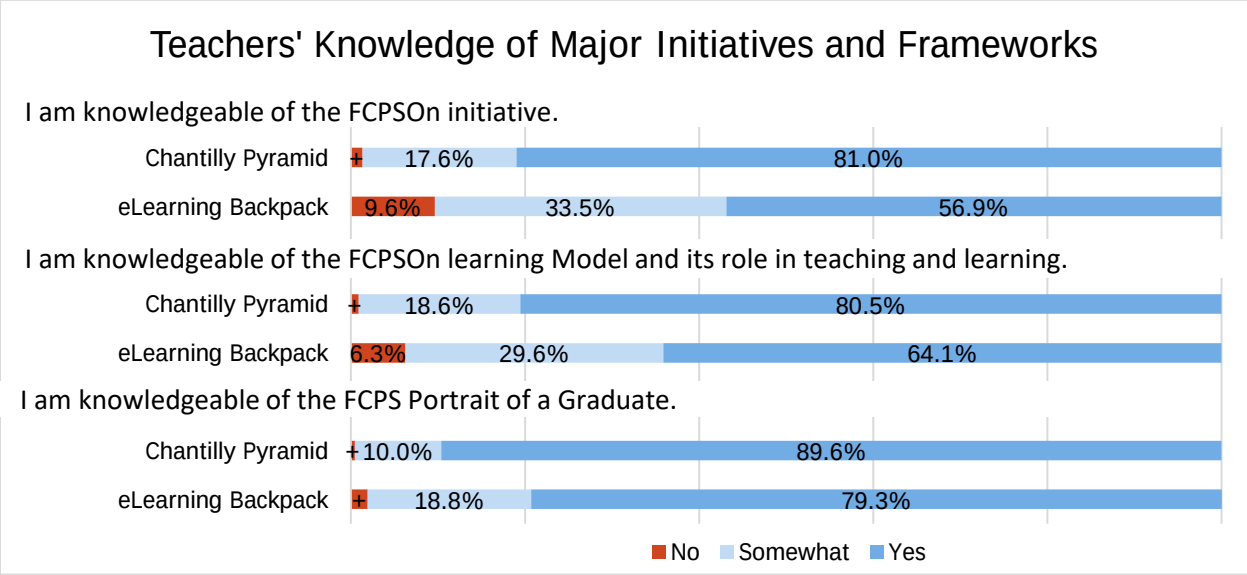

Figure 3. Teachers' questionnaire responses regarding knowledge of major district initiatives and frameworks.
Note: + indicates < 5.0%

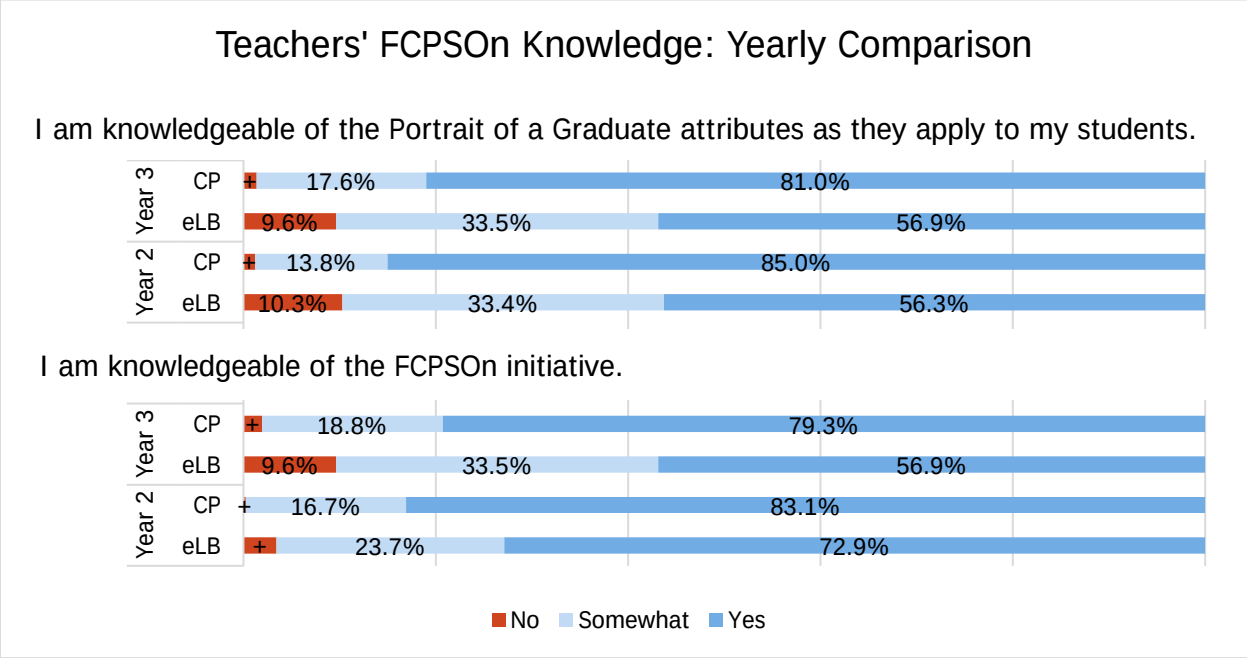

Figure 4. Yearly comparison of Teachers' questionnaire responses regarding knowledge of major district initiatives and frameworks.
Note: + indicates < 5.0%

In focus groups, parents were asked how they learned of the initiative, and what they believed to be the purpose and goals of FCPSOn. Parents recalled receiving communications in a variety of ways, including emails, newsletters, e-newsletters, paper copies, and at a back to school night event, in which information was shared about the ongoing technology initiative. There was some agreement among parents that there was little transparency on the part of the district as the initiative transitioned from a pilot to Phase One. While some parents were able to identify the purpose and goals of the initiative, they spoke in general terms, including stating that expected benefits included students becoming 21st century citizens, learning to be a good digital citizen, and how computers were used for targeted instruction. However, another parent said, "I actually don't know anything about it." This parent reported that his student was given a laptop with no explanation and he (the parent) did not realize it was part of a district-wide initiative until he received the [FCPSOn evaluation] parent survey. One parent read about the program during their child's orientation but had not thought much about it until they received the invitation to participate in the [FCPSOn evaluation] parent focus group. This parent continued, "That is about all I could say. If you asked me what it was I would say, 'Oh, they are using more technology and all the kids get laptops.' That's about as much as I could share."

Parents who responded to the FCPSOn questionnaire indicated moderate understanding of the FCPSOn initiative and that their child(ren) were enrolled at an FCPSOn Phase One school (see Figure 5).

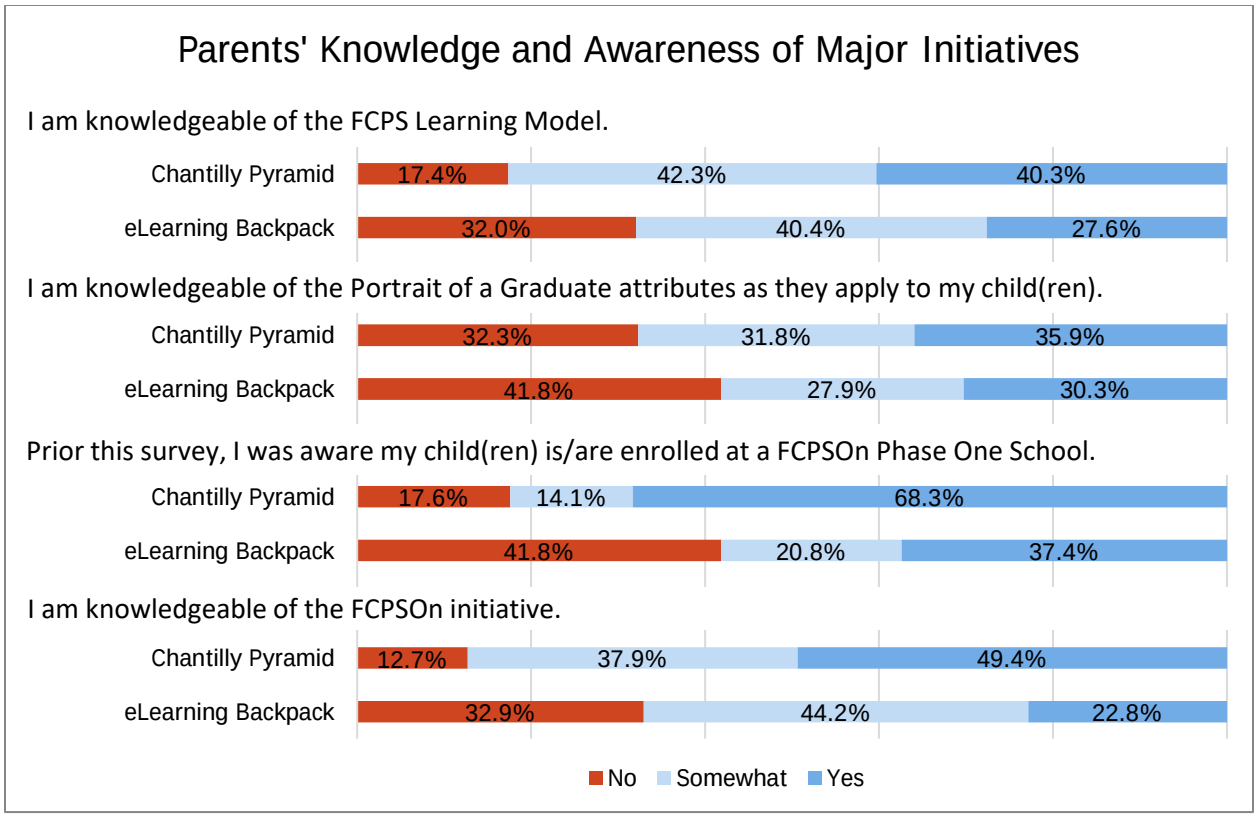

Figure 5. Parents' questionnaire responses pertaining to knowledge and awareness of major initiatives.
Note: + indicates < 5.0%

In year three, parents of eLearning Backpack students indicated they were less aware of the initiative in questionnaire responses than Chantilly Pyramid parents, with 32.9% reporting that they were entirely unaware and 44.2% reporting that they were somewhat aware, compared to 12.7% and 37.9% of Chantilly Pyramid parents, respectively. Similarly, only 37.4% of eLearning Backpack parents indicated knowing that their children were enrolled at a FCPSOn Phase One school, compared to three quarters (68.3%) of Chantilly Pyramid parents. Similar trends existed with regards to knowledge of the *Portrait of a Graduate* attributes and the FCPSOn Learning Model; compared to Chantilly Pyramid parents, eLearning Backpack parents were less aware of the two, with 41.8% and 32.1% reporting having no knowledge of *Portrait of a Graduate* attributes and the Learning Model, respectively. Parents within Chantilly Pyramid schools were fairly consistent in their responses with one exception: high school parents were significantly more likely to indicate awareness of the FCPSOn initiative as compared with elementary and middle school students.

Parent feedback from year three is similar to feedback from year two in terms of differences between parents from the Chantilly Pyramid and eLearning Backpack cohort see Figure 5): Parents from the Chantilly Pyramid are more likely to report having

knowledge and/or awareness of the major initiatives at their child's school. Compared to last year, parent knowledge and/or awareness has improved.

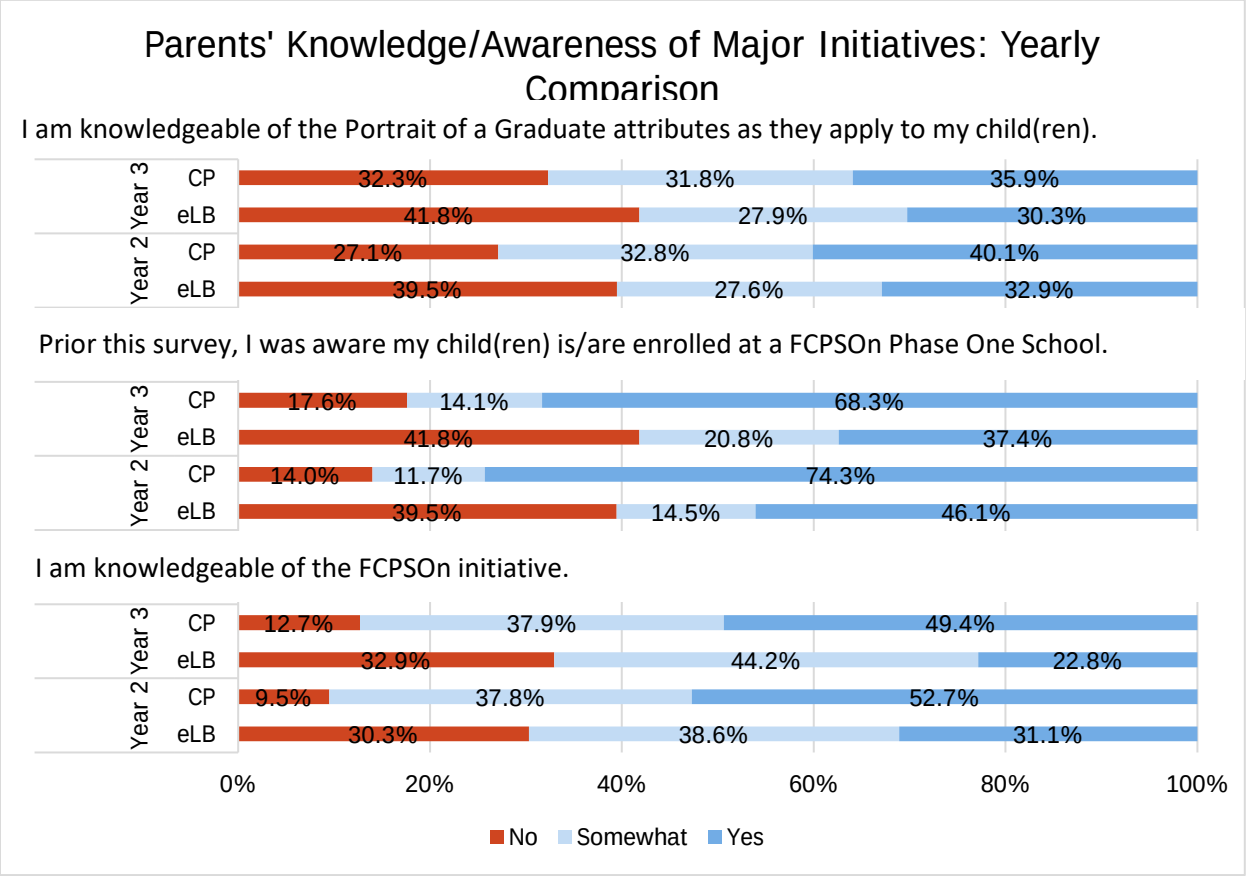

Figure 6: Yearly comparison of parent knowledge and awareness.

Summary. Findings from focus groups, interviews, and teacher questionnaires all affirm that the majority of Phase One educators are generally supportive of the initiative and optimistic about its continuation. Regarding ongoing implementation efforts, it appears that educators in the Chantilly Pyramid are largely "settled in" to the initiative. SBTSs from the Chantilly Pyramid described their teachers as engaging thoughtfully with the initiative and moving toward a higher quality of technology-enhanced instruction. Principals and SBTSs from eLearning Backpack schools implied that current implementation at the classroom level is varied. Overall, though, principals and SBTSs in both groups reflected on the initiative positively and optimistically, and they consistently expressed appreciation and support for their teachers' progress toward high-quality integration.

Teachers did not express any lasting negative impression of the initial roll-out and described themselves as more comfortable and confident using technology tools after being several years into implementation. Teachers in both groups communicated that digital classroom spaces are central to what the initiative currently actually "looks

like" in their classroom. As a whole, teachers appeared to be primarily focused on how to operate within the initiative as effective teachers—they implied that how and when to use technology tools is central to their role as a teacher in a Phase One school. Survey responses indicate that Chantilly Pyramid teachers—and especially teachers of younger grades within the Pyramid—are more knowledgeable of major district initiatives and frameworks than eLearning Backpack teachers and are generally more convinced of the appropriateness and utility of them for students.

Based on responses from parents in focus groups and the parent questionnaire this year, the majority of Phase One parents appear to be under-informed regarding major district initiatives at their child(ren)'s school, though parents in year three demonstrated slightly more knowledge and/or awareness of the district initiatives at their child's school this year than last year. Also similar to last year, it appears that Chantilly Pyramid parents are generally more knowledgeable and/or aware than parents of students at eLearning Backpack schools.

Professional Development and Support

Data collected from observations, focus groups, interviews, and questionnaires provide a general picture of professional development and support for students and teachers during the third year of implementation of the FCPSOn initiative. Collectively, feedback from stakeholders indicated that principal and SBTSs roles have changed as the initiative has matured, and that SBTSs and ongoing professional development, along with their own personal curiosity and efforts to improve, remain central to teachers' adjustment to technology-enhanced teaching.

Administrative support. In interviews, principals reported varying levels of involvement regarding their day-to-day role in the initiative. They described themselves as supervisors, instructional leaders, and as "overseeing" the operation of the program at their school. Principals cited staffing leadership teams, observing classrooms, meeting with their technology team, finding resources, protecting time, and providing "support" as ways they are involved with the initiative day-to-day. Elementary and middle school principals were more likely to describe themselves as active in ensuring instructional quality and acting as an instructional leader, while high school principals were more likely to talk about their role in terms of "operations." High school principals spoke about themselves as responsible for setting expectations and supporting teachers, but several implied that day-to-day involvement in the initiative was delegated to other members of their staff.

Principals described the evolution of their role as the initiative has matured. One Chantilly Pyramid principal described their role previously as more managerial – establishing procedures and coordinating the physical rollout of laptops to students – and now, their role is more supervisory and focused on cultivating a culture that values technology-enhanced instruction. Another Chantilly Pyramid principal noted they used

to be mostly a cheerleader and provider for faculty, but now is more active by attending professional development sessions alongside teachers. An eLearning Backpack principal, who arrived at the school after initial implementation, recalled having to "set a reset button" in their first year at the school to clarify expectations among staff and cultivate more positive impressions among staff. This principal became more involved in solidifying the role of FCPSOn in the school's vision after an initial hands-off approach that contributed to unfavorable outcomes among staff and students. A Chantilly Pyramid also described being more involved now than previously. They said,

> *I backed way off the first two years, I did not micromanage. That came pretty natural to me. This year I am stepping in to say, 'It's time.' It's not a choice to not participate at this point. I've always said that, ''We aren't keeping track of where you are and what your pace is, only if you aren't trying.*

Principals frequently said they wanted their teachers to feel comfortable taking risks and learning at their own pace. Similar to last year, most principals implied a "try just one thing" and "fail forward" approach to leadership and support of teachers. They were remarkably similar in their articulation of acceptance of individual teachers' starting point and pace moving toward high-quality integration. Principals (and SBTSs) generously celebrated the progress of their teachers ("Not everyone is there, but everyone is trying."). One eLearning Backpack principal, who described himself as hands off, explained: "[It's okay] to be where you are, but it is not okay to stay where you are. Progress and growth are mandatory, no matter where you start or how slow you move."

SBTSs perceptions. SBTSs have a wide range of experience, from four years total teaching and eight months in the current position to 21 years in the same school, all spent in the SBTS position. Regarding their day-to-day involvement in the initiative at their school, all seven SBTSs interviewed said something along the lines of, "There is no normal day." Chantilly Pyramid SBTSs described attending meetings and managing administrative tasks related to the initiative at their school (n = 4), providing coaching or professional development for teachers (n = 4), managing social media and/or websites (n = 3), and holding office hours or supporting "drop-ins" from students (n = 2). eLearning Backpack SBTSs described attending meetings and managing administrative tasks related to the initiative at their school (n = 3), providing coaching or professional development to teachers (n = 3), working with the TSPEC to maintain functionality of hardware (n = 2), supervising student projects or students with IT electives (n = 2), and managing social media and/or websites (n = 1).

Compared to last year, SBTSs appeared to be more involved with social media and school websites, supervising students, and assisting in the day-to-day tasks associated with keeping computers up and running *for students*. They appear to be more involved in providing tailored instructional support to teachers and fewer large, general trainings for staff. One SBTS said, "I'm moving away from tools and toward

instructional coach." Another said, "In the past, I dealt a lot more with machines and a lot less with people. My role is much more instructional now." Similar to last year, SBTSs attend several meetings each week and manage administrative tasks related to the initiative at their school. SBTSs appeared to be less involved with providing day-to-day technology trouble-shooting *to teachers.*

Regarding their own preparation, the majority of SBTSs (*n* = 4) felt prepared for their role. These SBTSs complimented school- and district-level support for their initial preparation and the ongoing preparation provided each year. SBTSs cited tenure and experience in the role (n = 2), ongoing training (*n* = 3), multiple layers of support (*n* = 3) and personal curiosity (*n* = 2) to explain why/how they were prepared for their role. One SBTS felt unprepared for his/her role. This SBTS recalled little onboarding and direction given for the role at the time it was created. Two SBTSs expressed that preparation for the role was not possible given the variety and change that characterizes the role.

The majority of SBTSs (*n* = 5) described teachers' preparedness to implement technology-enhanced learning in terms of a continuum or range. SBTSs indicated that some teachers in their schools are highly proficient in technology tools and embody effective technology-integration teaching strategies. Others are brand new to teaching in the district and have no technology-integration experience, or are resistant to the initiative in general and therefor lack motivation to acquire knowledge and skills even though they have been in the school for the duration of Phase One. One SBTS said the majority of teachers are prepared, and another said that overall, no, her teachers were not prepared. When describing variation in preparation among their teachers, they also indicated that almost all teachers in their school showed some growth this year and are generally motivated to continue at the pace that is best for them. SBTSs described school-based administrators as supportive of the range of comfort and preparation among staff, and that new teachers (from certification or new to the district) generally have little to no experience or preparation but are quick to learn and adapt.

Teacher perceptions. Teachers were asked to describe the type of support available to them throughout implementation. In both groups, teachers identified multiple layers of support for implementation including professional development offered by the district and their school, the day-to-day support provided by SBTSs, and formal and informal peer-to-peer learning opportunities. This year, teachers from both groups indicated that more choice was available to teachers and that this was welcomed and effective. One teacher said, "The big kickoff at the beginning of the year was helpful because you could pick and choose what you wanted to learn. I liked being able to go to things specific to my population of kids." Another said, "I think the choice with PD is so key because we are all in different places. Some teachers are just starting."

Teachers in both groups frequently described learning from each other as common and effective. Teachers recalled learning from peers in their own building and in other schools. Teachers in both groups recalled organized peer-to-peer sharing time ("Meet Up and Share") as well as informal sharing of resources (e.g., warmup activities, assessments, assignments), programs, and ideas ("I ask other teachers questions all the time."). An eLearning Backpack teacher said,

> *In the beginning it was like everyone for themselves. It was the teachers themselves going to figure out how it was going to work in their classroom. Google team drives has been revolutionary for the Biology team. We make things, we share them, and I can copy that and then give it to my class. Now it's we're not all making copies of the same warmup, now we go in, make a Google form and we can all take from it*.

This type of peer-to-peer sharing and support dominated teachers' discussions about how exactly they learned new things and/or got better at using the tools they already have. It is also the sum of teachers' self-described professional development needs (discussed in more detail in a later section).

In focus groups, teachers frequently described themselves as curious instructors and implied that their own quest for knowledge and improvement was the primary force behind their evolution as an effective teacher. Teachers described using each other, the internet, and other resources to create more engaging and challenging content for their students. When asked about their instructional practices, many simply said, "I'm a better teacher now," and they expressed pride in the way their lessons have evolved. An elementary school teacher summarized, "We used to use textbooks and teacher manuals that we basically taught out of but my lessons now are much more exciting. I grab from multiple sources." Another eLearning Backpack teacher said,

> *"I get so much great help from other teachers, using my peers and relying on others who post online. And the instruction is better. I'm not an expert in theme, but someone out there is. I don't have to invent every wheel, I just have to find who else is good at that."*

Without being prompted, SBTSs were complimented in five of the seven teachers focus groups during conversations about the type of support available to teachers, including both of the elementary school groups and the middle school group in the Chantilly Pyramid and two of the three eLearning Backpack teacher groups. Teachers described their SBTS as helpful, knowledgeable, supportive, and responsive. Teachers also described SBTSs as integral to teacher onboarding and adjustment, and to their growth as an effective teacher in an FCPSOn school. Two of the five teacher groups that complimented their SBTS also noted that they (the SBTS) were "stretched pretty thin" and "had a lot on their plate."

Findings from the teacher questionnaire corroborate the positive feedback related to professional development that teachers provided in focus groups (see Figure 3). Importantly, teachers in both groups indicated increased levels of agreement (> 10 points) to receiving sufficient professional development in all areas this year as compared with the previous year (see Figure 8).

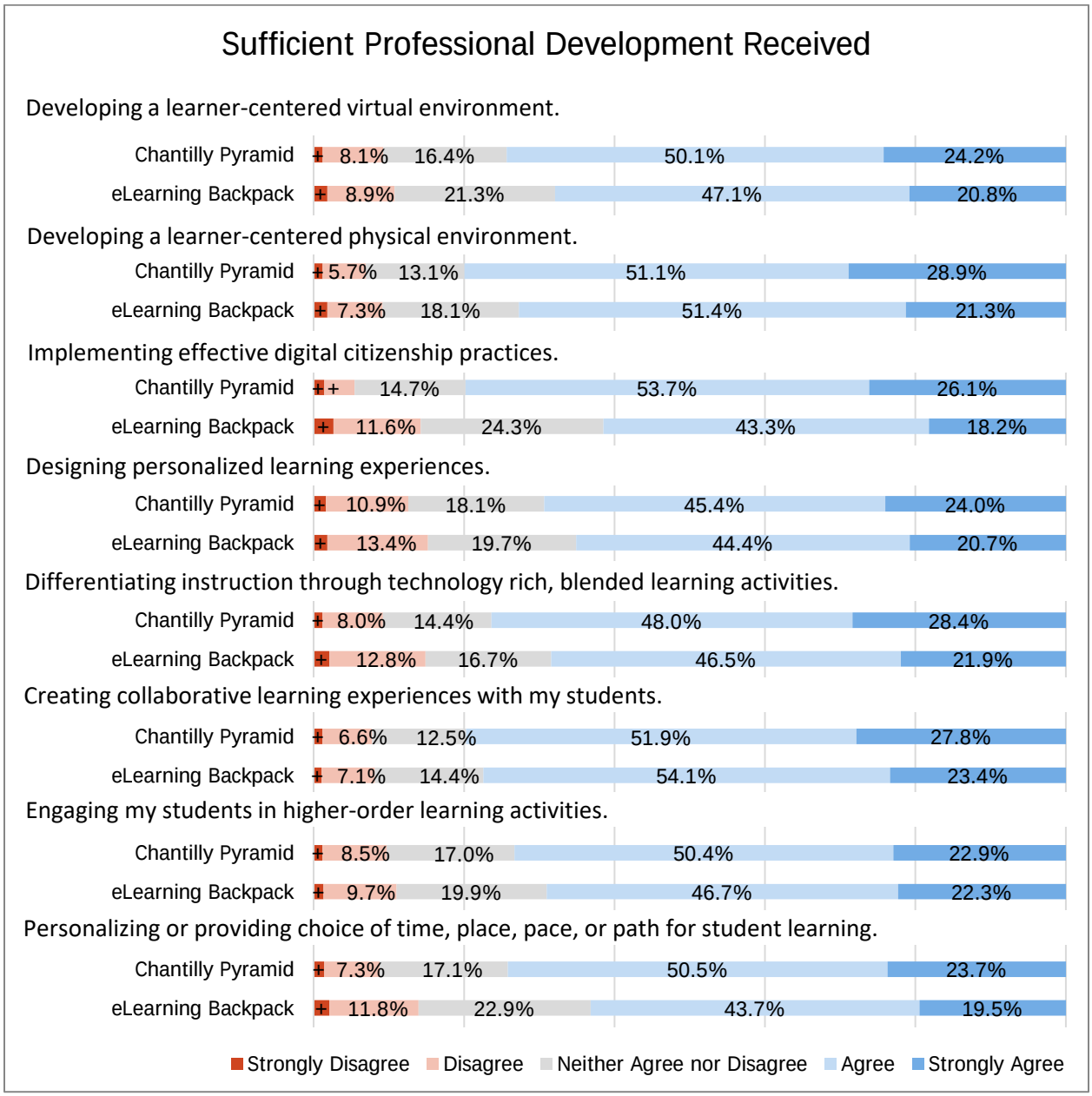

Figure 7. Teachers' questionnaire responses indicating levels of agreement to receiving sufficient professional development.
Note: + indicates < 5.0%

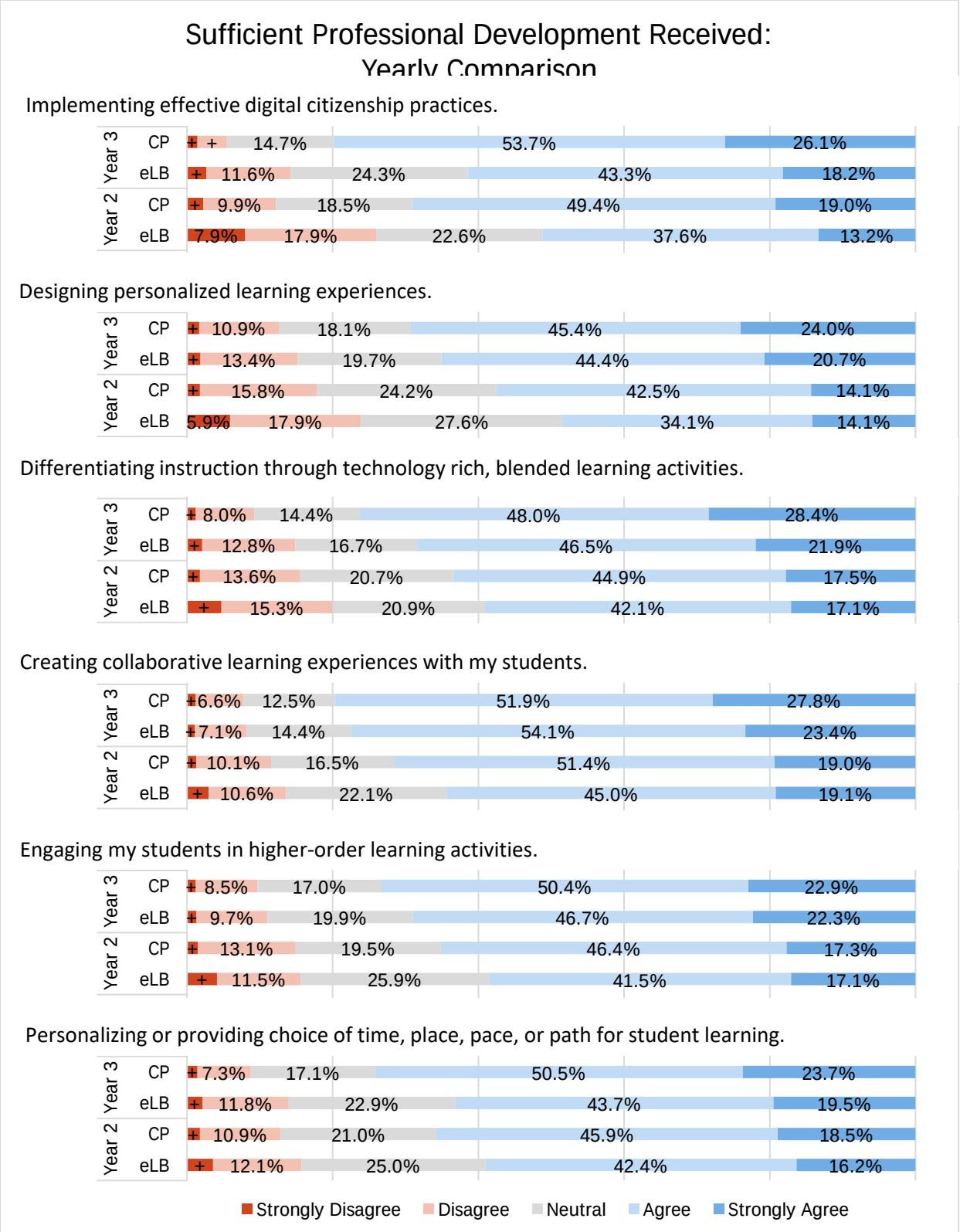

Figure 8. Yearly comparison of teachers' questionnaire responses indicating levels of agreement to receiving sufficient professional development.

As with the previous year, both Chantilly Pyramid and eLearning Backpack teachers indicated higher levels of agreement regarding receiving sufficient professional development for creating collaborative learning experiences (CP: 79.7%, eLB: 77.4%), with both groups' levels of agreement increasing as compared with the previous year. In addition, they indicated higher levels of agreement regarding receiving professional development for developing a learner-centered physical environment (CP: 80.0%, eLB: 72.7%). Roughly two-thirds of Chantilly Pyramid and three-quarters of eLearning Backpack teachers agreed to receiving sufficient professional development in nearly all of the other areas, reflecting an overall increase in levels of agreement from the previous year. Chantilly Pyramid teachers were less likely to agree they had received sufficient professional development on designing personalized learning experiences (69.4%). eLearning Backpack teachers were less likely to agree they had received sufficient professional development regarding implementing effective digital citizenship practices.

Chantilly Pyramid teachers' responses were comparable with one exception. Elementary school teachers were significantly more likely than high school teachers to agree that they had received sufficient professional development in creating a learner-centered physical environment.

This year, teachers also responded to more general questions regarding their professional development and support received during implementation (see Figure 9).

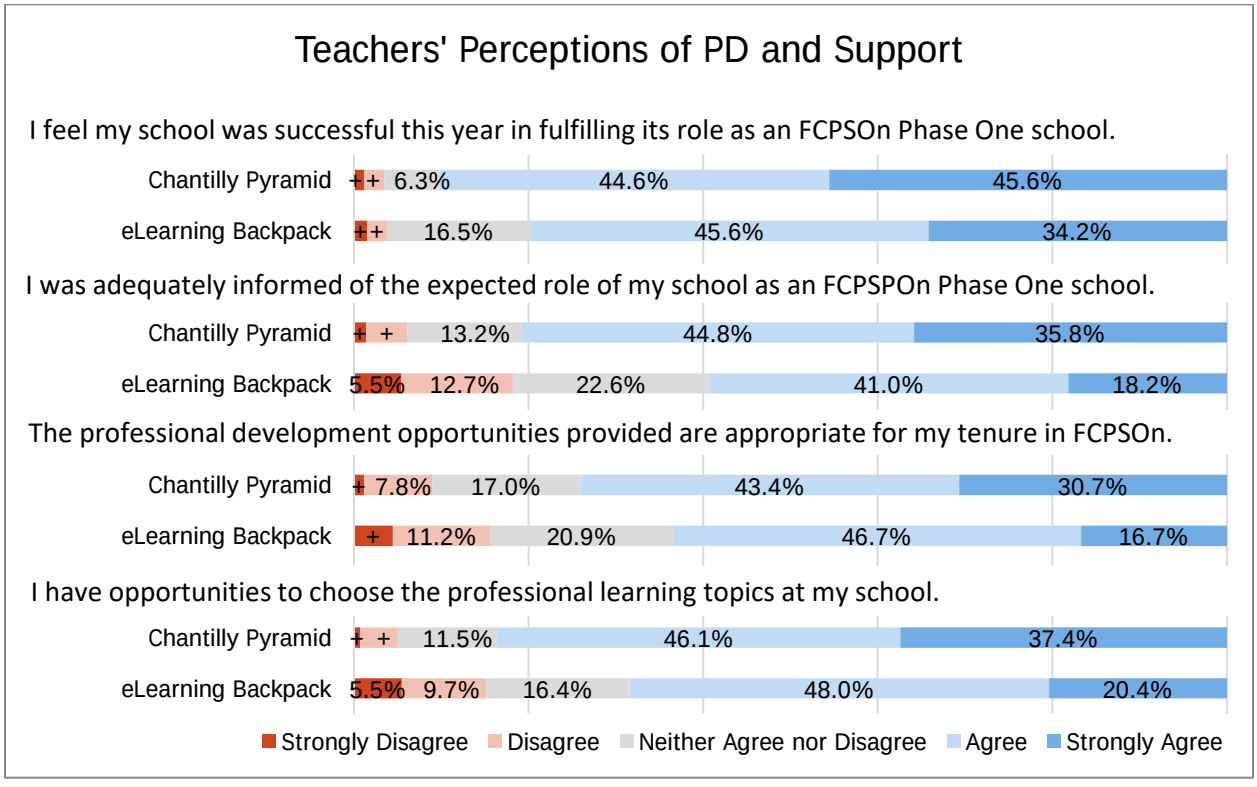

Figure 9. Teachers' questionnaire responses regarding professional development and support received.
Note: + indicates < 5.0%

As shown in the figure above, the majority (>70.0%) of Chantilly Pyramid teachers agreed that their school was successful in serving as a Phase One school, that they have received opportunities to choose the topics during professional learning experiences, that the professional development opportunities are appropriate given tenure with FCPSOn, and that they were adequately informed of the expected role of their school as a Phase One school. Fewer (59-80.0%) eLearning Backpack teachers agreed to these items. Again, compared to last year, Phase One teachers' perceptions of professional development and support offered were dramatically more positive (see Figure 10).

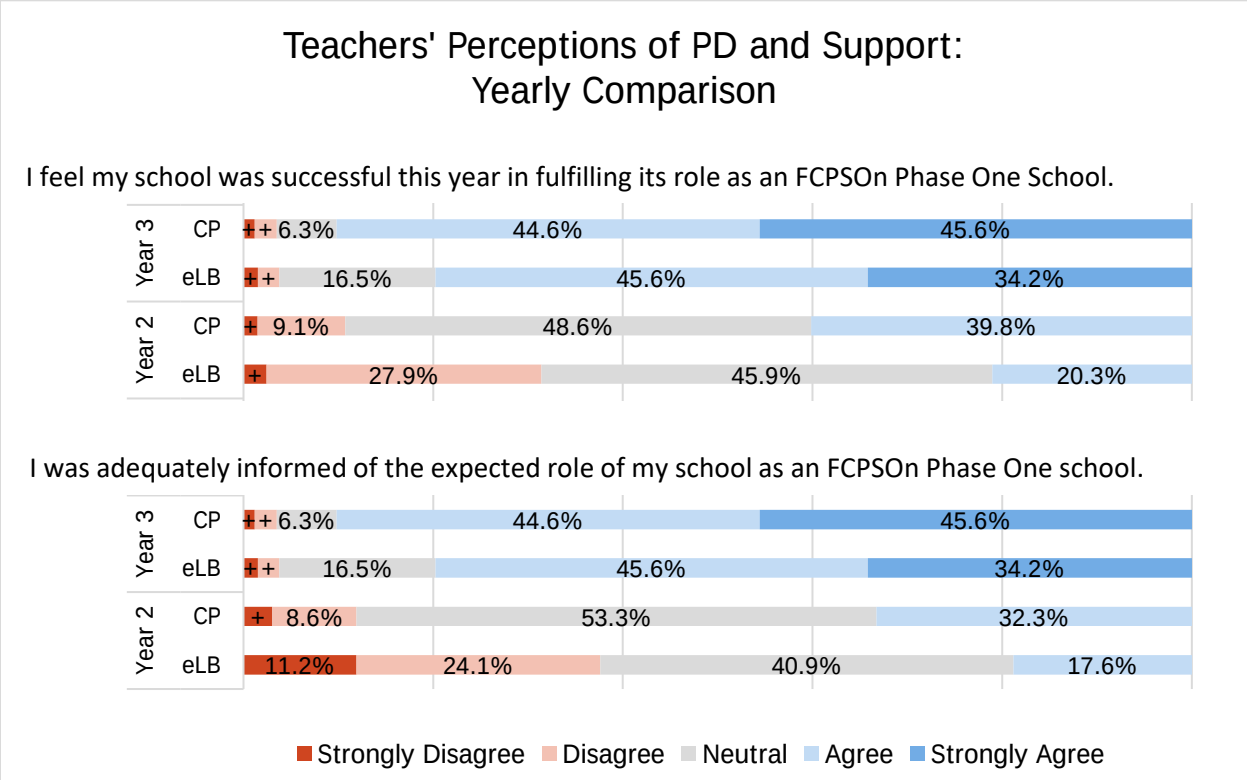

Figure 10. Yearly comparison of teachers' questionnaire responses regarding professional development and support received.
Note: + indicates < 5.0%

Summary. Last year, the most prominent finding to emerge from data related to school-level administration and teacher support was that principals were largely "hands off" and primarily operated as a source of unconditional support for teachers' efforts to move toward technology integration. This year, almost all indicated that they continued to have a flexible approach to teachers' starting point and progress in the

initiative. However, they also conveyed that they had begun to establish clear expectations for teachers in terms of implementation and instructional quality.

It appears that professional development has notably improved this year for teachers from both groups. Teachers described increased choice in professional development opportunities (a complaint from teachers last year) and increased frequency of formal peer-to-peer opportunities during professional development opportunities. Formal and informal peer-to-peer learning activities were consistently described as the most effective learning experiences by teachers in both groups and at each grade level. This was also the case last year. On the teacher questionnaire, teachers in both groups were more likely to agree this year that they were sufficiently prepared to implement the specific teacher practices that support FCPSOn. While elementary teachers were significantly more likely to agree they felt prepared than were high school teachers, encouragingly, the overall agreement by both groups increased by over 10 percentage points from last year.

Similar to last year, SBTSs were viewed as a highly successful component of the initiative and continue to make important contributions to the overall operations of FCPSOn in Phase One schools. We infer from multiple data sources that selection and placement of individuals into the SBTS role has been, overall, highly successful. SBTSs were described as positive and effective peers. However, data indicate that their role has changed over time; SBTSs have taken on more administrative and student-facing responsibilities related to technology. Some changes in their role are appropriate considering the tenure of the initiative, such as the transition from teaching technology skills to individualized coaching for teachers.

Teacher Practices

Teachers, principals, SBTSs, and students were asked to comment during focus groups and interviews on what changes they had made or observed in teaching practices as a result of the availability of new technology and the PD they received.

Principal and SBTSs perceptions. When asked what the initiative looks like in their school's classrooms, SBTSs emphasized less anxiety, less lecture, and smarter use of technology by teachers. They further noted growth in in two areas. The first is managing the infrastructure ("IT support has gotten faster at solving problems."). One SBTS explained,

> *When we first started there was a lot of anxiety about, 'how am I going to manage 30 computers and 30 kids on computers?' Now that they [the teachers] have experienced how to manage that, that worry has gone away.*

The second is greater comfort with the variety of instructional approaches available to them in a technology-enhanced environment ("Teachers are more

comfortable letting go"). SBTBs in both groups (n = 4) spoke about less involvement by teachers in direct instruction. SBTSs used words and phrases such as "letting go," "releasing control," and "freeing themselves up" to describe a common structure in classrooms where students access content and materials on their own, usually through digital classrooms, rather than through the primary classroom teacher. Some (n = 4) also mentioned that differentiation is easier and more common in classrooms ("They easily customize learning for students or groups of students."). In response to a prompt regarding what FCPSOn looks like in a classroom, an SBTS said,

> *In years past, you would be more likely to find teachers lecturing. Now it's unusual. You still give direction and there is discussion but now you have a teacher working with one or two kids or a small group while others are working alone or in small groups. Kids aren't always at their desks. It looks more comfortable, more spontaneous. The kids are collaborating. They are comfortable working in groups. That's just how it is.*

All four Chantilly Pyramid SBTSs interviewed indicated, at some point in their responses, that students are either on their laptops less this year or on them in more intentional ways (i.e., "smarter use"). While not all mentioned explicitly that teachers improved in this area, all implied the culture at their school included an emphasis on intentional and effective use of technology by teachers, and that a balanced usage approach was more prevalent this year than in the past. One SBTS said, "The teachers are good at understanding balance, when it's time to use and not. They aren't always on them."

SBTSs also described the prominence of digital classroom spaces (e.g., Google Classroom) and the "workshop model" when prompted to describe teachers' instructional practices. The workshop model refers to students working independently or in small groups while teachers pull students for individualized instruction. An eLearning Backpack SBTS said, "Technology has allowed teachers to manage their classrooms this way. The majority of students can be occupied with assignments supported by tech, freeing up the teacher to work with student who require their time."

With regards to changes in instructional practices since the implementation of the initiative, principals concurred that teachers are more open to taking risks in the classroom, exhibit more creativity in their instruction, and engage in more purposeful work in the form of portfolios, project-based learning, and meaningful collaboration with peers. Principals described their teachers as being more discerning regarding the choices they make to use technology. They described teachers as willing to learn what works and what doesn't, and refine their pedagogical strategies over time. One eLearning Backpack principal characterized his teachers as "facilitators" now. Principals also described their teachers as more collaborative than ever before. among faculty through shared google docs, wikis, and other applications, and as a result, faculty are expected to interact more with one another.

Teacher perceptions. By a notable degree, the most frequent theme to emerge from teachers' discussions of current instructional practices was an increase in student-directed learning. Teachers in both groups described a classroom model where students are self-guided through a task while the teacher is floating or working with small groups (e.g., the "workshop model"). This model was described at all grade levels but appears to be the predominant mode of teaching/learning in high schools. Self-guided learning was described as a warm-up activity or assessment, answering a research question or "finding resources," reviewing a lecture or other prepared material, or creating original content. The workshop model relies on students working independently or in groups to accomplish a task, which frees the classroom teacher to "float," or do "deep dives" or "pull groups." Teachers emphasized the importance of student pace and ability when qualifying this model. A high school teacher explained,

> *Now I have 28 kids listening to a lecture [on a computer] and I'm floating. 'Who is stuck? Who is moving quickly?' It's like I'm 28 different teachers. They listen and then we do an activity or a lab, and they have the computer there the whole time, they can search on their own*

Teachers in both groups, at all grade levels, also described a noticeable increase in their ability to differentiate materials and the ease at which differentiation is accomplished. Differentiation was sometimes related to student-directed learning. One teacher said, "Differentiating is so easy. This group does this, this does that, and here are some extra for people who finish." Teachers also described increased access to educational programs and software, particularly in math and reading, that adapt to student performance and progress. Teachers often explicitly mentioned that a notable contribution made by the initiative is less attention on students who need remedial work. Frequently, teachers' comments on differentiated content ended with, "and none of the other students know."

Teachers from both groups described their own "smarter use" of technology-based tools. A high school teacher said, "I started out lazier, using it as a crutch. I'm more intentional now about preparation and findings new things to use. As the years have passed, it's not as forced and I'm not replacing but enhancing with tech." Another elementary teacher revealed, "My first year here, it was just a worksheet on a computer, but now it's finding the best tools that meets their needs. Now it's more purposeful." Along those lines, an eLearning Backpack high school science teacher explained that they could do more labs by deciding what needed to be hands on and what can be replaced by a computer ("I just don't have three months to grow a plant."), freeing up class time to do something new or perhaps less accessible in everyday life.

Teachers described "letting go" of rigid standards for teaching and demonstrating learning. Discussions around teachers' sense of control and the changing

nature of a teacher's role in a classroom environment where students are often capable of teaching themselves almost anything, were often vulnerable moments for teachers during focus groups. Teachers seemed to be aware of how their role, and thus identity, as a teacher was rapidly changing with the influx of technology into learning, and was often described as, at times, difficult and uncomfortable. Teachers described themselves as moving away from textbooks and standard curriculum ("We can figure out what to teach to meet those standards.") and toward a school day that fully embraces the variety of content and tools currently available ("You're only adding with audio and visual components, you're not taking things away."). Teachers also described greater flexibility during assignments and assessments. An elementary teacher explained,

> *I think I've changed in terms of assessing something, I can be more accepting of creativity and varied responses. We were all used to saying this is the one way we do something. Now we're embracing freedom and differentiation one hundred percent. It has become more process and less product.*

High school teachers emphasized quicker feedback and instant communication as positive changes in their classroom. Teachers described immediate feedback in terms of feeling more connected to students ("You don't have to be at school to connect with students. We collaborate on their work, on shared documents.") as well as a way to shape instructional practice and respond immediately to student needs. One teacher said, "I can see right away who didn't get the previous lesson. Or if an individual student doesn't know I can work with them or a small group."

Increased student choice was particularly prominent in the Chantilly Pyramid, at all grade levels. Student choice often overlapped with student-directed learning and teachers' descriptions of adjustment, getting more comfortable with greater flexibility in their classroom. Some teachers related student choice to increased student engagement and accommodating diverse student interests and working styles. Teachers noted that some students "like to record themselves, it's way more engaging and helps them improve a lot," while others are more motivated to create something that will be shared with the classroom online than they would be to complete an independent assignment that is turned in to their teacher. Teachers indicated that allowing more variety in their classroom has opened doors for students who thrive in different ways of learning and expressing.

In the teacher questionnaire, teachers responded to a series of items related to the extent to which they implemented various types of teaching practices, with or without technology (see Figure 11). Responses from teachers to these items partially confirmed teachers' feedback in focus groups.

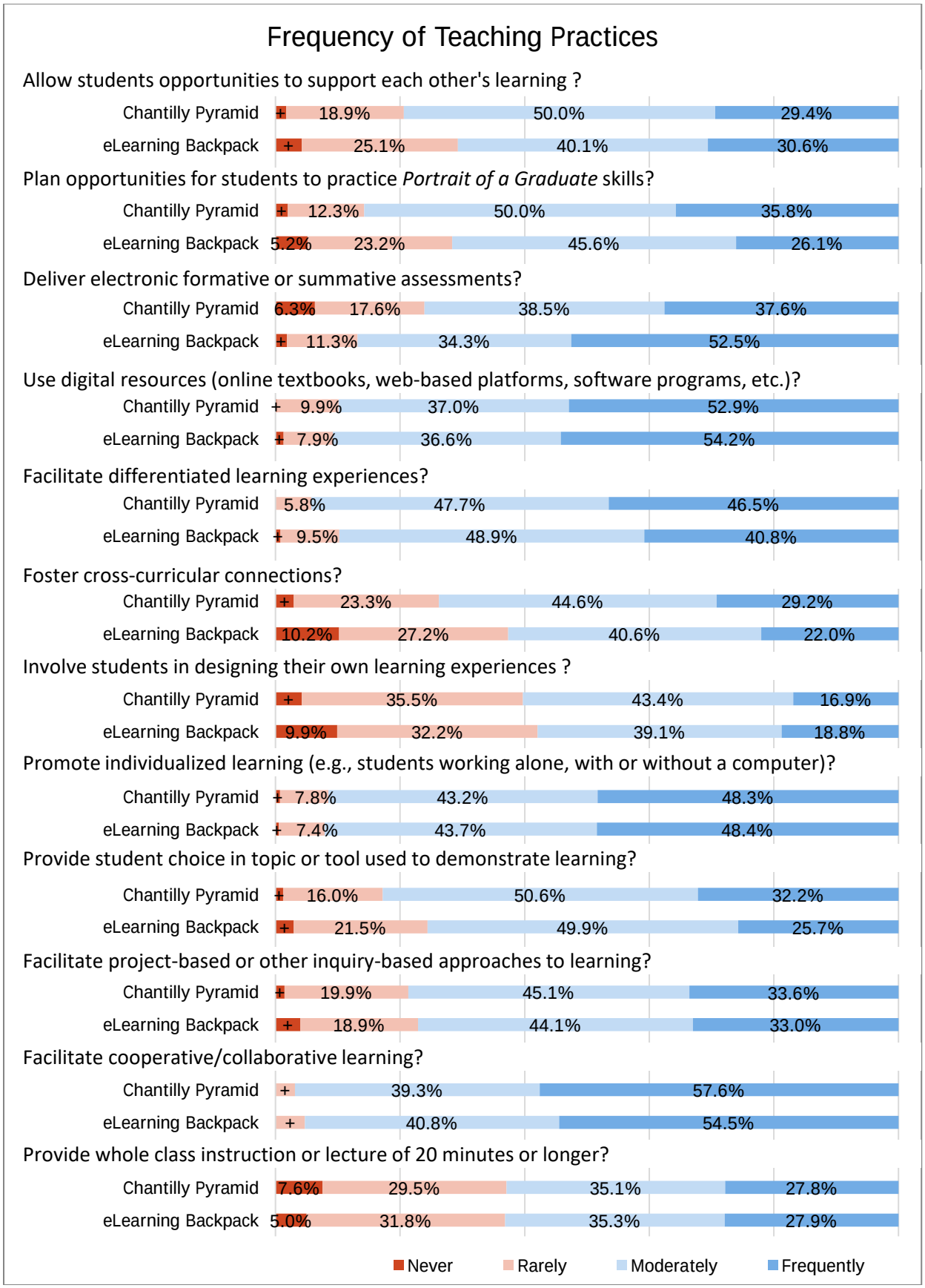

Figure 11. Teacher questionnaire responses indicating frequency they employ various teaching practices.
Note: + indicates < 5.0%

Most often, teachers reported facilitating cooperative or collaborative learning (CP: 96.9% at least moderately, eLB: 95.3%), promoting individualized learning where students work alone, with or without a computer (CP: 91.5%, eLB: 92.1%), facilitating differentiated learning experiences (CP: 94.2%, eLB: 89.7%), and using digital resources (CP: 89.9%, eLB: 90.8%). Both groups of teachers were less likely to provide whole-class instruction or lecture for 20 minutes or more (CP: 62.9%, eLB: 63.2%) and involve students in designing their own learning experiences according to personal goals, needs, and interests (CP: 60.3%, eLB: 57.9%).

In terms of how often different teaching practices were employed, there were statistically significant differences between Chantilly Pyramid teachers in year three. Elementary school teachers indicated more frequently (a) providing student choice in topic or tool used to demonstrate learning, (b) involving students in designing their own learning experiences, (c) fostering cross-curricular connections, and (d) facilitating differentiated learning as compared with middle and high school teachers. Middle school teachers reported more frequently employing these four teaching practices than high school teachers. In contrast, high school teachers were more likely than elementary and middle school teaches to indicate they regularly provide whole-class instruction or lecture for 20 minutes or longer. Finally, middle school teachers more often deliver electronic formative or summative assessments as compared with elementary school teachers, followed by high school teachers.

Compared to last year, the frequency of various teaching practices generally remained the same. The few notable differences included:

- A decline in the frequency eLearning Backpack teachers reported "frequently" facilitating project- or inquiry-based approaches (-11.7%) and cooperative/collaborative learning experiences (-15.9%)
- Both groups increased frequency of "frequently" using online or digital textbook resources (CP: +16.7%, eLB: +16.1%)
- A decline in the frequency Chantilly Pyramid teacher "frequently" used online or web-based tools for tests/quizzes (-8.8%)

Observations of curriculum and instruction. In over half (25 of 44) of all classrooms observed, students engaged in inquiry-based learning or exploratory research using online and/or print-based resources. For example, students in an elementary classroom were observed designing a newspaper article tailored to an ancient civilization of their choice (e.g., Incans, Mayans, etc.). In a high school speech and debate class, students gave short speeches that were the culmination of several

weeks of research on a social issue of their choice. Students researched their issue online and in newspapers and completed several smaller assignments prior to the speech to demonstrate their understanding of the history and current affairs related to their topic; their speech described their personal policy solution.

Research and inquiry-based instruction often overlapped with real-world context and projects identified as "creative." Real-world application was observed in well over half of classrooms observed (31 total) while creative projects (i.e., a demonstration of learning that involves the creation of original content) were observed in 17 classrooms. We observed an elementary science class learning about solar energy; a high school ESOL classroom that integrated texting while driving into persuasive essays; and a middle school civics classroom that explored tax deductions of a teacher's paycheck. In a high school health class, students were observed preparing presentations on a career in the health-sciences.

Cross-curriculum connections were observed in roughly half (n = 21) of observations. In a mixed-grade high school Physics classroom in an eLearning Backpack school, a teacher solved a word problem with students as part of a review for an upcoming exam. A word problem was projected at the front of the room and briefly explained; after some time working independently, the full class' attention was directed toward front of the room to solve the problem together. After working through the problem, the teacher said, "For those of you who have had calculus..." and took roughly 30 seconds to write out a new sequence of equations to solve the same problem. The notes from this observation described "the sound made by a group of students realizing they know something."

Teachers were noted as facilitators of instruction in 36 (80%) classrooms. Facilitation was coded based on a number of specific observations including physically circulating the classroom while students worked on individual assignments or in small groups, creating worksheets or online activities for students to complete on their own, gathering a set of resources for students to explore at their own pace, or by guiding students through individual practice from the front of the room. Direct lecture was observed in just eight classrooms. In these classrooms, teachers were the primary source of knowledge and instruction.

Teachers in 26 (59%) classrooms designed activities that allowed for student choice in terms of pace, content, or method to demonstrate learning. For example, in an elementary classroom, students chose whether to read a physical book or on their laptop during the 20-minute free-read section of the day. In an art class, students chose the content of their work, as long as they used specific materials. In a middle school classroom, students were given time to either continue working on an assignment due by the end of the day, or work on a larger project due later in the month. In a high school classroom, students chose what career to research, what type of car to design, and what social issues to explore.

Self-directed learning was evident in 32 of 44 classrooms observed and was a pervasive observation in Phase One schools, overall. Self-directed learning refers to a wide range of activities including working independently at pace toward a benchmark (e.g., complete all activities in a unit by Friday), collecting research, creating a presentation, selecting a book and reading independently, working with a group to accomplish a task, or any other observation where a student must organize their actions to reach a goal. At the elementary level, self-directed learning in a social studies class included several stations of activities that centered on the history of Virginia, which students rotated through every 10 minutes. One station involved a scavenger hunt using a paper map; another station was reading with a set of questions. One station was a Virginia-themed board game; another station involved watching a video on Virginia from National Geographic. While the teacher planned each station, students guided themselves through the content and activities during each stop. In a middle school classroom, students learned about supply, demand, budgeting and taxation by working in groups to create a simple machine. They were given items that they could use, barter, or sell, as well as start-up cash to purchase materials from other groups or the general supplier (the teacher). In a high school engineering classroom, students used a digital design program to design each piece of small car that would be printed using a 3D printer. Working in groups, they had designed their unique car. The current class period was spent entering plans into a desktop computer that was connected to the 3D printer. As parts were printed, students assembled the car. In all of these scenarios, students were given parameters and expectations, and the goal of their learning was outlined. Students, though, were responsible for organizing themselves to reach the specific goal.

Summary. Findings related to teacher practices suggest teachers in Phase One schools are beginning to function more as a facilitator of instruction rather than the sole source of knowledge for students. Teachers described themselves as more flexible in terms of how students demonstrate learning, including the time, place, and pace at which they complete tasks. They described “letting go” of certain instructional practices and increasing opportunities for self-guided learning and implied that this way of learning allows them to be a more effective teacher. This type of teaching, where teachers are infrequently found at the front of the room, is prominent in FCPSOn classrooms. Teachers also described increased opportunities for and ease of providing differentiated materials and communicating with students. Classroom observations provide evidence that inquiry-based learning experiences that integrate real-world contexts are widespread in FCPSOn classrooms. Students from both groups, in all grade levels, were observed in self-directed learning activities that were creative and cross-curricular.

Teachers were described by principals and SBTSs as better decision-makers this year regarding technology use, and more comfortable teaching in a technology-enhanced environment. They were also described as more flexible and more tolerable

of the change technology has brought to instruction. Teachers described themselves as "smarter" users and integrators of technology-based tools and content, and they celebrated their own progress as effective teachers. The centrality of Google Classroom to teachers' instruction and classroom management was made entirely clear by SBTSs and teachers. Google Classroom is described as a central meeting and working space for students and a hub for classroom documents and activities. Technology in general is described as enabling greater variety of activities for students, more efficient classroom management, and simplifying necessary instructional practices (e.g., differentiating context, providing feedback).

Access to and Use of Technology

Succeeding 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 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 & Tzae, 2014; Kim, Kim, Lee, Spector, & DeMeester, 2013; Ertmer, 1999, 2005; Hew & Brush, 2007). Such attitudes may have important implications for increasing effective teacher practices related to technology. A similar association may exist for students. That is, the degree to which students and teachers 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.

Teachers' technology beliefs and self-efficacy. Teachers' questionnaire responses affirmed the overall positive orientation toward technology and technology-enhanced instruction noted by principals and SBTSs (see Figure 12).

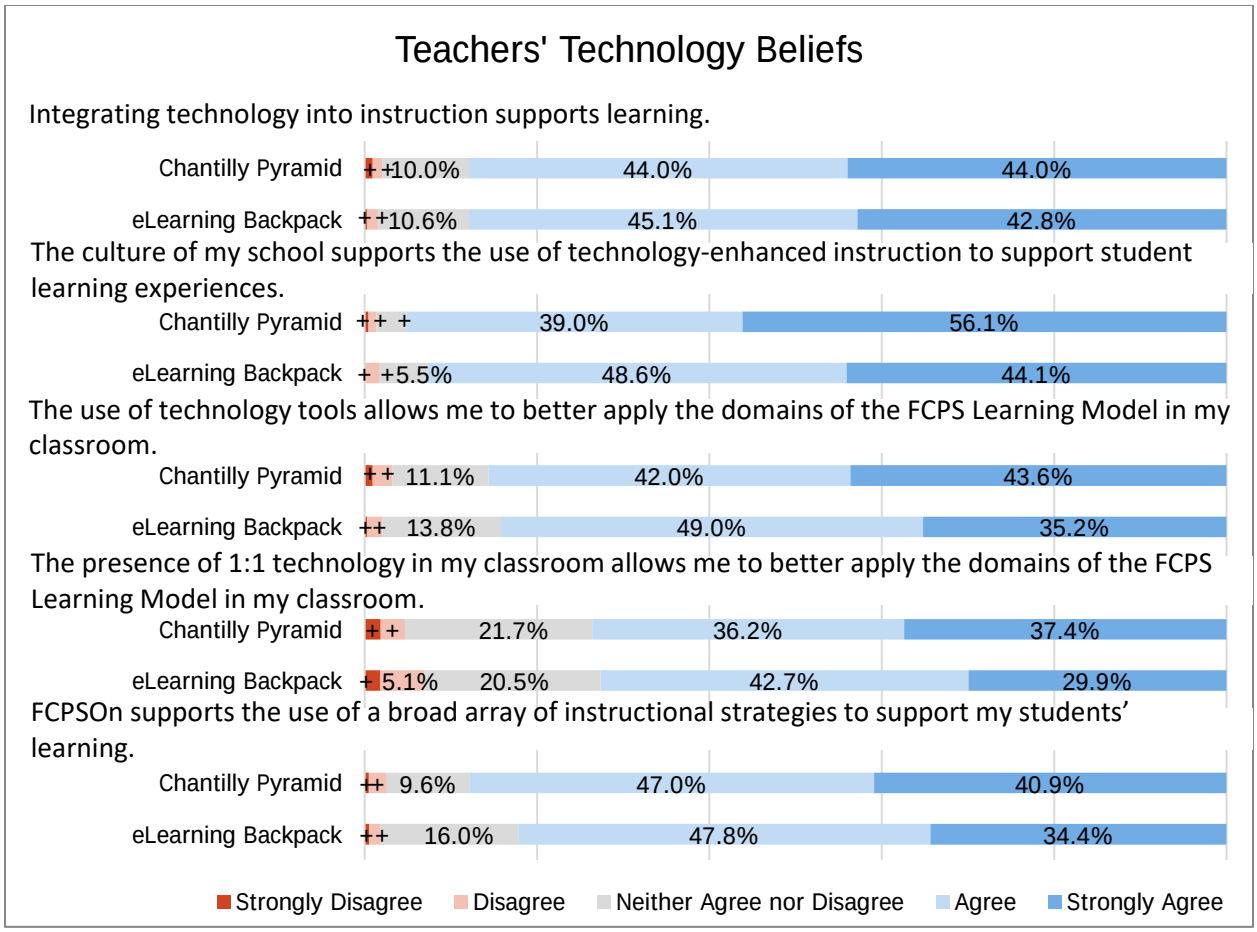

Figure 12. Teachers' questionnaire responses regarding technology beliefs.
Note: + indicates < 5.0%

The majority of both Chantilly Pyramid and eLearning Backpack teachers agreed that integrating technology into instruction supports learning (CP: 87.9% at least agreed, eLB: 87.9%) and that the use of technology tools allow them to better apply the domains of the FCPS Learning Model in their classroom (CP: 85.6%, eLB: 84.2%). Relatedly, teachers tended to agree that the presence of 1:1 technology allows them to better apply the domains of the FCPS Learning Model in their classroom (CP: 73.6%, eLB: 72.6%). Importantly, the vast majority of teachers in both groups agreed that the culture of their school supports the use of technology-enhanced instruction to support student learning experiences (CP: 95.1%, eLB: 92.7%) and that FCPSOn supports the use of a broad array of instructional strategies to support students' learning (CP: 87.9%, eLB: 82.2%). Questionnaire items that were asked during last year and the present year reflected generally comparable responses (see Figure 13). That is, levels of agreement did not change substantially since the prior year.

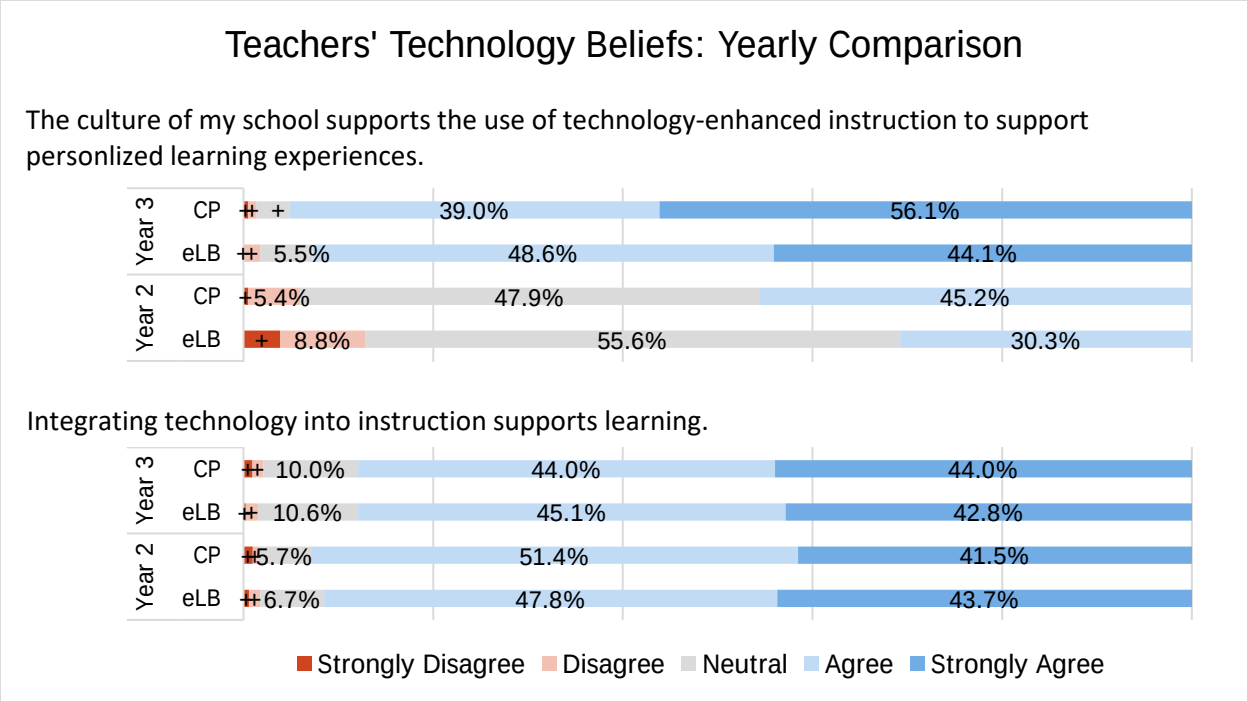

Figure 13. Yearly comparison of teachers' questionnaire responses regarding technology beliefs.
Note: + indicates < 5.0%

There were statistically significant differences observed between Chantilly Pyramid teachers in year three. Elementary and middle school teachers were more likely than high school teachers to agree that the use of technology tools allows them to better apply the domains of the FCPS Learning Model. In addition, elementary teachers were significantly more likely than high school teachers to agree that integrating technology into instruction supports learning, that FCPSOn supports the use of a broad array of instructional strategies to support student learning, and that the presence of 1:1 technology allows them to better apply the domains of the FCPS Learning Model.

Both groups of teachers' survey responses indicated varying levels of technology efficacy (see Figure 14). Specifically, roughly three-fourths of teachers conveyed agreement that they are confident they use 1:1 technology effectively in their classroom (CP: 80.2%, eLB: 79.4%) and they can deal with most technical difficulties they encounter (CP: 78.0%, eLB: 77.6%). Nearly all teachers agreed that with proper training, they are confident in their ability to learn the various tools and resources available to them (CP: 92.1%, eLB: 95.0%). Most teachers also agreed that they feel confident planning opportunities for students to practice and develop Portrait of a Graduate skills (CP: 81.6%, eLB: 73.0%). A greater proportion of teachers agreed that they enjoy using technology in their classroom (CP: 86.9%, eLB: 88.9%).

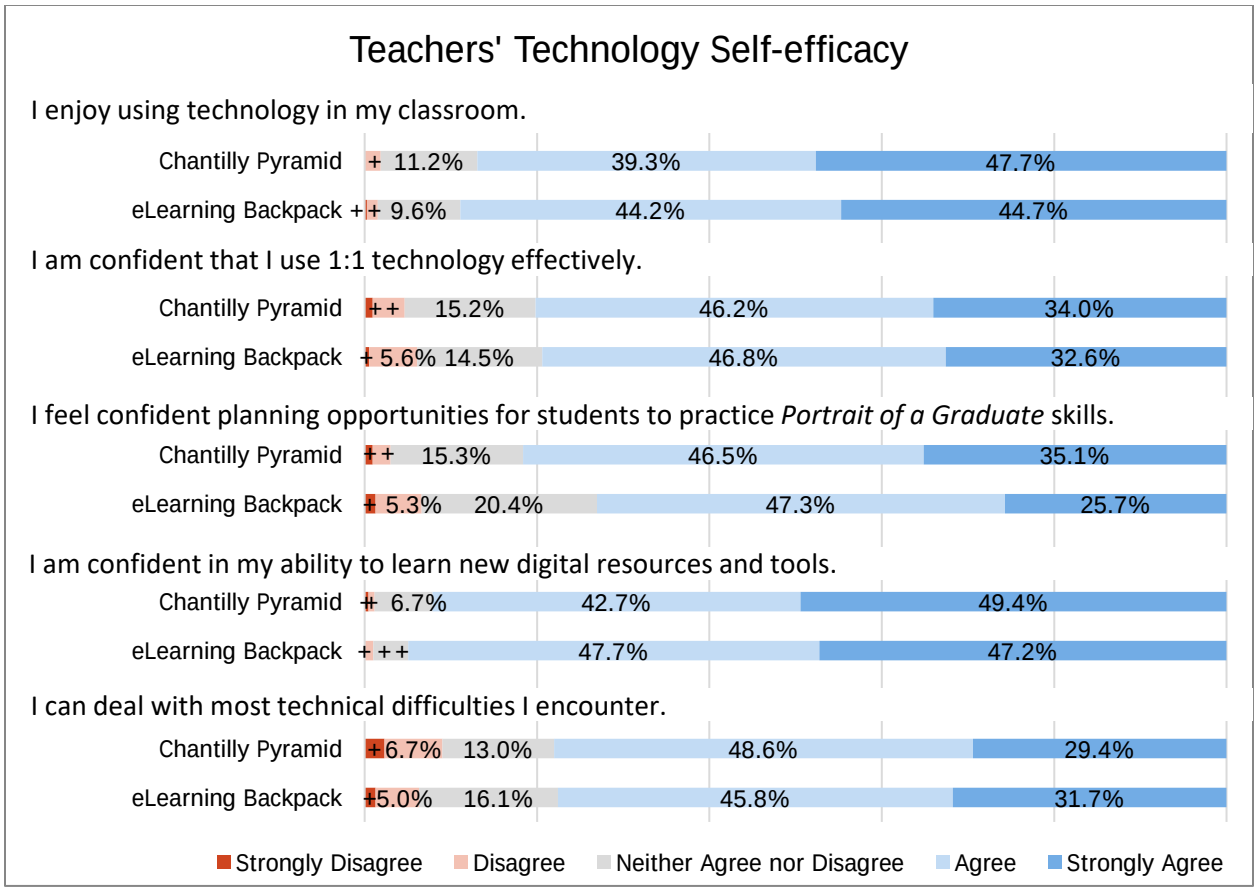

Figure 14. Teachers' questionnaire responses related to technology self-efficacy.
Note: + indicates < 5.0%

There were fewer statistically significant differences in teacher responses regarding technology efficacy as compared with technology beliefs. Elementary and middle school teachers were more likely than high school teachers to agree that they enjoy using technology in the classroom. In addition, middle school teachers were more likely than high school teachers to agree that with proper training, they are confident in their ability to learn new digital resources and tools.

Compared to last year, Phase One teachers' technology efficacy has generally increased (see Figure 15 below).

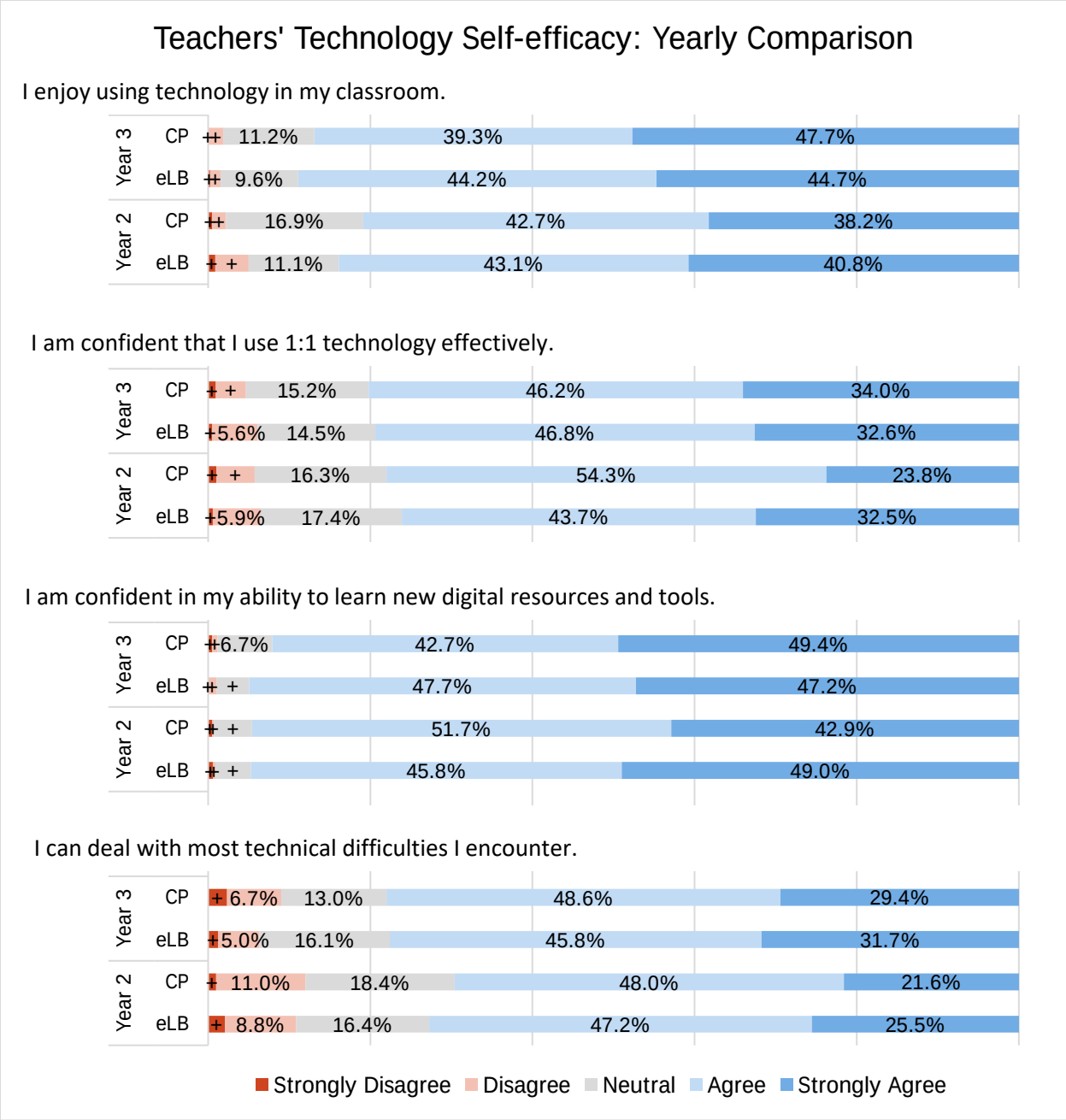

Figure 15. Yearly comparison of teachers' questionnaire responses related to technology self-efficacy.
Note: + indicates < 5.0%

Teachers' technology use. In focus groups, teachers in both groups and at all grade levels described themselves as agreeably reliant on a 1:1 environment ("I can't even imagine using a paper gradebook today," and, "I don't think I could ever go back to a school like that [old school with no tech] after being here this year."). The strong majority of Chantilly and eLearning Backpack teachers indicated agreement on the questionnaire that the use of technology is an integral part of their planning and

administration (CP: 90.5%, eLB: 91.8%), instructional practices (CP: 82.2%, eLB: 88.13%), and classroom learning environment (85.5%, 88.4%). Though the majority of teachers indicated that the use of technology is supportive of personalizing the time, pace, path, and pace of instruction for students (CP: 79.1%, eLB: 79.3%), fewer agreed that the use of technology is a key component in cultivating students' *Portrait of a Graduate* attributes and outcomes (CP: 69.4%, eLB: 70.2%) or a key component in their approach to supporting student learning through the FCPS Learning Model (CP: 78.4%, eLB: 75.4%).

We found statistically significant differences within the Chantilly Pyramid group. Elementary and middle school teachers were more likely to agree than high school teachers that technology is a key component in their approach to cultivating *Portrait of a Graduate* attributes and outcomes and for supporting student learning through the FCPS Learning Model. Middle school teachers were significantly more likely than other teacher groups to agree that technology is an integral part of instructional planning and administration, and that it is an integral part of the classroom learning environment. Elementary school teachers were significantly more likely than high school teachers to agree that technology is an integral part of their instructional practices this year.

Students' technology-related beliefs and self-efficacy. Students' technology-related beliefs were explored through a series of questionnaire items (see Figure 16).

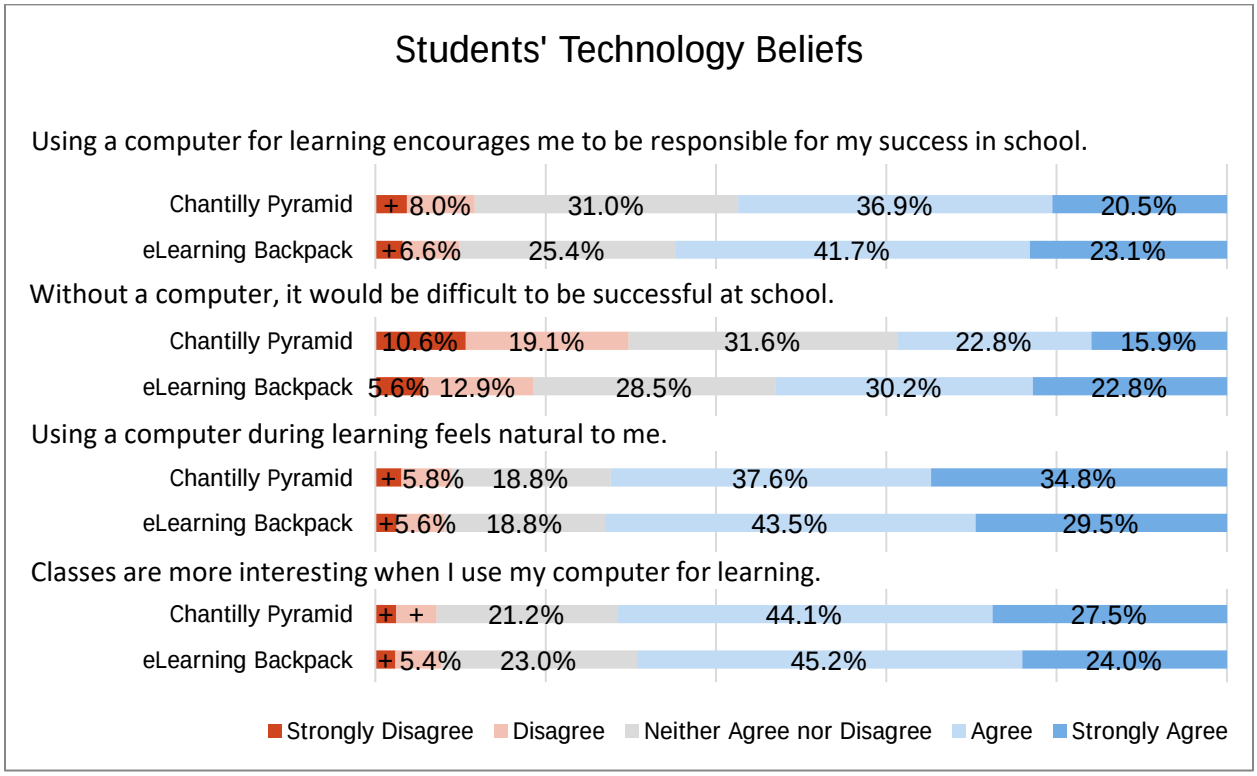

Figure 16. Degree to which students agreed to survey items regarding technology beliefs.
Note: + indicates < 5.0%

Both Chantilly Pyramid and eLearning Backpack students responded fairly positively to the questionnaire items related to beliefs about technology. Overall, students tended to agree to statements such as classes are more interesting when using the computer for learning (CP: 71.6% agreed, eLB: 69.3%) and that using a computer during learning feels natural (CP: 72.3%, eLB: 73.0%). Interestingly, substantially fewer Chantilly Pyramid students (38.7%) than eLearning Backpack students (53.0%) agreed that it would be difficult to be successful at school without a computer. Relatedly, eLearning Backpack students were more likely to agree than Chantilly Pyramid students that using a computer for learning encourages them to be responsible for their success in school (CP: 57.5%, eLB: 64.8%).

We observed statistically significant differences within Chantilly Pyramid schools. Middle and elementary school students were significantly more likely to agree than high school students that classes are more interesting when the computer is used and that using a computer for learning encourages them to be responsible for their success in school. Middle school students were also significantly more likely than elementary school students to agree that using a computer during learning feels natural to them. High school students were significantly more likely than other teacher groups to agree that it would be difficult to be successful in school without a computer.

Students also reported on their own technology use, and motivation to use technology, through the student questionnaire (see Figure 17).

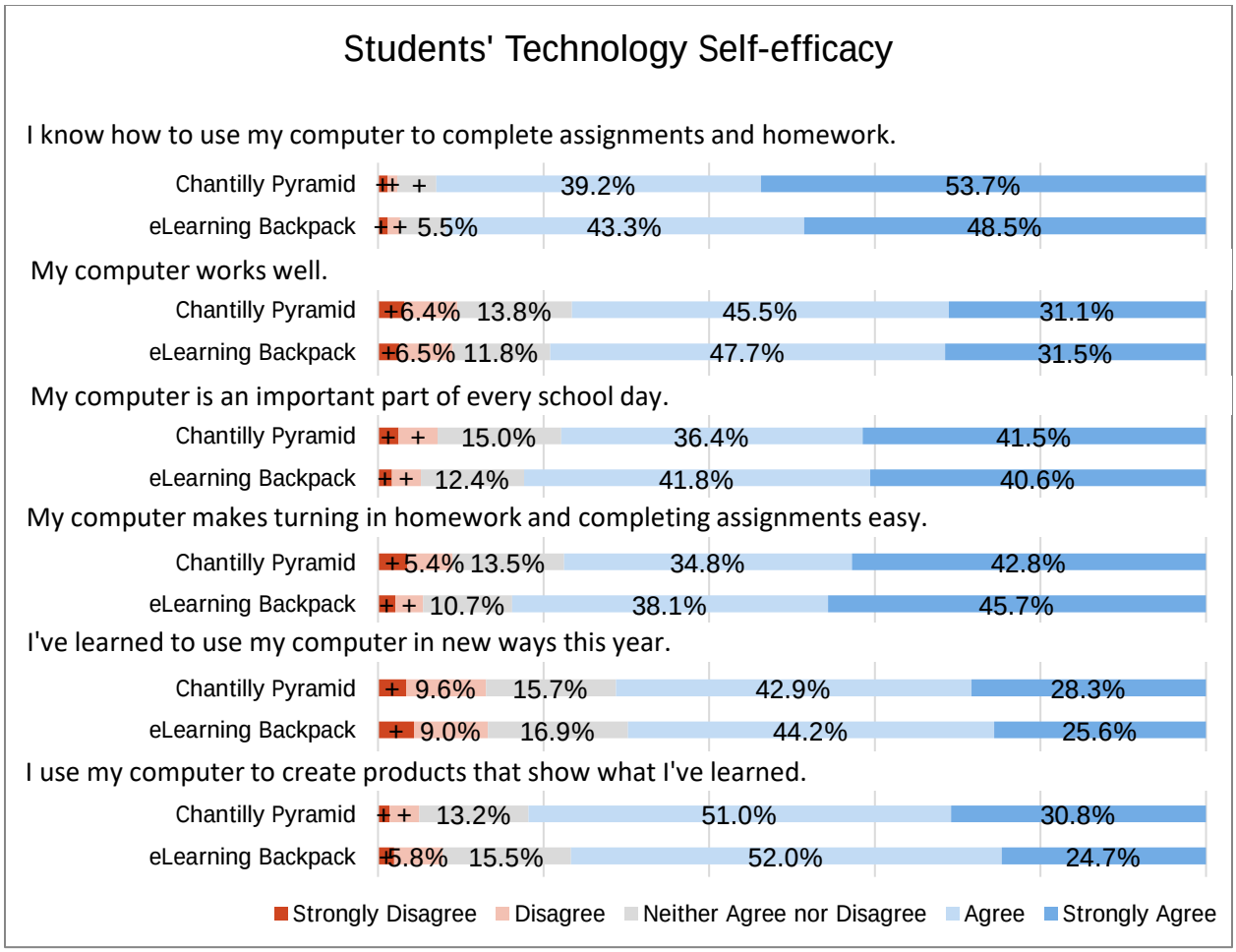

Figure 17. Degree to which students agreed to survey items regarding motivation to use technology.

Note: + indicates < 5.0%

Both Chantilly Pyramid and eLearning Backpack students tended to agree to statements regarding their use of technology for learning. Over three-fourths in both groups agreed that they have learned to use their computer in new ways this year (CP: 71.3%, eLB: 69.8%), they use their computer to create products to show what they have learned (CP: 81.8%, eLB: 76.7%), the computer makes turning in homework and completing assignments easy (CP: 77.5%, eLB: 83.8%), the computer is an important part of every school day (CP: 77.9%, eLB: 82.4%), and the computer works well (CP: 76.6%, eLB: 79.2%). Importantly, nearly all students agreed that they know how to use their computer to complete assignments and homework (CP: 93.0%, eLB: 91.8%). These findings affirm student responses in focus groups that they use their devices frequently for learning.

There were statistically significant differences between students in Chantilly Pyramid schools:

- Elementary students were significantly more likely to agree than both middle and high school students that they have learned to use their computer in new ways this year. Middle school students were significantly more likely than high school students to agree to this statement.
- Middle and high school students were significantly more likely than elementary students to agree that the computer makes turning in homework and completing assignments easy.
- Middle school students were significantly more likely than both elementary and high school students to agree that the computer is an important part of every school day. High school students were significantly more likely than elementary students to agree to this statement.
- Elementary students were significantly more likely than middle and high school students to agree that their computer works well.

Responses from Phase One students related to technology beliefs appear to relatively stable between last year and this year (see Figure 18 and 19 below). Several trends are observed in both years, notably that eLearning Backpack students are more likely to indicate that their computer is central to their success at school. Yearly comparisons also indicated that students' technology self-efficacy (e.g., the degree to which students believe in their ability to use technology to accomplish goals) has slightly increased.

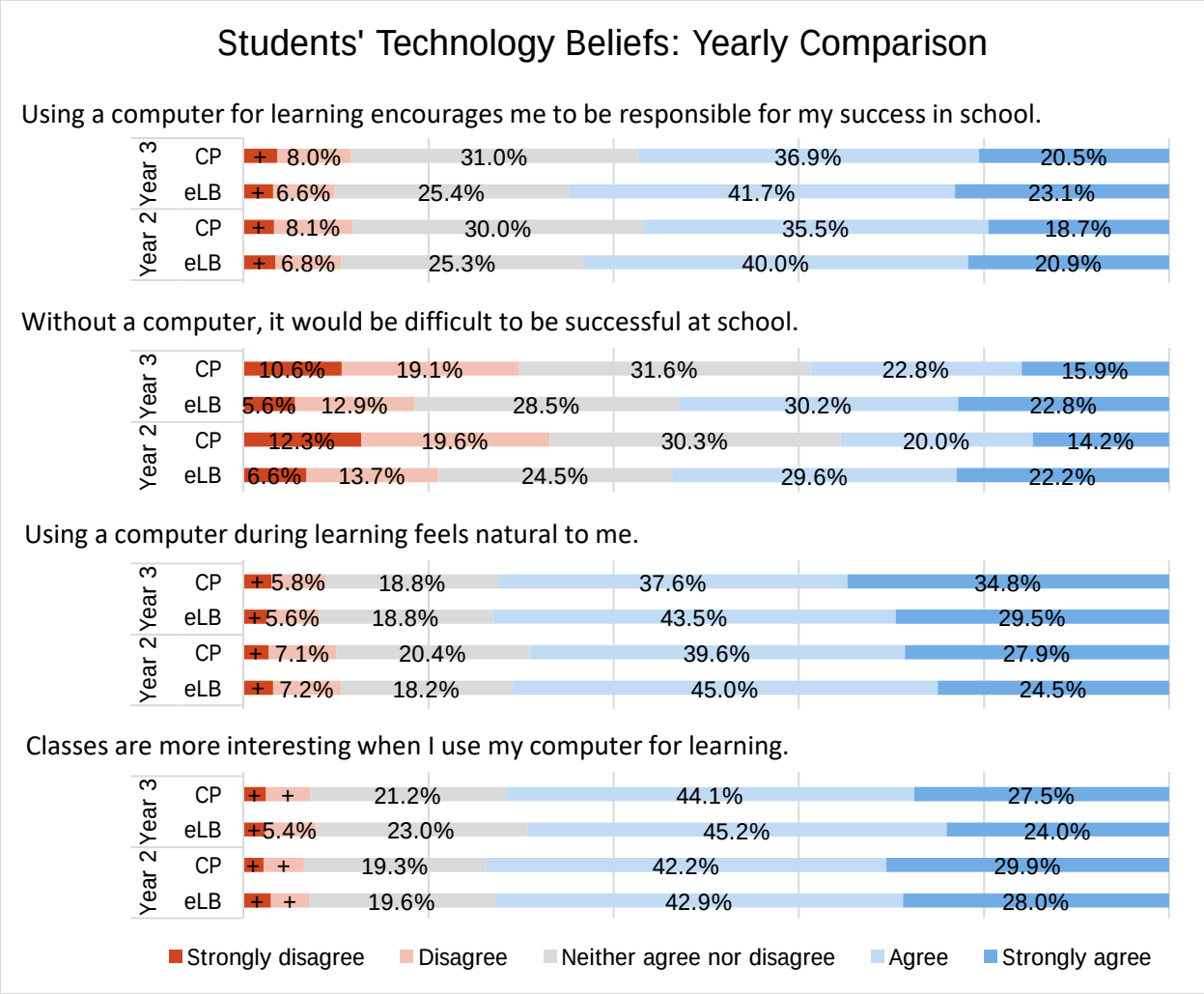

Figure 18: Yearly comparison of students' technology beliefs.

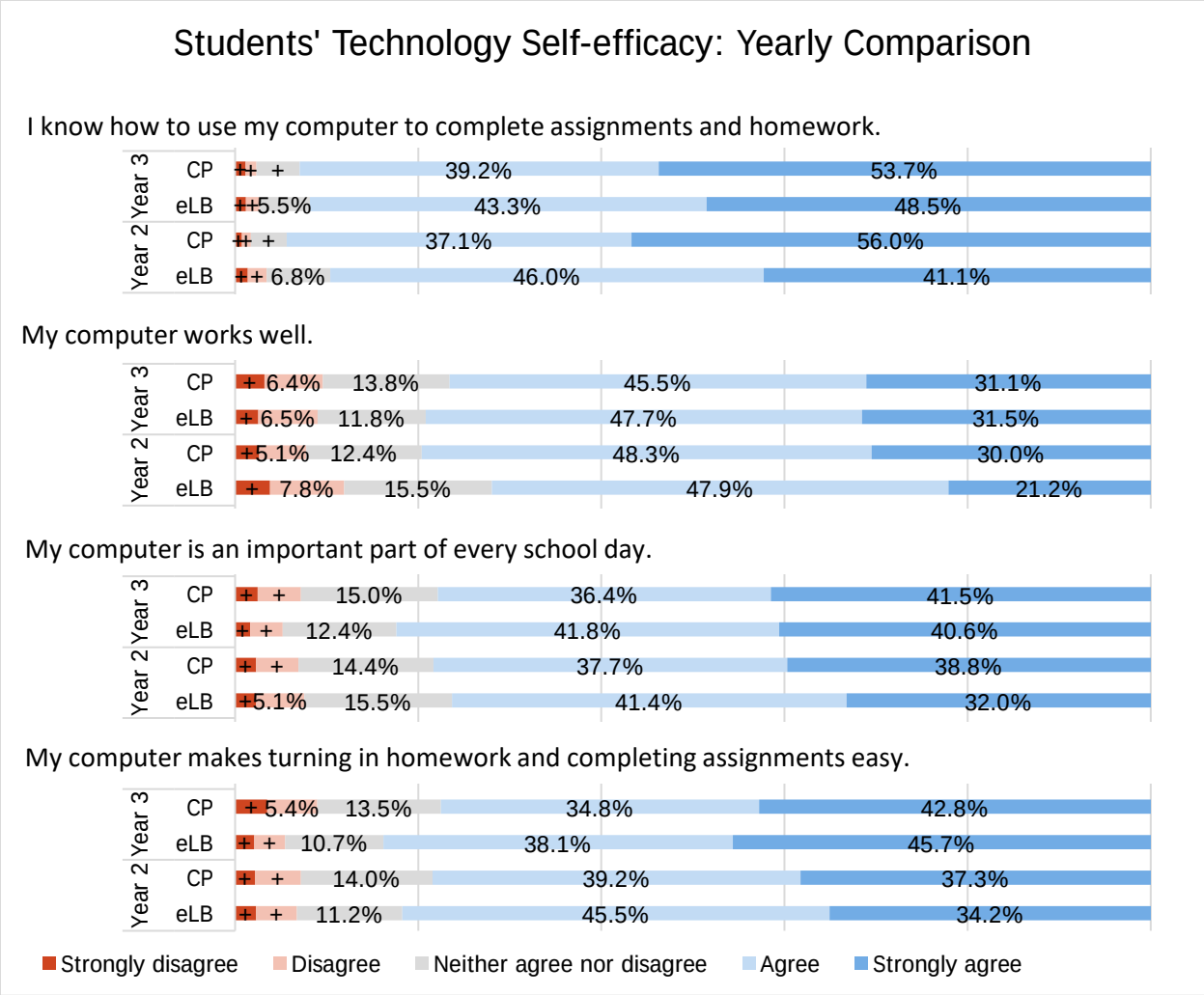

Figure 19: Yearly comparison of students' technology self-efficacy.

Students' technology use. During focus groups, teachers were prompted to reflect on students' relationship with technology and how that their relationship has changed over time. Notably, teachers indicated that students were more engrossed in technology than ever before. The conversation tended to go one of two ways from there. In four of the seven focus groups, including both of the elementary school groups, at least one teacher in the group equated increased usage to student addiction to screens and digital content, including gaming. More often, though, teachers indicated that students simply love technology and are more engaged in learning through a computer. Most teachers implied that students' inclination toward computer use is a good thing because it pulls them in to educational content.

Teachers also generally agreed that students' technical computer skills are getting better. They noted that students find resources faster, are better at typing, and are more proficient using software and educational programs. Interestingly, teachers were equally likely to report that off-task behavior was worse this year as they were to

report that students were more responsible users now, and that digital citizenship has improved in their building.

In focus groups, students generally agreed that their total usage of technology had increased over time. Students' observations of increased usage were often associated with perceptions of their device as "essential" to their school day. One student said, "All of the teachers are transitioning to computer-based teaching," and another noted, "There has been a noticeable incline in the work we did in school, and Google classroom is used a lot more." Several students described themselves as "dependent" on the device. One student expounded: "At this point, I'm so used to having a PC, if you took it away, I wouldn't know how to get my work done."

In light of noted increase in overall usage, students were asked to reflect on the amount of time they spend on screens and whether they felt that they have too much screen time in a day. Across eLearning Backpack and Chantilly Pyramid schools, middle and high school students indicated that they spent "a lot" of time on screens in general, including their personal device at school, home, and their cell phones. Middle school students were equally divided in describing their screen time as too little, too much, or about right. High school students, on the other hand, were more likely to be critical of their overall screen time, implying that they had too much. Students across grade levels who stated the device usage was adequate often qualified their usage by noting how normal it is to use devices constantly. For example, one high school student said, "I've always had a lot of screen time. It probably has increased but I don't think it's a bad thing. It's not like I'm wasting time," while an elementary school student noted, "I'm okay with that [screen time]. I don't even realize it."

Students were prompted to indicate which three courses they used their devices most often (see Figure 20) and which three courses they used their devices least often (see Figure 21).

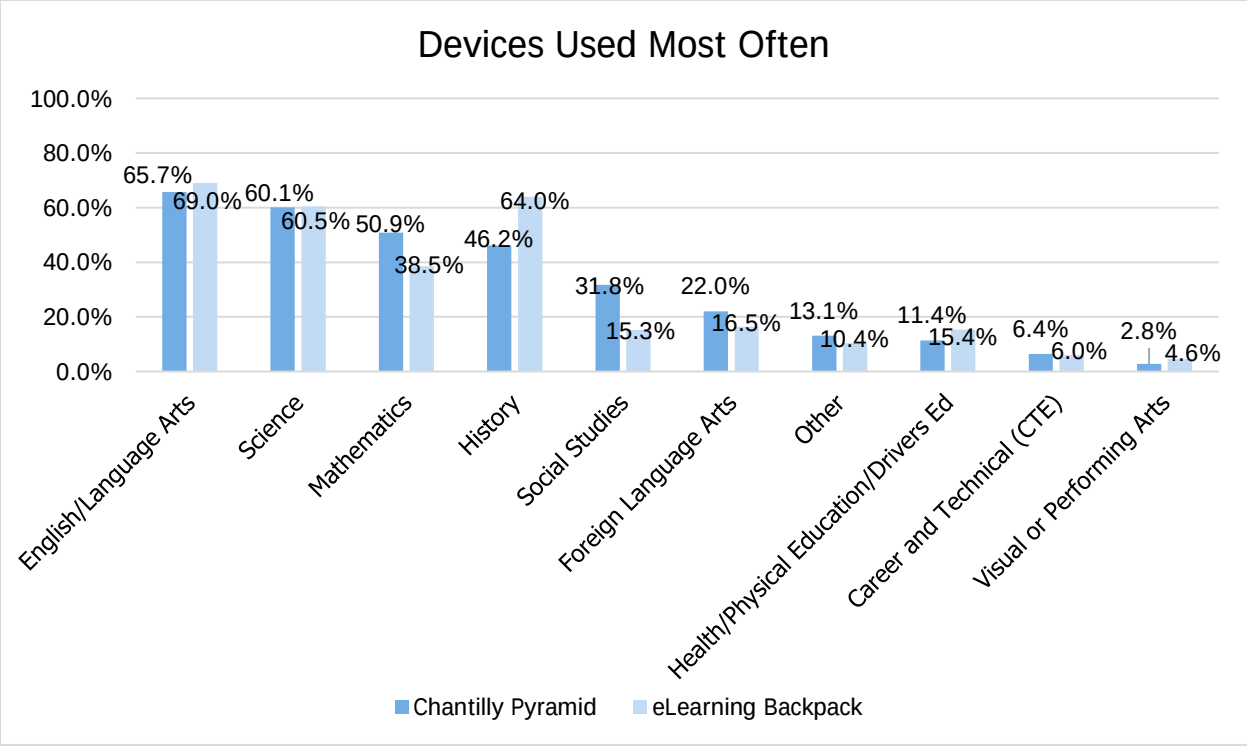

Figure 20. Percentage of students who indicated most often use of devices in courses.

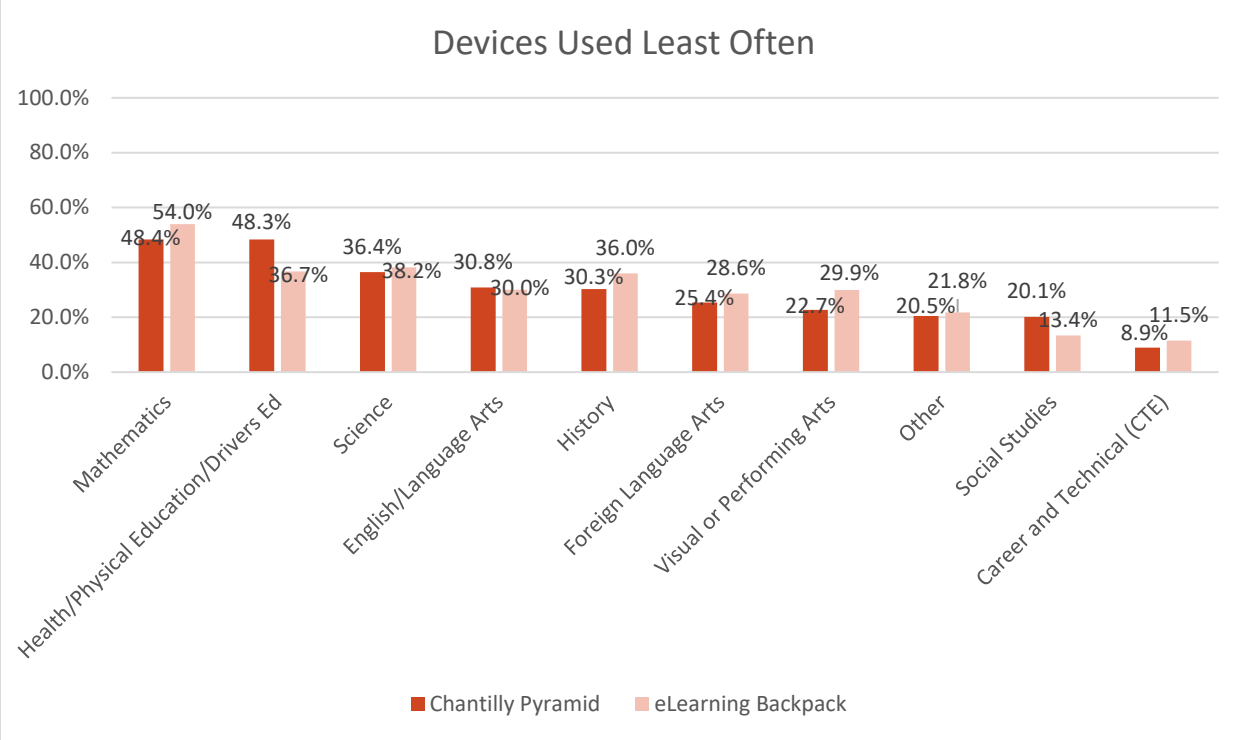

Figure 21. Percentage of students who indicated least often use of devices in specific courses.

As shown above, students in both groups indicated most often using devices in English/Language Arts. The next most frequent subject area for device use in Chantilly Pyramid schools was science, followed by mathematics. eLearning Backpack schools indicated frequently using devices in history, then science. While mathematics was indicated as a content area where devices were regularly used by both groups of students, they also indicated least often using devices in this subject area. Students in both groups also indicated least often using devices in health/physical education/drivers ed and science.

Device use varied by subject within Chantilly Pyramid schools. Elementary students indicated most frequent use of devices in mathematics, English/language arts, then social studies. Middle school students indicated most frequent use in science, then English/language arts, and finally history. High school students also indicated more frequent use of devices in English/language arts, history, and science. For all three grade level groups, devices were least often used in mathematics and for elementary and middle school students, health/physical education/drivers ed.

Also, in the questionnaire, students indicated the frequency that they used their personal devices for various school-related and personal activities. We begin with frequency of use for school-related activities, then conclude with frequency of use for personal activities. Overall, eLearning Backpack students report using devices more often than do Chantilly Pyramid students. In both groups, students most often use their devices for working on schoolwork or completing homework at home, for viewing grades, and for submitting homework. Devices are least often used for collaborating with other students from home, receiving feedback from other students, and playing educational games or games that support learning.

School-related activities. The first few items were related to online digital classroom spaces, viewing/taking notes and using the device to learn about additional topics, (see Figure 22), whereas the remaining items focused on the areas of assessment, communication, and media.

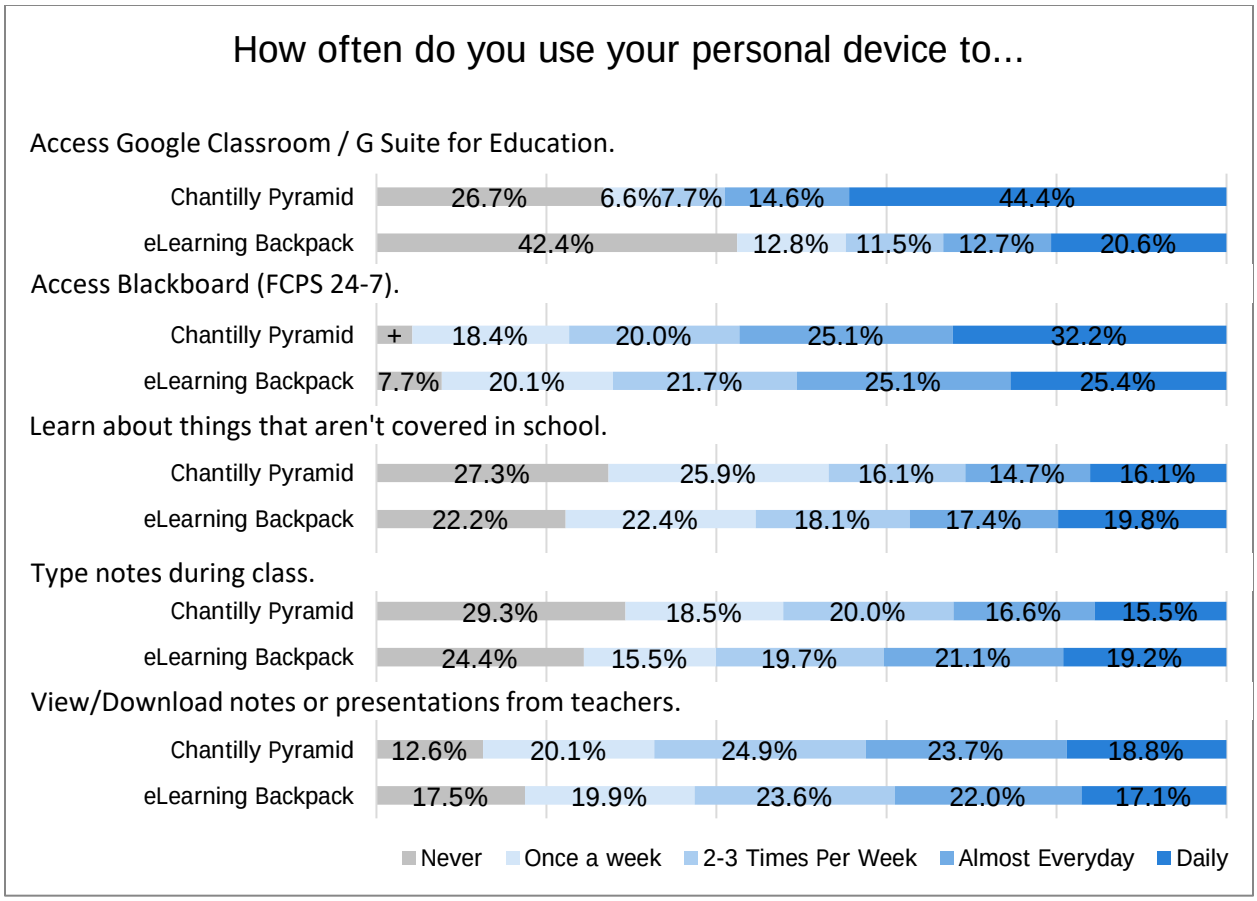

Figure 22. Students' reported frequency of personal devices for general academic activities.
Note: + indicates < 5.0%

Students indicated a moderate use of their personal devices for accessing Blackboard (CP: 57.3%, eLB: 50.5%) and Google Classroom/G Suite (CP: 59.0%, eLB: 33.3%). Less often did students indicate almost daily or daily use of devices for viewing/downloading notes or presentations (CP: 42.4%, eLB: 39.0%) and typing notes during class (CP: 42.4%, eLB: 40.3%). We observed a substantial reduction in frequencies (> 35points) of these two activities as compared to the previous year. Finally, the majority of students rarely (never or once a week) used their devices to learn about things that are not covered in school.

Device use differed significantly between students in Chantilly Pyramid schools:

- Elementary school students were more likely than both middle and high school students to regularly use devices for accessing Google Classroom. Middle school students were more likely than high school students to use the devices for this purpose. Elementary students were also more likely

than both middle and high school students to use their device to view or download notes or presentations from teachers.

- Middle school students were significantly more likely than elementary students to indicate they use their device to learn about things that are not covered in school. High school students were also significantly more likely than elementary students to use the device for this purpose. Middle school students were more likely than both groups to indicate they use the device regularly to access Blackboard. High school students were significantly more likely to regularly use devices than elementary school students.
- Middle and high school students were more likely than elementary students to indicate regularly using their device for typing notes during class.

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 (see Figure 23).

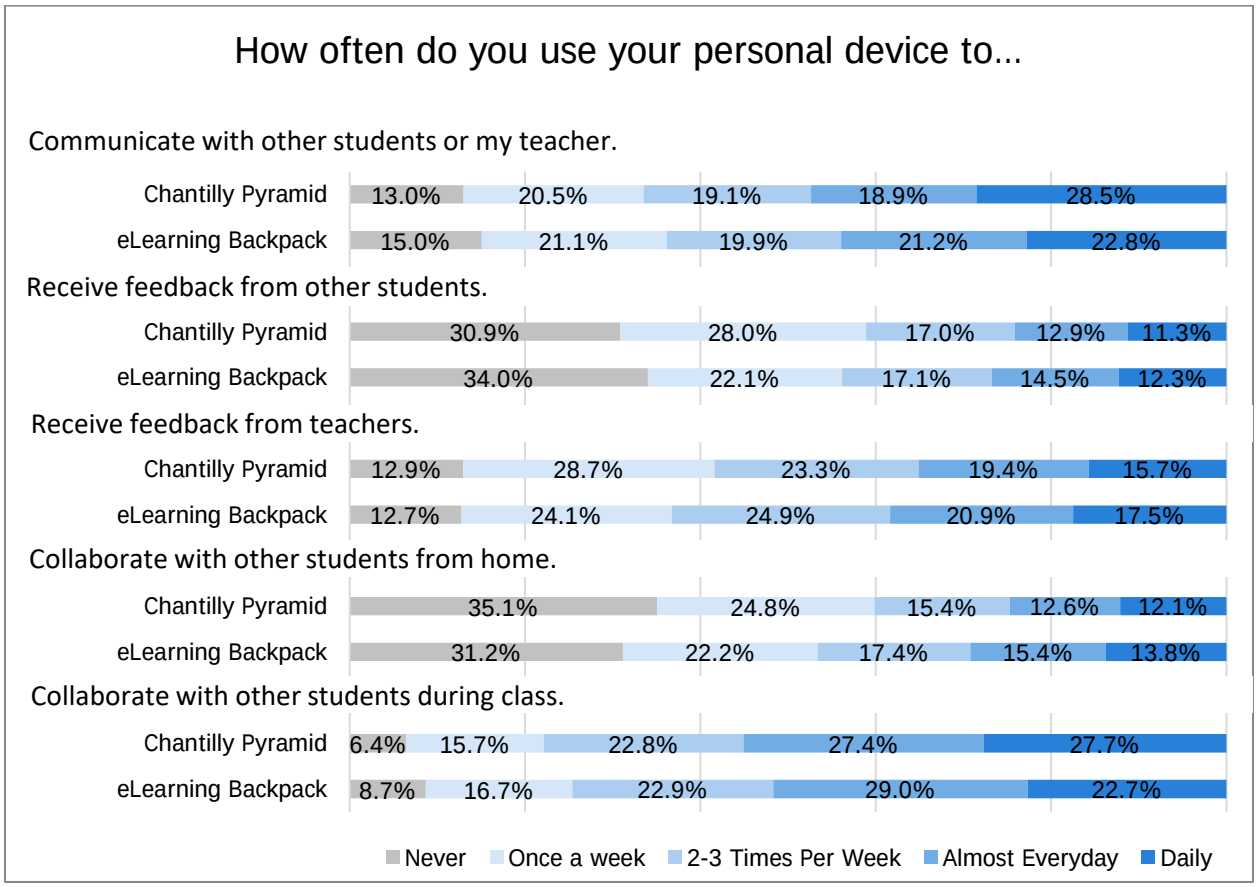

Figure 23. Frequency students reported almost daily or daily use of personal devices for communication purposes.

As shown in Figure 23, students in both groups use devices for a limited extent to engage in communication-related activities. More often did students use devices to collaborate with other students during class (CP: 55.1%, eLB: 51.7%) and communicate with peers or their teacher (CP: 47.4%), eLB: 44.0%) as compared with the other activities. In terms of the latter, roughly a quarter indicated regularly using devices to receive feedback from other students (CP: 24.1%, eLB: 26.8%) and collaborating with other students from home (CP: 24.7%, eLB: 29.2%). A third (CP: 35.1%, eLB: 38.4%) indicated using devices regularly to receive feedback from teachers. With each of these communication-related activities, we observed a substantial decline in device use from the previous year. The difference was most notable for receiving feedback from other students (- >50pts) and from teachers (- > 40pts).

There were statistically significant differences in frequency of use between Chantilly Pyramid schools:

- Elementary and middle school students indicated using devices more often than high school students for collaborating with other students during class. Elementary school students more often used devices for communicating with other students or the teacher as compared with middle and high school students. Middle school students indicated using devices more often than high school students.
- Middle school students indicated using devices more often than high school students for receiving feedback from teachers and receiving feedback from other students.
- High school students indicated using devices more often than both elementary and middle school students for collaborating with other students from home.

Assessment. Device use for assessment purposes, such as for tests, homework, or in preparation for such an assignment was somewhat more common than for communication purposes (see Figure 24).

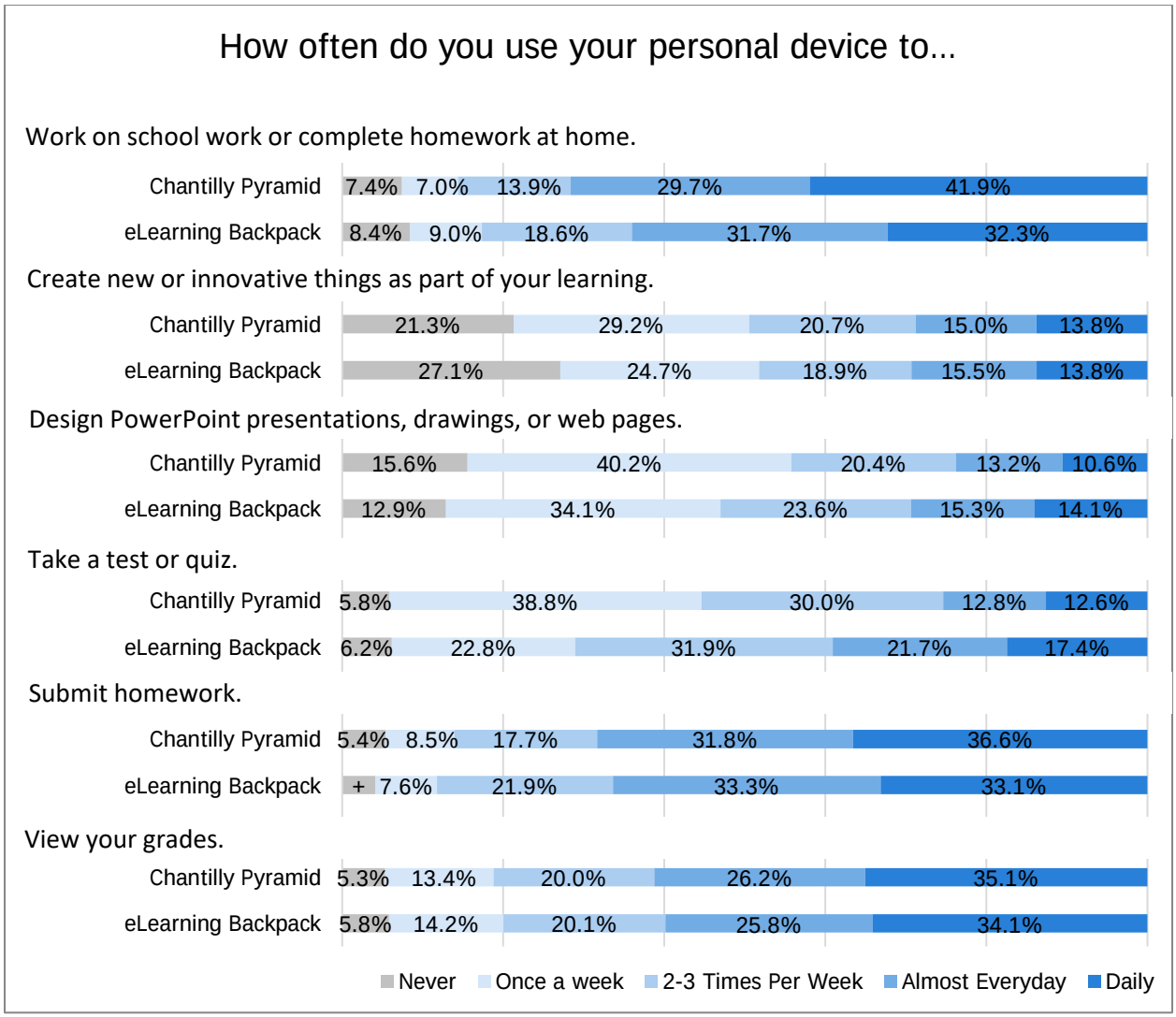

Figure 24. Frequency students reported almost daily or daily use of personal devices for assessment purposes.
Note: + indicates < 5.0%

Students regularly reported using devices to work on schoolwork or complete homework at home (CP: 71.7%, eLB: 64.0%), to submit homework (CP: 68.3%, eLB: 66.4%), and for secondary students to view grades (CP: 61.2%, eLB: 59.9%). Less regularly did students report using devices to take a test or quiz (CP: 25.4%, eLB: 39.1%), design PowerPoint presentations, drawings, or web pages (CP: 23.8%, eLB: 29.4%), and create new or innovative things as part of their learning (CP: 28.8%, eLB: 29.3%). As with the other activities, frequencies declined from the previous year, most notably for designing presentations, drawings, or web pages and taking a test or quiz.

There were statistically significant differences in the frequency students used devices for assessment purposes between Chantilly Pyramid schools:

- Middle school students used devices more often than elementary and high school students for submitting homework, taking a test or quiz, creating new or innovative things as part of their learning, and working on school work or completing homework at home. Middle school students used devices more often than high school students to view their grades.
- Middle and high school students used devices more often than elementary students to design PowerPoint presentations, drawings, or web pages.

Media. The final set of questionnaire items regarding device use explored the frequency students used their FCPS-issued device for school-related media activities (see Figure 25).

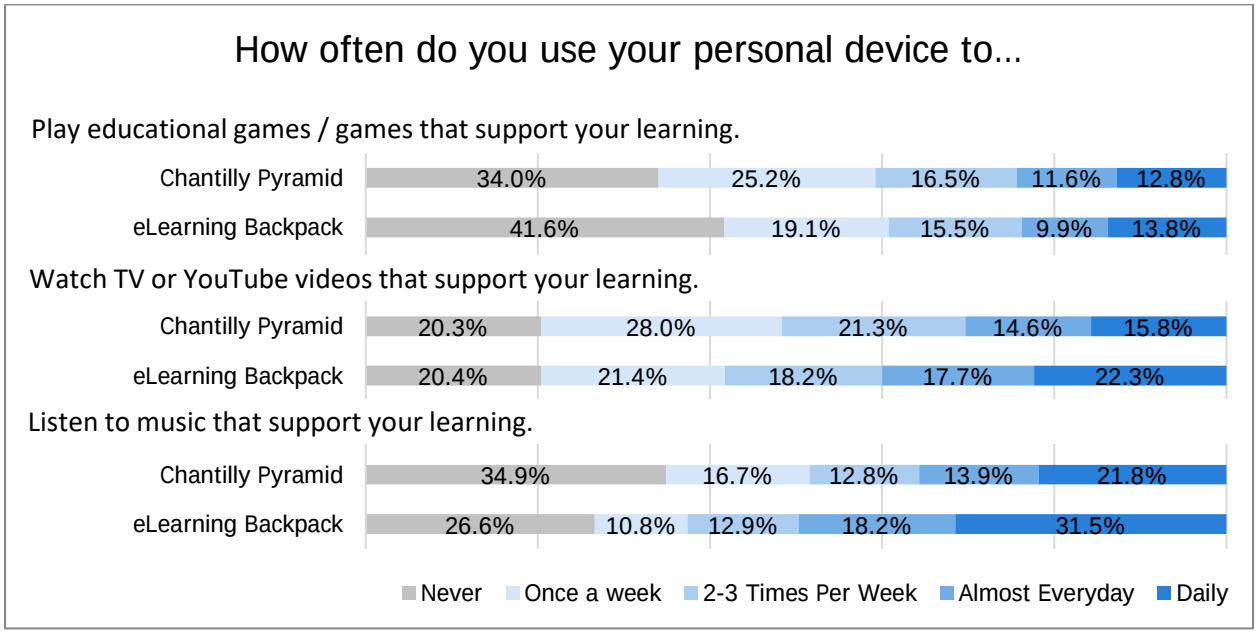

Figure 25. Frequency students reported use of personal devices for media-based tasks.

Frequencies appeared to be comparable with communication activities. As shown in Figure 15, daily or almost daily use of laptops were infrequent for listening to music (CP: 35.7%, eLB: 49.7%), watching TV or YouTube videos that support learning (CP: 30.3%, eLB: 40.0%), and playing educational games or games that support learning (CP: 24.4%, eLB: 23.8%).

We did observe statistically significant differences in frequency of use for school-related media activities in Chantilly Pyramid schools:

- Elementary school students were more likely than middle and high school students to use devices for playing educational games. Middle school students were more likely than high school students to use devices for this purpose.

- Middle school students were more likely than elementary school and high school students to use devices for listening to music and for watching TV or YouTube videos that support learning. High school students indicated more frequent use of devices than elementary students for watching TV or YouTube videos.

Personal activities. This year, students were asked to indicate the frequency they use their school-issued laptop for personal activities. As shown in Figure 26, eLearning Backpack students reported more frequent use of devices for personal activities, though both groups appear to use their devices more so for school-related activities.

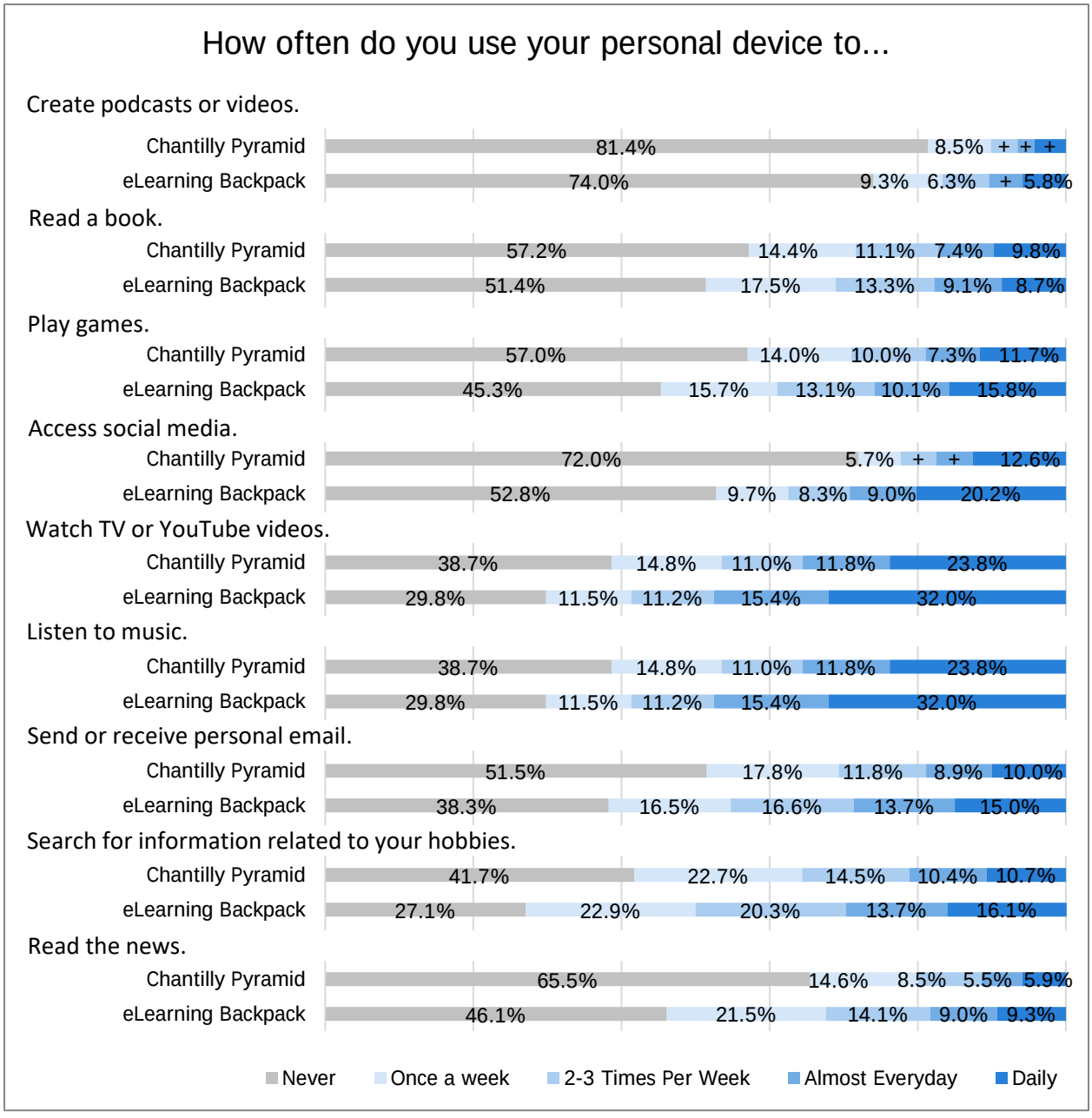

Figure 26. Students' reported frequency of device use for personal activities.
Note: + indicates < 5.0%

Most often students use their devices on a daily or near daily frequency for listening to music (CP: 35.5%, eLB: 47.5%) and watching TV or YouTube videos (CP: 26.9%, eLB: 42.4%). Importantly, over half of students indicate never using their device or using it just once a week for these personal activities.

There were statistically significant differences in the frequency devices were used for personal activities between Chantilly Pyramid schools:

- Middle school students indicated more frequent use of devices than high school students for playing games and reading books.
- Middle and high school students indicated more frequent use of devices than elementary students for all personal activities.
- High school students indicated more frequent use of devices than middle school students for searching for information related to hobbies and sending or receiving personal emails.

Observations of technology-enhanced instruction. During classroom visits, students were observed on devices in 32 of 44 classrooms. Of those 32 classrooms where devices were present, students in 25 classrooms were observed using their personal device alongside paper materials, books, direct lecture from their teacher, or as part of a rotation model. In other words, in the large majority of classrooms where devices were present, at all grade levels, personal devices were not the sole focus of students or teachers. For example, in an elementary level art class, students worked on a hand-made project involving yarn, symmetry, and stitching. Students were reminded that YouTube videos explaining each stitch were available on Google Classroom, and that they should consult their classroom page if they needed a reminder. Students were also reminded that the explanation of their project was due on Google Classroom by the end of the week.

Importantly, in just 7 of the 44 classrooms, students were observed working solely on their personal device, with no other source of content or materials. These observations generally involved students filling in worksheets or study guides or completing warm-up activities designed by teachers and uploaded for students in Google Classroom. In 12 classrooms, students were observed with either no technology tools present or the sole technology tool used was a projection of information on a SMART board.

Parent technology beliefs. Parents of students enrolled at Chantilly Pyramid schools and eLearning Backpack schools responded to questions regarding technology within the FCPSOn initiative (see Figure 27).

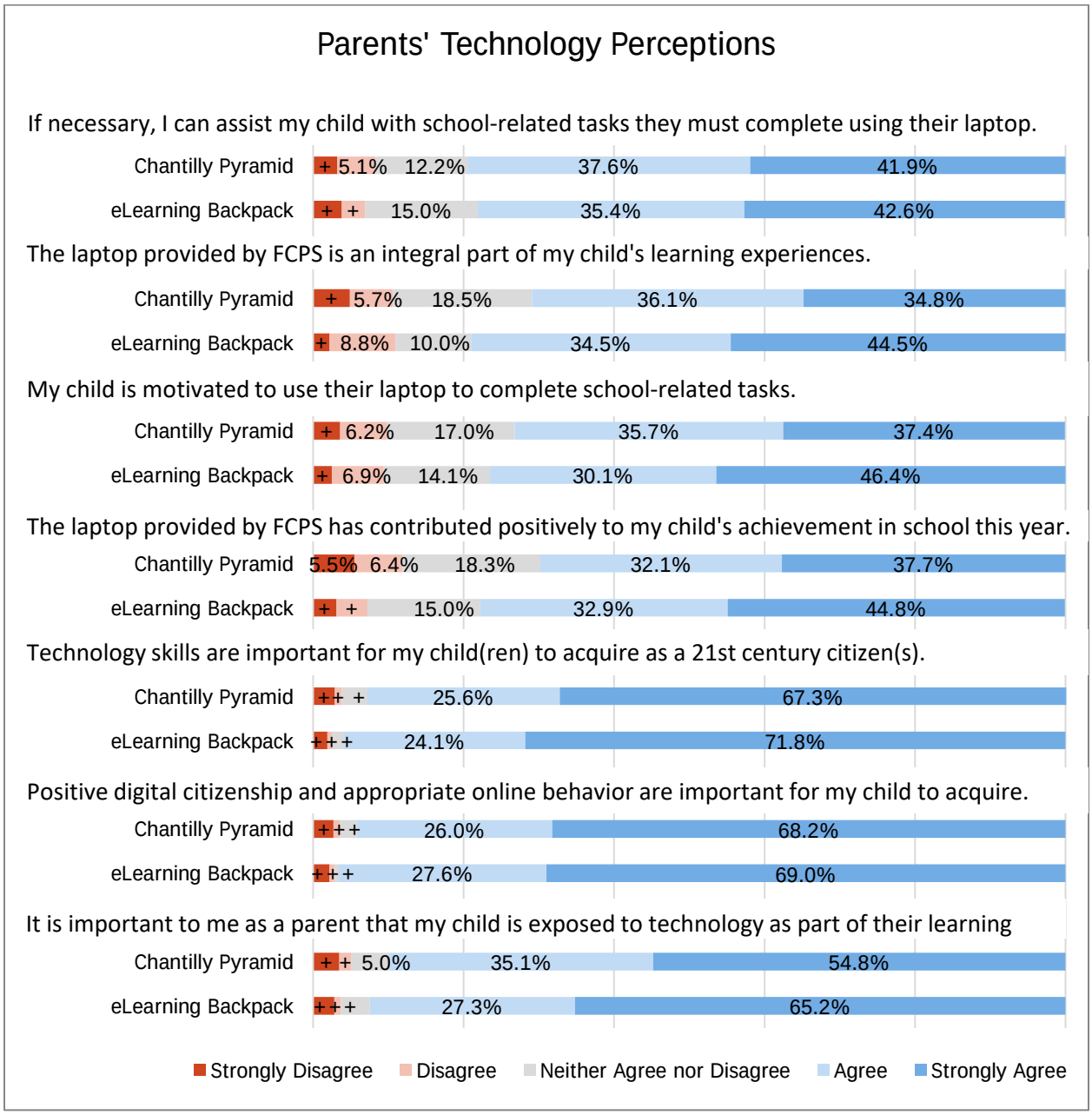

Figure 27. Parents' questionnaire responses regarding technology.
Note: + indicates < 5.0%

As illustrated above, parents generally had positive perceptions regarding technology and learning. Parents in both groups indicated the highest levels of agreement (greater than 90%) that (a) it is important that children are exposed to technology as part of their learning experiences, (b) positive digital citizenship and appropriate online behaviors are important for their children to acquire, and (c) technology skills are important for their children to acquire as 21st century learners.

Though still the majority (greater than 70%), parents in both groups were somewhat less likely to agree to the remaining statements, including those related to positive impact on student achievement, their child's motivation to use technology, the importance of the computer to their child's learning experiences, and their own technological efficacy. Responses from parents within Chantilly Pyramid schools were consistent across grade levels.

Parents' positive perceptions of technology appear to be relatively stable, with some slight decline in *very* positive perceptions of technology from last year to this year (see Figure 28 below). While parents have maintained overall positive perceptions of technology, they were generally less likely to *strongly* agree with the prompts in this section of the questionnaire this year compared to last year.

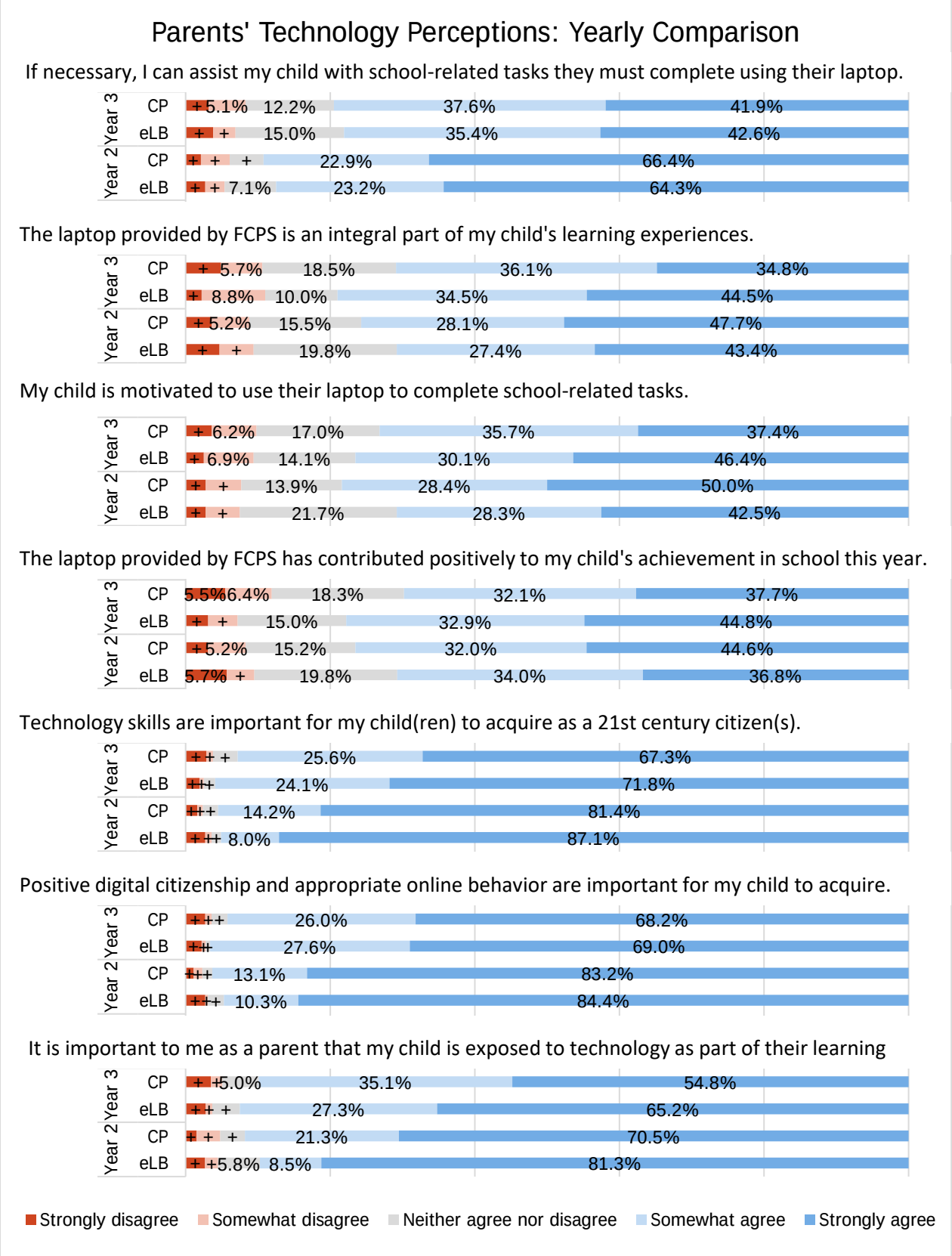

Figure 28: Yearly comparison of parents' technology perceptions.

Summary. Multiple data sources suggest that teachers are more confident technology users this year. Not only are teachers described as more confident by their peers, they were notably more likely to agree this year with questionnaire items related to their perceptions of themselves as efficacious technology users. Teachers in both groups considered technology to be integral to their instructional practice. Teachers of younger grades appear to more convinced of the utility of the initiative than teachers of older grades.

While motivation to use technology at school is relatively high among all students, eLearning Backpack students expressed more excitement about their computer and enjoyment of school during focus groups than Chantilly Pyramid students. In the student questionnaire, eLearning Backpack students were notably more likely to agree that their personal computer was important to their success at school; they also indicated an overall higher frequency of use of their computer than Chantilly Pyramid students. While the majority of all students agreed that their computer makes school more enjoyable and that using their device felt natural, younger students were more likely to agree than older students.

Across all student focus groups, students generally agreed that their total technology usage and screen time has increased overtime although there was mixed feedback regarding whether that was perceived to be a good, bad, or relatively unimportant thing. Teachers agreed that students are on their personal devices more than before and, again, feedback about whether that was good or bad, was mixed. Students mostly agreed that technology has had a positive impact on their learning.

In regards to actual technology use, students were observed using both their laptop and traditional materials, including books, worksheets, and hand-held manipulatives or creative tools, more frequently than they were observed using only technology or no technology at all. Students rarely were engrossed in their laptop. Questionnaire responses indicate that students most frequently use their device to complete and turn in assignments and to stay aware of school-related activities. Older students are more likely to use their personal computer to explore/create content and communicate with their teachers; younger students are more likely to use their device to collaborate and play educational games. Chantilly Pyramid students were more likely to frequently use Google Classroom; eLearning Backpack students more frequently access media.

Parents' responses to questionnaire items related technology-related beliefs suggest that the majority of parents are supportive of technology-enhanced instruction and hold positive views toward technology in general. While parents were less likely this year to *strongly* agree with prompts related to technology beliefs, they appear to have maintained their positive perceptions overall as the initiative has matured thus far.

Physical Learning Environment

Classroom observations, interviews, and focus groups documented the extent to which the physical environment of classrooms supported the integration of technology into learning and created a learner-centered environment, which 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.

Interviews with principals and SBTSs affirm the changing physical layout of classrooms fostered by FCPSOn. One Chantilly Pyramid principal explained how the majority of the school's classrooms replaced desks with more inviting spaces that included couches, opening up the room for more collaborative activities among students. An eLearning Backpack principal said, "There is no front. Students are in groups, students are working alone, the teacher is floating. Classroom management is totally different." This sentiment was shared by SBTSs as well, when prompted to reflect on what FCPSOn looks like and how teacher practices have changed over time. SBTSs (and teachers themselves) frequently invoked an image of a teacher who "floats" around to students who are engaged in self-guided learning alone or in groups.

Classroom observations in Chantilly Pyramid elementary and middle schools revealed that roughly two-thirds (n = 19) of the classrooms were arranged to support student choice and collaborative work. Multiple seating options were particularly prominent in elementary schools, with 14 of 16 elementary classrooms observed having carpet, at least two types of individual seating options, and a table to support group work in additional to individual work spaces. High schools in general, including Chantilly High School, were much less likely to offer multiple seating options. Evidence of multiple seating options was observed in just one of the three eLearning Backpack schools. In middle and high schools, science classes and media/art classrooms were particularly rigid in seating design although the need for standard lab and working space demanded by these subjects likely prohibits variation in classroom design.

Visual supports were deemed sufficient to support student learning (e.g., daily schedule, student work, rules/citizenship, school pride, informational text, etc.) in 37 of the 44 classrooms observed. Visual supports included student work, notations of classroom norms, encouraging and motivational posters, content-specific information, photographs of students, and, in younger grades, informational text, labeling, and visuals of foundational letters, numbers, colors, and other basic vocabulary. Several classrooms (n = 9) were reported to contain visuals related to *Portrait of a Graduate* attributes.

Summary. Our observations suggest that seating arrangements to support student-centered learning are more prevalent in elementary and middle school classrooms. High schools, including Chantilly High School, generally lacked multiple

seating options although we did occasionally observe individual desks arranged in groups to facilitate collaborative work. We frequently observed visual supports considered sufficient to support student learning; this year, several classrooms had visuals related explicitly or implicitly to *Portrait of a Graduate* attributes.

Contrary to last year, SBTSs, principals, and teachers referenced the physical environment of classrooms when speaking broadly about what the initiative "looks like" at the school. School-based adults noted that the increase in self-guided learning activities has de-centralized the classroom; adjustments to the physical environment reflect a shift in the teacher role from instructor to facilitator, and someone who teaches in more ways than at the front of the room.

Student Engagement

The fourth logic model component examined involves the impact of the initiative on student engagement. First, we present evidence related to student engagement 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. In the majority of classroom observations (n = 39), students were noted as on task and engaged in classroom activities. In a minority of classrooms (n = 5), one or more students were observed engaging in off-task activities with or without their personal devices. That is, our observations suggest that computer use is not the sole reason for off-task behavior. Of the 32 observations where device use was noted, observations from just four classrooms noted inconsistencies with digital citizenship norms (e.g., an elementary student was observed playing a non-educational game in class). Based on these findings, we infer that off-task behavior and digital citizenship concerns are not pervasive in the schools we visited.

Principal perceptions. Principals noted increased student engagement as a result of the ease of communication (between teachers and students and among students) and the immediacy of access to content and materials facilitated by their personal device. The latter was particularly prominent in principals' descriptions of student impacts. A Chantilly Pyramid principal said, "Students can get the instruction they need at any given moment in time." Principals noted that teachers have more ways to formatively assess learners and are able to provide immediate feedback on student work, keeping students on track and aware of their learning outcomes. Additionally, principals noted that student engagement has increased as the classroom has become more student-centered and self-directed learning opportunities have become more frequent. An eLearning Backpack principal said, "Teachers are encouraged to get off the stage, let the students talk, to each other, to the class." A Chantilly Pyramid principal noted a pervasive theme among principals, which was that teachers are central to the impact the initiative has had and will continue to make on student outcomes, including student engagement. This principal said,

> *The student engagement piece all depends on the teacher, not the device. The technology is just a tool, but if it's used by a highly trained teacher, who knows how to leverage it for the benefit of students, it can have [a] huge impact.*

SBTSs perceptions. Three SBTSs from the Chantilly Pyramid agreed that the initiative has had an overall positive impact on students, especially in terms of engagement in learning. SBTSs at elementary schools tended to emphasize the excitement of students around student choice. Perceptions of increased engagement in learning was often attached to student choice by SBTSs. One SBTS said,

> *The initiative has made it easy for kids to express what they are thinking, and it doesn't matter if their written language isn't as good as their verbal language. They can look at a camera and speak their thoughts rather than having to write them down. It is very empowering for them to be able to find a way to best express themselves*.

Another said, "The kids love it. They love the choice. They expect to be able to choose how to show their learning. Some of them would rather make a video, others want to write a paper."

In terms of engagement, eLearning Backpack SBTSs mostly agreed that students are motivated to use their laptops to learn. Two eLearning Backpack SBTSs qualified their overall agreement by explaining that student engagement was dependent on the teacher and both recalled that implementation varied widely at their school. SBTSs explained that to the extent that teachers were implementing and using technology to enhance instruction, students were increasingly engaged in learning. One said, "It depends on how individual teachers utilize the technology within their classrooms. If students are using technology to create something, they are engaged. If they are using devices to read, they're not."

Teacher perceptions. In focus groups, teachers responded to a series of prompts related to the perceived impact of the initiative on students. The most frequent response from teachers regarding the impact of the initiative on students was related to increased student engagement and increased accountability for learning. Teachers often related increased student engagement to increased student choice—students are more engaged because they have more options that suit their learning needs and/or interests. Notable here is the increased engagement of ESOL students and students who are shy and/or introverted. A core content teacher said, "Kids who wouldn't talk in the past email me questions. I get five or six questions a week from people who never talk in class." Teachers described technology-enhanced education as simply more exciting in general, for all students. One teacher said, "It's more engaging than me talking and having them do a worksheet." Another admitted, "I'll never be as interesting as their computer."

Increased student accountability was almost always couched in a "no excuses" framework. Google Classroom and the certainty of access to educational tools has generated an expectation for students to complete homework and assignments on time, stay aware of class activities, communicate with their teachers and peers, and submit work that incorporates the resources they certainly have access to. An eLearning Backpack teacher said,

> *They are taking more responsibility. They no longer have a reason. 'I'm in your computer, go home and listen to me.' No longer talking about why 'I can't.' I say to them, 'You have the choice, you have control, you have access. Let's practice.*'

As teachers, even at the elementary level described, "I put it back on them, they know how to do this and that." Teachers noted that students are capable of a managing a wide range of tasks by themselves, from printing extra copies to taking care of their computers (e.g., charging every night), and answering their own questions by reviewing notes and recorded lectures. They indicated that the majority of students meet the expectation of doing this type of management of their own learning.

Teachers were also asked to indicate the degree to which technology has affected student engagement in the teacher questionnaire (see Figure 29). Questionnaire responses corroborate teacher feedback from focus groups.

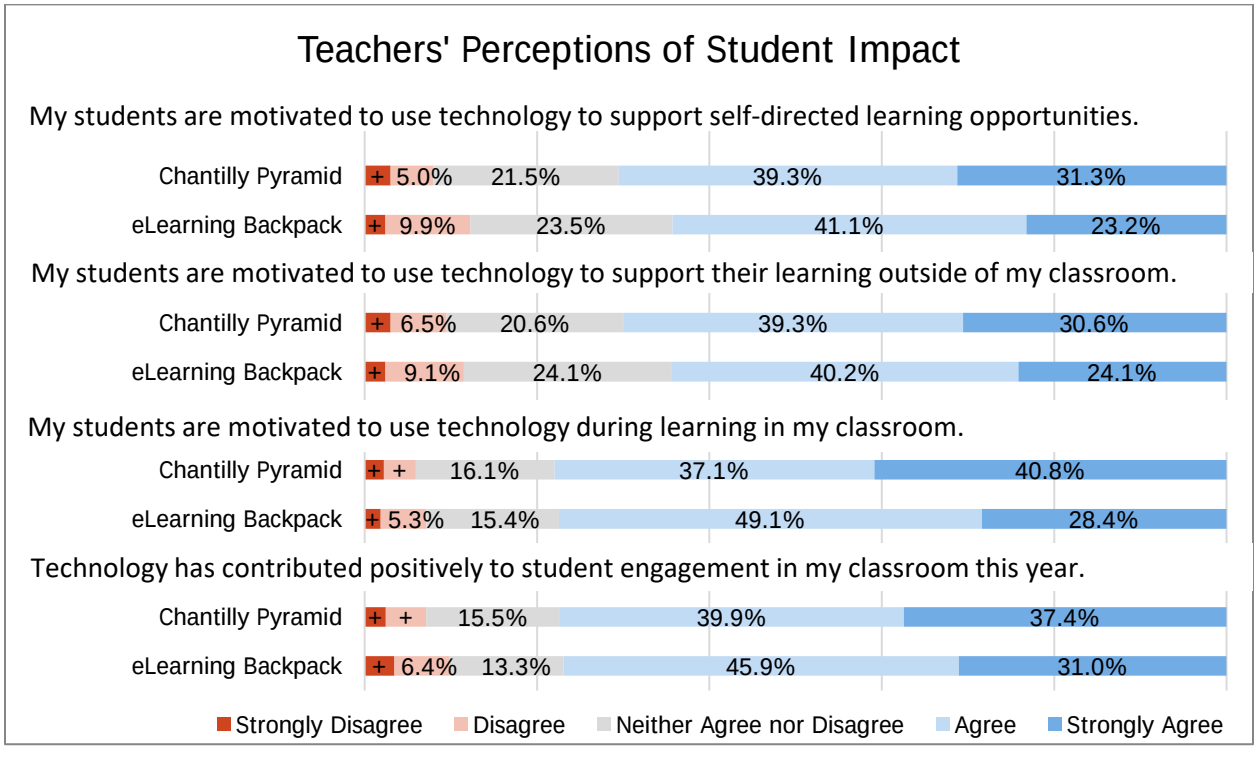

Figure 29. Teachers' questionnaire responses regarding the impact of FCPSOn.
Note: + indicates < 5.0%

Responses indicated that three quarters of teachers in both groups agreed that technology has contributed positively to student engagement (CP: 77.3%, eLB: 76.9%). These findings represent a marked increase in levels of agreement from the previous year (13.4 and 20.1 points, respectively). Teachers tended to agree that students are motivated to use technology (a) during learning in their classroom (CP: 78.0%, eLB: 77.5%), (b) to support their learning outside of the classroom (CP: 69.9%, eLB: 64.3%), and (c) to support self-directed learning opportunities (CP: 70.5%, eLB: 64.3%). While Chantilly Pyramid and eLearning Backpack teacher responses were comparable, there were statistically significant differences for all student engagement items between Chantilly Pyramid teachers. Elementary and middle school teachers were significantly more likely than high school teachers to agree to these questionnaire statements.

Student perceptions. In focus groups, students noted increased engagement in their own learning in three ways. First, and most prominently, as an extension of the ease at which they are able to access school-related information and materials ("Everything is more efficient now, everything is right there."). Students described "using it in all different places" and having "all the resources at my fingertips." They noted that "working with someone, you don't have to go anywhere." Students tended to describe increased engagement in terms of increased opportunities, including time and place, for them to access school-related content and complete school-related tasks, and the ease at which they take advantage of these opportunities. Students noted "it's easy to reach out if you need help or anything," "teachers will answer right away," and "I can get my grades instantly."

Students also described increased engagement in learning in terms of taking more responsibility for completing school-related tasks. They affirmed the "no excuses" framework that emerged from teacher focus groups, noting that, "you don't have excuses anymore, missing school is not an excuse." Students indicated that meeting expectations regarding deadlines and organization, and the expectation that students are to be self-directed in their learning, is made easier by the contribution the personal device has made to organizing actual classroom materials—lectures, notes, assignments—in one place. Whether they need to access saved files ("There's no more lost papers" and "no reason to not have our stuff with us") or classroom content via Google Classroom, students indicated they are able to do so with ease. A Chantilly High school student summarized, "It helps with organization. I can keep everything in one place."

Lastly, and primarily among younger students, students noted increased engagement in learning through the use of educational games. Though students across grade levels cited gaming as one of the main reasons why the initiative has made learning easier and more fun, elementary school students more frequently referenced

digital gaming than did middle or high school students. As an elementary school student stated, “I think it made learning much more fun. There are some websites that have games that help you learn but in a fun way,” and a high school student said, “I would say the game-type activities. I like to learn through having fun.”

Summary. Similar to last year, multiple stakeholder groups affirmed the positive impact of the initiative on student engagement in learning. For teachers and students, engagement in learning is multi-faceted—it includes increased engagement with actual content and increased attention among students to the management of their school-related tasks and materials. Teachers described students as taking a more active role in knowing what is due and when; students described themselves as more capable of doing this type of management because of the assistance the device provides in terms of organized content and materials. Students and teachers invoked a “no excuses” explanation for why this sort of engagement with and responsibility for their own learning has increased.

Principals and students frequently related increased student engagement to the ease at which learning and completing school-related tasks may be accomplished. Principals described, and students affirmed, that students and teachers are able to communicate easily and effectively in terms of providing feedback and clarifying content. Importantly, some SBTSs and principals ultimately placed teachers at the center of the conversation around student engagement by implying that teachers are the actual genesis of student engagement, while technology is a tool for teachers to leverage to get to that goal.

Student Learning

In the following section, we present findings related to stakeholder perceptions on student learning and achievement from observations, focus groups, interviews, and questionnaires.

Principal perceptions. Principals generally had little to say regarding the impact of the initiative on student achievement. Only two respondents directly addressed achievement; one reported that their students test very well overall but did not directly attribute this to FCPSOn, and the other stated, “Achievement hasn’t really been impacted at this point.” Even still, there is general support for the initiative and a sense of no turning back. One principal said, “If you took the laptops away, I think our teachers would revolt.” Another commented, “I’ve seen things come and go… This is the only thing that I truly believe is achieving the goal of transforming learning.”

With regards to learners with 504s, IEPs, and ELLs, principals credited FCPSOn with providing them greater access to differentiated materials in various forms of media. In particular, respondents found the devices to assist learners in communication, particularly in written expression. Simply put, “The devices make it easier to write.” One

principal explained that the device helps struggling students be more discreet; "Being able to be in a Google Doc and have your teacher be able to give you real time feedback without walking over and embarrassing you is good for all students but more so for our struggling students." For ESOL students, specifically, two eLearning Backpack principals observed how technology helped these individuals acclimate to school and "opened a world of communication" for them.

Teacher perceptions. In focus groups, teachers responded to a series of questions about the impact of the initiative on students. The most frequent feedback from teachers related to student impact were not necessary on increased learning and achievement but on increased *student engagement and accountability*, which does impact learning in important ways. Teachers implied that part of students' increased accountability for their own learning is a lack of excuses for *not learning*. With the certainty of access to materials and content facilitated by their personal laptops, students may be learning more simply because there is no reason for why they can't.

Teachers also described increased flexibility in the time, place, and pace of student learning. The initiative has enabled students to learn and work in ways that are authentic for them. Pace is particularly prominent within this theme and is largely facilitated by the self-directed learning model described by teachers in the instructional practices section of the focus group (described in detail in the Teacher Practices section of the current report). The centrality of Google Classroom to time, place, and pace of student learning cannot be understated. Teachers described working collaboratively on documents with students who are at home, answering emails on weekends, and setting deadlines that are beyond the school day. Teachers' willingness to embrace the opportunity to employ these instructional practices has resulted in a flexible school day for students. A high school teacher said, "Even in my honors level, they don't work at the same pace. I disseminate the whole thing and they can go at their own pace, they can look at it again in Google Classroom."

Teachers also noted an increase in students' skills related to research, problem-solving, and basic computer skills. One teacher said, "They're looking and they're finding their responses instead of me. It's a skill. They're learning a skill." Another said, "I teach them how to research, instead of about Rome. They teach themselves about Rome. I spend more time on skills, 'How do I find information, how do I write about it.'" Teachers also emphasized the prominence of self-guided learning in their classrooms. Regarding actual student achievement, though, teachers (like principals) were reserved. They tended to talk about student learning in terms of the skills just described, and in terms of *how* students learn (e.g., under more flexible conditions and increasingly, using a self-guided method).

Teachers were asked to indicate through the questionnaire the degree to which the use of technology has impacted students. Interestingly, in comparison to the more nuanced feedback related to achievement during focus groups, a large majority of

teachers indicated agreement on the questionnaire that technology has contributed positively to student achievement in the classroom this year (CP: 74.9%, eLB: 78.0%). Teachers also generally agreed that their students improved in their use of technology as a learning tool (CP teachers: 79.5%, eLB teachers: 77.9%). Levels of agreement were comparable to last year regarding the contribution of technology on student achievement. There was a slight decline (CP: -7.2, eLB: -5.2), however, in the degree to which teachers agreed that students are motivated to use technology for learning. Chantilly Pyramid elementary and middle school teachers were significantly more likely than Chantilly Pyramid high school teachers to agree that their students improved in their use of technology as a learning tool this year. Elementary Chantilly Pyramid teachers were significantly more likely than their high school counterparts to agree that technology has contributed positively to student achievement this year.

Student perceptions. In focus groups, students were asked to offer their current perceptions of what impact the device has had on learning and how device integration has influenced their learning. Students predominantly indicated that learning has become substantially more accessible. This accessibility was primarily associated with the digital classroom space, Google Classroom. According to students, Google Classroom is used to organize and host assignments, resources, and instruction; provided learner independence and learning ownership, as the devices allowed students to discover and explore resources on their own and of their own choosing; and personalized product creation (e.g., students could use PowerPoint, Google Slides, videos, podcasts, etc. to create content). The digital classroom is described as providing access based on the learner rather than the instructor: Students described being able to work at their pace, to use resources of their own choosing, and to create content that allowed them to best express themselves. One student said, “Assignments are accessible and there’s a more direct route to recognize which websites you need.” Another said, “All your materials are in one place. If you miss a day, it is easy to find out what you missed. It’s all online. It’s all on the cloud and in one place.”

Flexibility in terms of activities and how students demonstrate learning was also frequently described. An elementary student said, “There’s more options and stuff to do so you can adapt to your own learning.” An eLearning Backpack student said,

> *I wouldn’t say it makes learning more fun but it has provided for more variety with the types of activities we do and this has made it better. We do more teaching of ourselves (i.e., self-directed learning). It’s probably more work but it is more beneficial.*

Students also frequently implied this type of an increase in work production since device integration. As a middle school student said, “We do a lot more in a shorter period of time, especially with projects and presentations, the process is faster.”

At the conclusion of their questionnaire, students were asked if they'd liked to say anything more about their device or their experiences as a student in a Phase One school. Across all responses, students most frequently indicated that their personal device was "helpful" or "useful" for completing school-related tasks and their learning in general (437). They also described school and school-related tasks as "easier" and noted the convenience of their personal device.

Parent perceptions. In focus groups, all parents were asked to describe how the introduction of school-wide personal devices has affected their child's learning and enjoyment of school. Feedback regarding impact was mixed, though primarily negative. These findings are in contrast to more positive perceptions conveyed in the parent questionnaire. Negative feedback related to the impact of the initiative on learning emerged in all four parent focus groups. Parents were most vocal about a perceived increase in distractions, particularly in terms of access to the Internet and inappropriate websites, as well as game playing. Parents expressed concerns about the decrease in foundational skills being taught in school. Parents of younger students were most concerned about handwriting and letter formation skills not receiving as much attention as before. Parents of older students were most concerned that students are not retaining information picked up from the internet, as well as the loss of basic research skills and critical thinking. One parent of a high school student added that increased device use, including cell phones, was leading to a decrease in social skills among her child's peers. Overall, parents from all groups stated that while their child was excited to get a device initially, that excitement had worn off by the end of the school year.

Summary. The majority of teachers agreed in the teacher questionnaire that technology has a positive impact on student achievement. However, during focus groups and interviews, teachers and principals were generally reserved when talking about student impact in terms of actual achievement. Educators were more likely to talk about the impact on learning in terms of the positive impact of the initiative on *how* students learn. Prominent in teachers' descriptions of student impacts is increased flexibility in terms of time, place and pace of learning, and an increase in self-directed learning. Teachers also described an increase in certain student skills related to learning, including research skills and problem-solving. Principals noted that students are increasingly able to access content and demonstrate learning in ways that are consistent with their learning needs.

Students described the impact on their learning in terms of the accessibility of school-related content and materials, facilitated primarily through Google Classroom, and the helpfulness or usefulness of the device for learning. Similar to teachers, students also typically implied that the initiative impacted the way that they learn. They described learning as more independent and flexible, and that learning happens quicker and more efficiently. Increased flexibility related to student learning was a prominent theme to emerge last year; it appears that the initiative has continued to move learning to a more flexible and fluid part of students' lives. Not only are students able to access

content and materials at all times, they are also able to demonstrate learning and receive information in the best way for them.

Parents who participated in focus groups were fixated on their child's personal device as a source of distractions. Findings reported in this section emerged from focus groups and more critical or negative than findings that emerged from the parent questionnaire. We will discuss these contrary findings later in the report.

Portrait of a Graduate Skills

Portrait of a Graduate skills were examined through a variety of sources including classroom observations, interviews, focus groups, and questionnaires. Observers examined the degree to which the instruction encouraged the development of *Portrait of a Graduate* skills while teachers, principals, students, and SBTSs 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 individual.

Classroom observations. During each classroom observation, we noted whether specific *Portrait of a Graduate* attributes (communicator, collaborator, ethical and global citizen, creative and critical thinker, and goal directed and resilient individual) were explicitly or implicitly integrated into curriculum. We observed these attributes in 20 of the 44 classrooms observed. Curricula promoting students as communicators (n = 4) included activities such as an empathy-based conversation activity and classroom presentations. Curricula promoting students as a collaborator (n = 5) included group projects. Curricula promoting students as ethical and global citizens (n = 8) included activities related to different cultures and environmental issues (e.g., solar energy). Curricula promoting students as creative and critical thinkers (n = 7) included research-based and creative projects. Classrooms promoting goal-directed and resilient individuals (n = 2) included long-term assignments that required multiple steps to complete.

Principal and SBTS perceptions. Based on principal interviews, the *Portrait of a Graduate* framework appears to be inconsistently implemented at the school level. Some respondents indicated that they have not explicitly implemented *Portrait of a Graduate* because, as one principal put it, "The link between FCPSOn and *Portrait of a Graduate* attributes is pretty natural." Others work to make it more visible, by integrating the attributes into the school improvement plan or by choosing one attribute to focus on for a full school year. Most principals implied that their school aimed to create an awareness of *Portrait of a Graduate* practices, viewing it more as a "framework" rather than something to formally implement and measure. Principals implied that the devices have brought the attributes related to communication and collaboration to the forefront.

Based on responses from SBTSs, emphasis on *Portrait of a Graduate* skills appears to be different in the two groups that comprise the Phase One cohort. While Chantilly Pyramid SBTSs were quick to recount student progress in *Portrait of a Graduate* attributes, eLearning Backpack SBTSs unanimously indicated that the school did not use these attributes as a rubric for teaching and learning. One Chantilly Pyramid SBTS felt that students improved most as communicators; two felt that students had improved most as collaborators; one felt that students had emerged as resilient and goal-directed individuals. Unanimously, Chantilly Pyramid SBTSs' descriptions of students' improvement in *Portrait of a Graduate* attributes was related to increased student choice or project-based learning. SBTSs described the initiative as central to increasing students' ability to express their ideas and skills in ways that are authentic (communicator) and the prominence of digital classroom spaces during the school day (collaborator).

Teacher perceptions. In focus groups, teachers were asked to reflect specifically on students' development of *Portrait of a Graduate* attributes. Compared to last year, teachers were noticeably more familiar with *Portrait of a Graduate* attributes in general and were able to talk about their students within the *Portrait of a Graduate* structure with ease. Teachers primarily noted improvements in students as communicators and collaborators. They also conveyed that students are improving as ethical and global citizens although several teachers noted there is room for improvement in that area. Elementary teachers are most likely to describe their students as creative and critical thinkers. While teachers did not explicitly employ the "resilient and goal-directed attribute," we infer from other sections of the focus group that high school students, particularly ESOL students, are making improvements in this area.

The final series of items on the teacher questionnaire asked classroom teachers the degree to which they felt that technology had impacted their students' *Portrait of a Graduate* skills (see Figure 58).

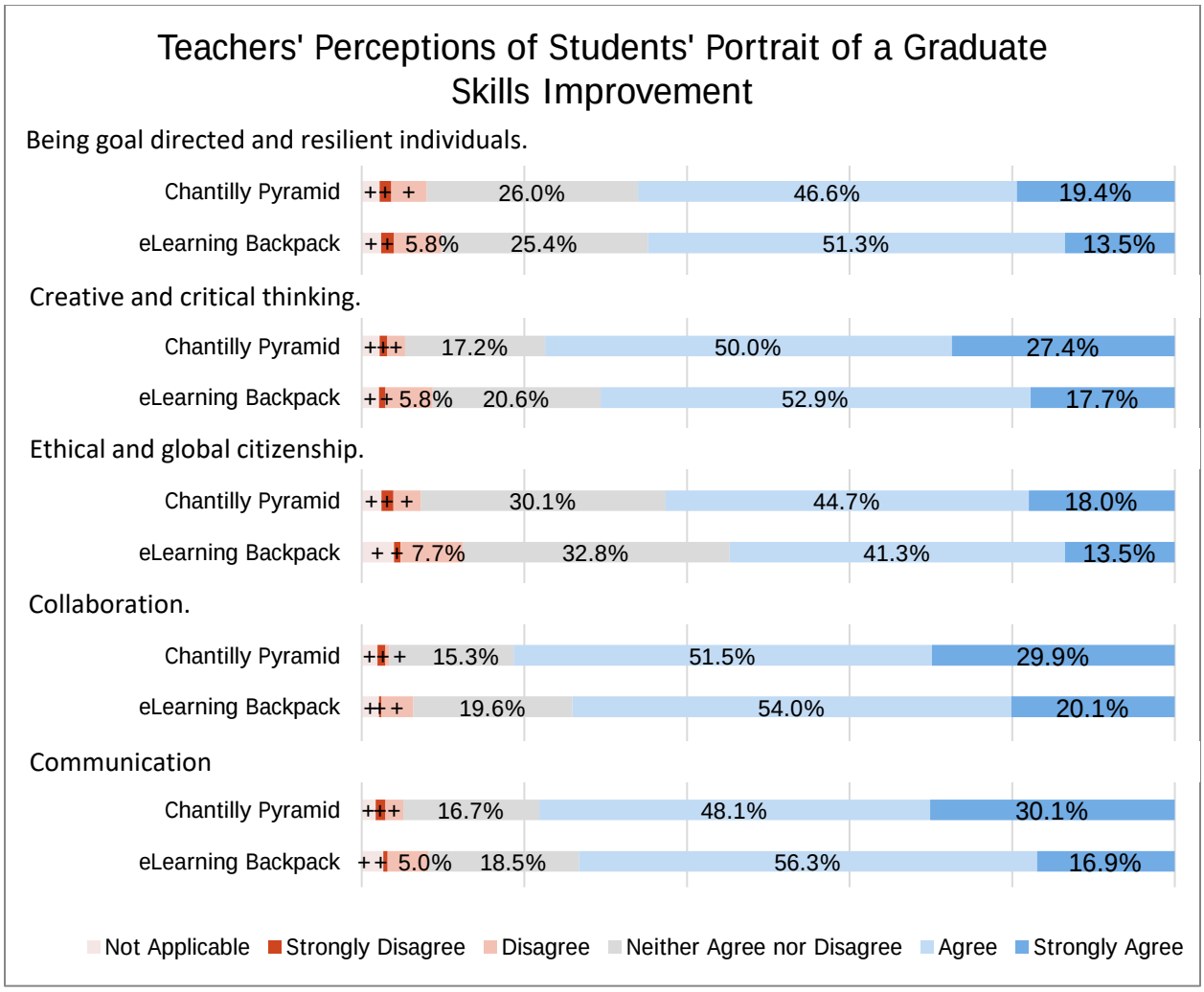

Figure 30. Classroom teachers' perceptions of students' *Portrait of a Graduate* skills.
Note: + indicates < 5.0%

Overall, Chantilly Pyramid teachers were more likely to agree with specific impacts regarding *Portrait of a Graduate* skills than eLearning Backpack teachers. As with prior years, and similar to findings from teacher focus groups, teachers in both groups were more likely to perceive an impact on communication, collaboration, and creative and critical thinking during this year.

- **Communicator.** Roughly three-fourths of Chantilly Pyramid teachers (78.2%) and eLearning Backpack teachers (73.3%) agreed to a perceived impact on students' communication skills. Elementary and middle school Chantilly Pyramid teachers were significantly more likely than Chantilly high school teachers to agree to an impact this year.
- **Collaborator.** A greater proportion of teachers agreed to an improvement in students' demonstration of collaboration skills (CP: 81.3%, eLB: 74.1%).

Elementary Chantilly Pyramid teachers were significantly more likely than Chantilly high school teachers to agree to an impact this year.

- **Ethical and Global Citizen.** Fewer teachers indicated agreement that students have improved in demonstration of ethical and global citizen skills (CP: 62.6%, eLB: 54.8%).
- **Creative and Critical Thinker.** The majority of teachers agreed that students have improved in demonstrating creative and critical thinking skills (CP: 77.4%, eLB: 70.6%).
- **Goal Directed Individual.** Teachers were less likely to agree that their students have improved in demonstrating being a goal-directed and resilient individual (CP: 66.0%, eLB: 64.8%).

Levels of agreement for both Chantilly Pyramid and eLearning Backpack teachers noticeably increased from last year for all five of the *Portrait of a Graduate* skills (see Figure 59 below). These findings affirm those from teacher focus groups and SBTS and principal interviews, which suggest that students have increased their demonstration of these skills overall and that educators are generally more familiar with the framework. Increases were most apparent within eLearning Backpack teachers' responses, with changes across years varying from 8.0 points (Ethical and Global Citizen) to as many as 15.9 points (Communicator). Chantilly Pyramid levels of agreement ranged from 5.3 points (Creative and Critical Thinker) to 9.8 points (Communicator).

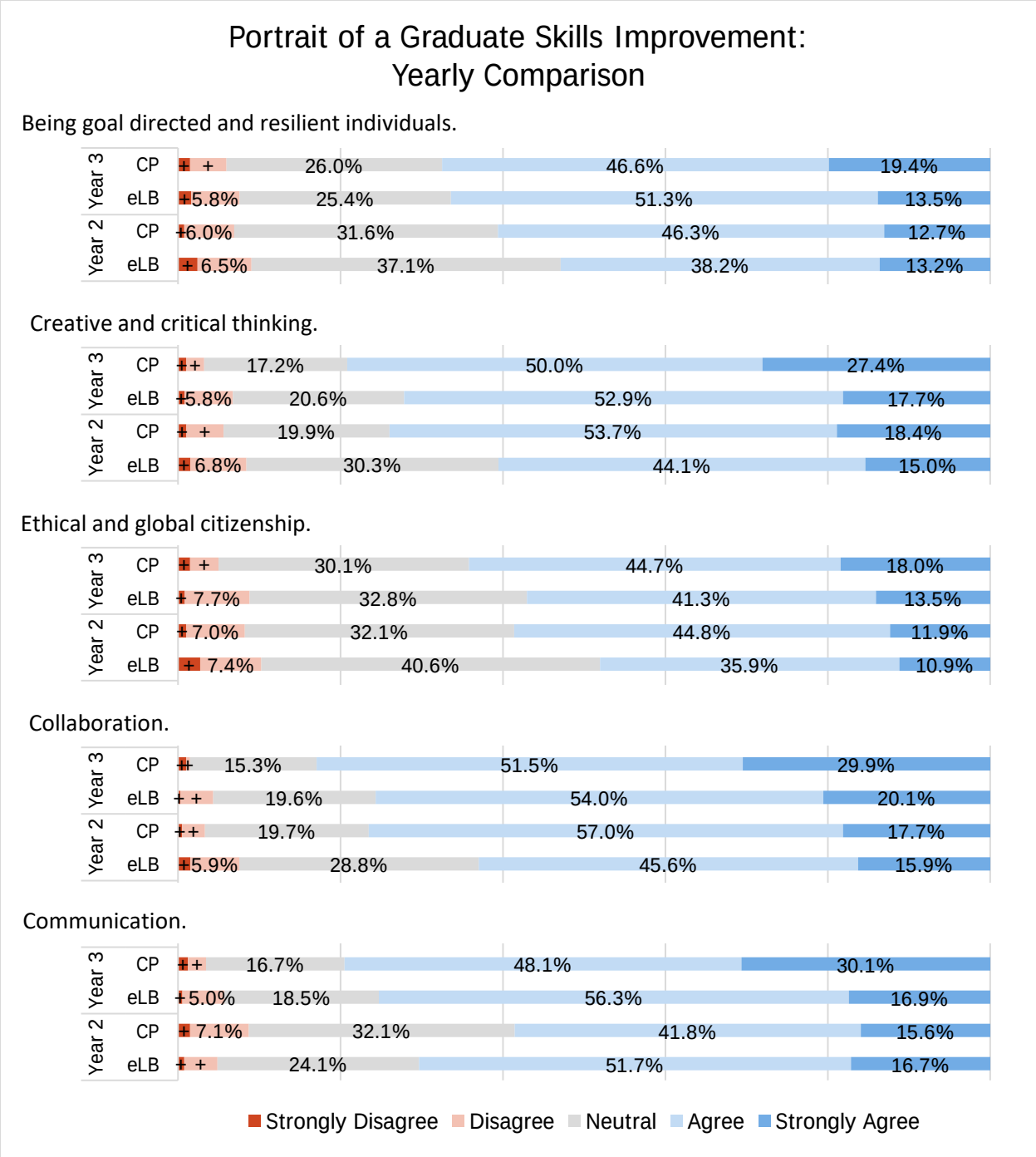

Figure 31. Yearly comparison of teachers' perceptions of students' *Portrait of a Graduate* skills.
Note: + indicates < 5.0%

Student perceptions. Overwhelmingly, the *Portrait of a Graduate* skills most referenced by students in focus groups regardless of grade level were collaboration and communication. Students often noted increased productivity during group work, ease of

access in communicating with students and teachers, and better project development. As one student stated, “Group projects, topics, we all share together and make it,” and another: “You can coordinate with friends. Collaborating is so much easier.” Students also noted an increased sense of availability on behalf of their teachers and themselves. For example, when a student is absent, he/she can log onto Google Classroom to review the same materials and assessments that students in class worked on. Students can also easily communicate with teachers regarding assignments and class, as one student described: “It’s easy to reach out if you need help or anything.”

Students also responded to questionnaire items focused on *Portrait of a Graduate* attributes. Given that items were stated more simplistically for elementary school students, these students’ findings are reported separately from secondary students’ responses.

Communicator. The majority of elementary students indicated agreement that they listen and ask questions so they can understand (79.9% agreed), use digital tools to research and share ideas (80.8%), and respectfully listen to other points of view (85.7%).

Secondary students were less likely to agree to items for communication. For example, three-quarters of students in Chantilly Pyramid and eLearning Backpack schools indicated agreement that they listen and ask questions to further their understanding (CP: 77.1%, eLB: 74.3), they use digital tools to enhance communication (CP: 75.4%, eLB: 70.6%), and that they use digital tools to explore new ideas (CP: 76.3%, eLB: 73.4%).

Collaboration. Slightly fewer elementary students indicated agreement to items specific to collaboration than to communication. Most agreed that they help find solutions to problems (78.5%) and encourage people to help each other when working in a group (73.2%), though fewer agreed that they give and use feedback to help improve work (67.9%).

Secondary students indicated higher levels of agreement than elementary students regarding collaboration skills. Most students in both groups agreed that they listen, acknowledge, and appreciate diverse ideas when communicating (CP: 83.7%, eLB: 79.4%), they gather multiple sources on a topic before constructing arguments and drawing conclusions (CP: 74.1%, eLB: 69.9%), they are a supportive team member (CP: 83.7%, eLB: 77.9%), and that they make meaningful contributions to collaborative teams (81.2%, eLB: 74.5%).

Creative and critical thinker. Elementary students’ levels of agreement were higher for statements specific to being a creative and critical thinker than to being a collaborator. Here, most students agreed that they use many sources to gather

information (83.1%), show they are a friend by making good choices (82.9%), and can say why an idea is a good one (76.7%).

Secondary students were more likely to agree that they consider information from different sources (CP: 80.0%, eLB: 79.8%), that they are a strategic problem solver (CP: 71.9%, eLB: 66.4%), and that they evaluate sources for validity, relevancy, and the impact it has on others (CP: 68.9%, eLB: 68.4%).

Ethical and global citizen. Elementary students' highest levels of agreement were those related to being an ethical and global citizen. Nearly all students agreed that they treat others with respect and kindness (89.9%) and that they understand that there are different cultures and perspectives in the world (92.8%). Just under two-thirds of students strongly agreed with the latter.

Secondary students were more in agreement that they demonstrate empathy, compassion, and respect for others (CP: 84.8%, eLB: 83.6%) and that they consider local, national, and global perspectives when examining issues (CP: 62.0%, eLB: 62.2%).

Goal-directed and resilient individual. Elementary students indicated the lowest levels of agreement to items related to being a goal-directed individual. Here, fewer than two-thirds of students agreed that they plan to achieve their goals (65.9%) though a greater number (73.7%) agreed that they don't give up when something is hard.

Roughly three-fourths of secondary students agreed to statements regarding being a goal-directed individual. Both Chantilly Pyramid and eLearning Backpack students agreed that they reflect on their experiences and advocate for themselves to grow and improve (CP: 77.5%, eLB: 76.9%), they can identify challenges and adjust to overcome them (CP: 79.1%, eLB: 74.2%), and they persevere through difficult tasks and situations (CP: 76.5%, eLB: 70.9%).

Summary. Findings related specifically to *Portrait of a Graduate* attributes suggest that Phase One schools have, overall, focused more explicitly on naming and promoting these attributes this year compared to last year but emphasis at the school level varied to a moderate degree. While some schools work explicitly on certain attributes for a whole year, other schools indicated that it doesn't play much of a role at their school. Nonetheless, *Portrait of a Graduate* attributes were observed in roughly half of the classroom observations that we conducted and, compared to last year, educators demonstrated more knowledge of the framework. The most prominent attributes to emerge were students as communicators and collaborators.

In the teacher questionnaire, teachers from the Chantilly Pyramid were more likely than teachers from eLearning Backpacks schools to agree that their students had improved in demonstrating the *Portrait of a Graduate* attributes. Compared to last year,

though, teachers from both groups were more likely overall to agree that their students had improved, and eLearning Backpack teachers were notably more likely to have indicated improvement than Chantilly teachers.

FCPSOn Perceptions

Participants were asked to describe the overall strengths and challenges of the FCPSOn initiative during its third year. Themes that emerged from various stakeholder groups are discussed below.

Strengths. Several themes emerged from stakeholders regarding the strengths of the initiative, including equity, practices and progress of teachers, and student impact.

Equity. Educators were generally in agreement that the greatest strength of the initiative is the increased technological equity and accessibility for all students. Providing students with devices has provided all students with the same access to information and resources, and the actual ability to get school work done. Educators used phrases such as, “all students have access,” and, “it allows equal access.” Feedback related to the equity provided by the initiative was frequently related to fairness on an abstract, ethical, and moral plane. But more frequently, equity was couched in a larger conversation about guaranteed access to the actual tool or resources students need to be successful. For example, a teacher said, “The ease of being able to use technology whenever I want and knowing all kids have access to what I'm asking them to do.”

Teachers. For principals and SBTSs, the greatest success specifically in their building this year was related to teachers. Several commented on the positive changes in their teachers’ attitudes, collaboration, and instructional practices as a result of this initiative. SBTSs emphasized the movement from teachers as instructors to facilitators. One SBTS summarized, “The strength is to be able to provide quality lessons that don’t involve direct instruction. It frees the teachers up.” School-based leaders also described teachers’ “smarter use” of technology resources. One SBTS said, “They’ve adopted the model pretty well. They are good at understanding balance, when it’s time to use and not.” SBTBs also described growing buy-in to the initiative and general level of awareness of the benefits (n = 3). One SBTS added noticeable changes in technical proficiency among teachers using computers and computer programs, and considered this to be evidence of growing teacher comfort with the initiative and with technology-enhanced learning.

Student impact. In focus groups, teachers cited several overall benefits of the initiative including that students are engaged in a type of learning that prepares them to be successful and that teachers are able to meet individual student needs with ease and with meaningful content. In the teacher questionnaire, one of the most frequently identified strengths was that the presence of technology “expands” or “enhances

learning," or that technology helps makes them a better teacher in general. Some teachers indicated specifically how technology adds to their classroom. Teachers indicated that the initiative allows for more variety or greater flexibility (*n* = 60) and increased opportunities for self-guided learning (*n* = 54). Within self-guided learning, teachers indicated that students were able to access scaffolding information, supplemental materials, or pre-prepared instructional material during class on their own. Teachers also noted the ease and immediacy of communication with their students, including in terms of assessments and feedback (*n* = 52), and of differentiating content for their students based on skills, needs, or interests (*n* = 48). Teachers noted increased student engagement during technology-based activities (*n* = 50) and skills such as accountability, responsibility, research skills, computer skills, self-monitoring and critical thinking (*n* = 49).

Some differences were observed in teacher feedback. Middle and high school core content teachers were more likely to emphasize the importance of communication and feedback facilitated by the initiative. ESOL teachers and student support teachers (e.g., reading specialists) were more likely to emphasize the important skills, including typing, that students gain as computer users and the ease of differentiating content for students. Elementary teachers were more likely to note the flexibility and variety the initiative has brought to the classroom as well as the increased opportunities for self-guided learning. Teachers of special subjects (e.g., art, music) were more likely than others to note students' increased access to information.

Students also considered the impact on their learning as the greatest benefit of the initiative. Across all grade levels in both eLearning Backpack and Chantilly Pyramid schools, learning accessibility was the most frequently noted benefit of the initiative by students in focus groups. Students described Google Classroom as a central hub for school-related content and materials, noting that Google Classroom is primarily an organizational tool that made completing assignments, communicating with teachers and remaining apprised of course activities and content, easier. Further, at the conclusion of their questionnaire, students were asked if they'd liked to say anything more about their device or their experiences as a student in a Phase One school. They most frequently used this space to indicate that their personal device was "helpful" or "useful" for completing school-related tasks and their learning in general (*n* = 437). They described school and school-related tasks as "easier" and noted the convenience of their personal device. One eLB student wrote,

> *I like my personal device. I use this almost every day and I am very grateful towards my school for providing me with this laptop. Having this laptop is very convenient for me as a student and an officer for the clubs I am in.*

At the conclusion of the parent questionnaire, parents were prompted to share any additional thoughts about their child's experience in a Phase One school or their perceptions of the FCPSOn initiative. The most frequent feedback from parents at all

grade levels was related to the helpfulness, usefulness, and assistive aspects of the program for completing school-related tasks (*n* = 111). For example, a parent of an elementary student said, "I think the technology has contributed positively to my child's learning and hasn't taken away from classroom teaching time. It has enabled her to more easily research things she's interested in." Parents also provided feedback related to the important skills their students learn in a Phase One school (*n* = 56), including actual computer skills such as typing, making presentations, and conducting research, as well as "soft" skills such as responsibility, accountability, and self-monitoring.

Challenges. Several themes emerged from stakeholders regarding the challenges of the initiative, including maintaining technical capacity, teacher practices, and supporting teachers.

Technical capacity. Just as devices can promote equity, they can be exclusionary if a student damages their device or if the device itself fails. In interviews, focus groups and open-ended questionnaire responses, stakeholders often indicated that students and teachers face serious challenges when devices are in poor condition, mismanaged, or become outdated. Stakeholders most frequently described barriers to maintaining technical capacity in terms of lost chargers, bad batteries, aging laptops, WiFi connectivity, and processing speed ("It's slow" or "it's glitchy"). Technical issues such as these effectively isolate students from instruction and activities involving technology and delay students' progress and/or engagement, as they rely on the school-based technology team to repair or replace their laptop as issues arise.

Teachers also noted, in focus groups and on the teacher questionnaire, that it was challenging to teach in a technology-enhanced environment when students lack basic computer skills. Students most often cited blocked resources as their major barrier to maintaining a high level of technical capacity. This "block" refers to both singular blocked resources, such as YouTube videos or instructional websites, as well as server blocks, such as being unable to access school networks and files at home. While parents did note technical concerns in open-ended feedback on the parent questionnaire, they were just as likely to voice concerns about the actual laptop (*n* = 76) as they were to provide generally positive, non-descriptive feedback related to the initiative (*n* = 77). The concerns, in brief, related to the size of the screen, processing speed, weight, and capacity of the laptop to support students' needs.

Teacher practices. In focus groups, teachers most frequently cited challenge was the pace at which they can receive approval to purchase or use new software programs. In the open-ended section of the teacher questionnaire, teachers noted difficulty in staying on top of all the new tools and resources now available to them and being sure that they were implementing technology-enhanced instruction in the most appropriate ways (*n* = 44).

Parents at all grade levels provided feedback related to a desire for a "balanced approach" to instruction that includes both technology and traditional classroom experiences. The importance of "balanced" instruction emerged prominently from parent focus groups and open-ended feedback in the parent questionnaire. An elementary parent wrote in the questionnaire, "Though exposing them to technology in elementary school is a good idea, it should not replace the notebook and pencil." Another (high school parent) wrote, "I do believe in balance and moderation of both reading, writing, and computer." One parent in a focus group said, "I want a balanced learner."

Supporting teachers. When discussing challenges, SBTSs emphasized the effort required to support the constant influx of new teachers who lack experience in general and tenure specifically in a technology-enhanced classroom. One SBTS said, "The initial phase is never over," and implied that the biggest challenge they face each year is managing extensive new teacher onboarding while providing the same attention and support to teachers with tenure in the initiative to go further. Two of the three eLearning Backpack SBTSs described a lack of school-wide focus on technology-enhanced learning as the greatest challenge during implementation. One SBTS said, "It's not really a priority here." Principals also reckoned with how to support teachers in the initiative in a context where competing tasks and priorities result in teachers not having enough time to learn at pace.

Summary. All participant groups were prompted to reflect on the strengths and challenges of the initiative overall. SBTSs, principals, and teachers all commented that the equity among students established by FCPSOn is among the greatest strengths of the initiative. Similar to last year, school-based adults indicated that guaranteed access to technology is a starting point where all students have the opportunity to be successful. Principals noted increased accessibility and engagement among students as major successes but emphasized the positive changes among their teachers and the overall growth teachers have experienced. SBTSs also described better teaching practices, including smarter use of technology by teachers. Students and parents were most likely to describe the greatest strength in terms of how helpful or useful the school-issued device is.

Teachers most frequently described the importance of equitable access in terms of the assurance that all students would be able to complete computer-based tasks and access information online. They also noted the contribution the initiative has made to streamlining and simplifying instructional tasks such as providing feedback and differentiating instruction. Teachers also indicated that one of the greatest benefits to students is increased opportunities to build certain skills, including computer skills and greater personal responsibility.

As far as challenges related to the initiative, stakeholders appear to be most concerned by the barriers to maintaining maximum technical capacity, including issues

with charging, WiFi, and processing speed of computers. School leaders are also concerned about how to support teachers, including how to manage onboarding new teachers while continuing to meet the needs of teachers who are increasingly gaining tenure in a 1:1 environment. Parents were most concerned about maintaining a balanced approach to technology integration.

Recommendations and Looking Forward

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.

Principals. Principals were prompted to identify areas where their teachers could use more support within the initiative. Respondents from eLearning Backpack schools identified the following: more guidance on how to regulate student activities on their devices, more examples of high-quality teaching specific to their content areas (e.g., observations of other teachers who teach the same subject), more strategies for blended learning, and more time for teachers to plan. Responses from Chantilly Pyramid principals included opt-in professional development that develops organically, more communication between schools, more PD offerings for Special Education teachers, and more time in general. The biggest overlap between Chantilly Pyramid and eLearning Backpack schools was the need for more time. According to one principal, "It's always time. That time is crucial."

SBTSs. Similar to last year, SBTSs most often indicated teachers need more time (n = 5). SBTSs explained that teachers need more time to master the tools currently available to them (n = 2), to work together (n = 2), and to explore new products and discover new ways of delivering content (n = 2). One SBTS said, "The teachers have the tools they need, but not enough time to learn to use them really well." SBTSs (n = 3) also emphasized the importance and preference among teachers for peer-to-peer professional development and modeling/observation to increasing teachers' knowledge of effective practice. Interestingly, and similar to last year, two eLearning Backpack SBTSs explained that teachers need a clearer, more cohesive vision of the initiative from district and school-based leaders.

All SBTSs were also prompted at the end of their interview to describe their personal or school-wide goals related to the initiative. While future-orientation was observed throughout each interview, this concluding question provided SBTSs with an opportunity to articulate where the initiative was headed, in their opinion. We observed seven different responses from the seven SBTS interviews. An elementary SBTS mentioned blossoming interest among teachers in virtual reality ("When we get ahold of it, it's gonna be amazing. I did this thing where I took kids underwater and they were just beside themselves."). Coding was also mentioned as an exciting area of interest

among younger students, and that the school was exploring how to formally offer content related to coding in the coming years.

One SBTS said the school plans to focus more on digital citizenship in the future; they personally were most inspired by the Ethical and Global Citizen component of *Portrait of a Graduate* and felt that the emphasis on digital citizenship would bolster their students' growth in that area. One SBTS felt excited about gamification in education. Instead of fighting students' urge to game, this SBTS hoped to explore ways to harvest that, to find high-quality programs that merge gaming with academic content. Another explained their school was moving towards electronic student portfolios and more purposeful assessment. The seventh SBTS explained their focus was to shift the narrative among teachers and students so as to stress the importance of technology-enhanced learning, and to cultivate greater buy-in into the initiative. This SBTS considered different ways to gather and organize information and how to best reach students and teachers.

Teachers. Teachers were asked to reflect on what they needed from the initiative moving forward. Regarding their own professional development needs, time and exposure to new information were most frequently mentioned. "Time" was also the most prominent theme to emerge from teachers last year. More time to explore, master, and share is an enduring need of Phase One teachers. Teachers also want more exposure to new products and ways of teaching. As one teacher put it, "I want more resources, more ideas, more knowledge in the bank." Teachers are interested in learning about new products but, as an important caveat, they need this information gathered for and catered to them. Their desire to know more overlapped with a preference for content- and age-specific information. Again this year, teachers indicated that they need to consume information that is related specifically to what they teach in order for their professional development needs to be fully met.

Interestingly, teachers from both elementary focus groups said they need training related to online safety and digital citizenship ("I need training as to what I can do to guarantee they are safe," and, "Morals, responsibility…how to make them not surf the web and be distracted."). Teachers also want training on when to use and when not to use technology. One teacher captured this fairly frequent sentiment, saying, "I think we need more focus on WHEN to use the computer. How you know when it's going to do the most good."

The final open-ended question on the teacher survey prompted teachers to describe the instructional challenge or opportunity they were most looking forward to addressing (n = 456). Roughly one out of every 5 responses from teachers implied "using more technology" in their classroom by creating websites, migrating classroom materials to digital spaces, recording lessons, integrating more online discussion, or otherwise implying greater use of technology tools in their classroom (n = 90). Other responses included, "increasing technology choices for my students," "integrating more

videos for my students," and, "use tech for more things other than assessments." The second most frequent response to this prompt involved "learning, growing, getting better" (n = 51). These responses included general comments about becoming a more skilled instructor, learning to use technology-based tools and materials more appropriately, or increasing the quality of learning experiences for students. For example, one teacher said, "Continuing to hone what I am doing. I am always utilizing technology in the classroom, focusing on using it as a tool for success NOT using it for the sake of just using it." Another said, "I want to continue to work on making technology experiences relevant for some of our most impacted learners." Teachers are also looking forward to addressing digital citizenship concerns, including keeping students on task, safe on the internet, and responsible computer users (n = 43).

In focus groups, teachers were asked to make specific recommendations to the district for consideration as the initiative expands. The importance of supporting teachers with professional development and time for peer-to-peer sharing was mentioned most frequently. Teachers implied that learning Google Classroom was a mandatory first step for teachers at implementing schools and that the utility of Google Classroom would increase if parents had access to their child's digital classroom space. Several teachers were emphatic about the redundancy between Blackboard and Google Classroom and implied that the district should streamline digital classroom spaces so that teachers, students and parents had just one place where all school-related information could be found. Teachers also recommended explicit instruction of computer skills to students and more restriction on students' personal devices.

Parents. Parents were asked to provide recommendations for future phases of the initiative. Recommendations from parents fall into three categories: Restricting student access to inappropriate content at school, providing more balance between technology use and traditional instructional practices, and introducing keyboarding and software skills into coursework. Parents were most concerned about unlimited access to inappropriate content and video streaming while at school. Parents also voiced concerns over the reliance on computer-based learning at the expense of learning basic foundational skills and experiential learning. Parents would like to see less reliance on the devices as tools for learning and a more blended approach in classroom instruction. Finally, parents expressed the need for basic computer skills, including keyboarding and software use, to make use of the devices more effective and efficient. As one parent noted, "I think they aren't considering how long it takes kids to do these things."

Summary. Principals, SBTSs, and teachers all featured "time" prominently in their recommendations to the district; parents emphasized increased restrictions and a more balanced approach to instruction, as well as instruction related to digital literacy (e.g., the ability to use technology as a tool during learning, creation, and communication). Educators explained that teachers need time to migrate their processes to a technology-enhanced approach, to learn new tools and master the ones they already have, and to work with each other to improve their practices. Teachers

and principals also agree that teachers need guidance on how to teach digital citizenship as an important skillset that young students especially need. SBTSs recommended that eLearning Backpack schools solidify their vision and commitment to technology-enhanced instruction, and that these schools may need support from the district to do that. SBTSs also described looking forward to exciting new opportunities in technology including virtual reality, coding, and leveraging educational games. Teachers described a need for an improvement in practical skills of teachers and students, including teachers' basic proficiency in using Google Classroom and students' basic technology skills (e.g., typing).

Discussion

The purpose of the present study was to gather formative data on the FCPSOn initiative during its third year of implementation in the 2018-19 school year within Fairfax County Public Schools. In the present section, we draw from the results presented in the current report to provide conclusions and recommendations from the third year of the study. The evaluation questions that guided the study are used as an organizing framework.

Professional Development and Support for Implementation

Overall, teachers in both groups were highly complementary and appreciative of the professional development opportunities they have had related to technology integration and technology-enhanced instruction. Importantly, definitive and substantial increases in teachers' perceptions of their own preparedness to incorporate technology and other teaching practices consistent with the initiative were observed from both groups. This finding represented a major success for the district and school-based leaders. Notable this year, in light of recommendations made by teachers last year, is the increased choice teachers described having in the focuses of their professional development opportunities.

We infer from multiple data sources that the day-to-day role of Phase One principals and SBTSs in supporting PD and program implementation has appropriately shifted. Principals have largely transitioned from managing the physical roll out of a 1:1 learning environment and providing "hands-off," cheerleading support to more actively encouraging and contributing to teachers' development toward efficacious instructors in a technology-enhanced teaching/learning environment. SBTSs, while taking on more student-facing responsibilities this year, described a transition to providing more specific resources for individual teachers and functioning more as an instructional coach. Our findings suggest the importance of school leaders demonstrating patience during implementation and flexibility in their efforts to support teachers and students over time. A challenge experienced by principals and SBTSs is now how to continue to

support teachers engaged with the initiative while also supporting new teachers and those that are resistant to change.

Similar to last year, multiple data sources indicated that SBTSs are central to teacher growth and the overall success of the initiative in schools. Teachers appear to benefit most from an SBTS role that is primarily focused on engendering teacher support and school culture for a quality and sustaining FCPSOn implementation. The evaluation results reveal the many demands on SBTSs and, therefore, the risks of principals' over-delegating them. Given the critical role of SBTSs to successful PD and implementation, we recommend that FCPS continue to invest in this program component.

We infer from multiple data sources that the initial roll out and ongoing implementations in the Chantilly Pyramid and the eLearning Backpack schools were different in ways that impact how the initiative has matured in those schools. We suspect that the difference in emphasis on FCPSOn between the two groups that comprise Phase One are due partly to the full pyramid approach to implementation taken in the Chantilly Pyramid. Stakeholders in Chantilly Pyramid schools are united in their emphasis on FCPSOn and the positive changes the initiative has brought to their school and pyramid. In eLearning Backpack schools, FCPSOn is positioned as one piece of a much larger picture of the school environment. Because of how the district plans to move forward with roll-outs in the future (e.g., by high schools, followed by middle schools, and finally with elementary schools), we believe school and district leaders may ultimately learn more from the implementation experiences of teachers and technology teams at eLearning Backpack schools.

Intermediary Outcomes

Multiple data sources suggest that teachers in both groups have become "smarter" users of technology tools and resources. Principals and SBTSs from both groups indicated that teachers' growth and improvement are to be celebrated and are considered to be major successes of the initiative so far. Teachers from both groups described themselves as more confident and effective technology users; they were notably more likely than they were in the first year to indicate that technology is important to teaching and learning. Implementation appears to have instigated positive changes in teacher practices, the physical classroom, and how students learn. Importantly, we observed that the majority of teachers are highly supportive of technology integration in general.

Our findings also indicate that teachers have begun to embrace their role as a facilitator of learning in addition to being an actual instructor of students. Teachers described "letting go" of rigid expectations related to their role and student learning, opening the classroom up to be a space where students are expected to engage in self-guided learning and have a considerable amount of choice in how they demonstrate

learning and when, where, and how quickly they complete school-related tasks. Teachers also continue to emphasize the assistive properties of students' devices, particularly around the ease and frequency of feedback and communication.

Interestingly, the majority of SBTSs stated in their interview that teachers employ students' personal devices less this year than years prior. However, teachers indicated that students are on their devices more than ever; student questionnaire and focus group responses indicate that students are using their personal devices more this year than years prior and that motivation to use technology for learning remains very high. Our observations of classrooms further suggest that students most often use their personal device in combination with traditional classroom materials or lessons.

While digital citizenship and off-task behaviors are familiar concerns from teachers (and parents), students' online *safety* newly emerged this year. Also new was teacher language explicitly related to addictive behaviors among students. Based on the findings, we recommend that teachers receive training to help them deal with such problems and help students develop as positive technology users.

Increased student engagement, especially stronger student accountability for their learning, represents one of the most prominent evaluation findings. Types of engagement include accessing school-related content, exercising choice during learning, and being self-directed learners in a "no excuses" learning environment. Across all years of the study, we have only encountered positive reflections by students on how the devices facilitate accessing material, communicating with teachers and peers, completing assignments, and staying on top of their responsibilities at school. Overall, students identified the easy availability of content and materials has been the greatest benefit of the initiative overall.

Student Learning and Achievement

When asked about student learning and achievement, principals, SBTSs and teachers were most likely to indicate that the 1:1 environment has profoundly impacted the *way* students learn. Our impression is that respondents are more confident thus far about impacts on student engagement, active learning, autonomy, and accountability than about direct impacts of the initiative on traditional achievement measures, which were rarely mentioned. Focus group and open-ended responses most frequently attributed students' stronger engagement and accountability to increased opportunities to access school-related content and fewer barriers to completing tasks, finding information, and asking questions. Teachers frequently indicated that technology "enhances" learning through increased flexibility, access to content, communication, and more personalized learning experiences. The value of such increased engagement and active learning for increasing student achievement receives strong support from prior research (Baroody, Rimm-Kaufman, Larsen, & Curby, 2016; Duncan et al., 2007; Hao, Yunhoo, & Wenye, 2018; Roorda, Jox, Zee, Oort, & Kroomen, 2017).

Portrait of a Graduate Skills

Findings related to *Portrait of a Graduate* attributes indicated that the framework is more prominent in the language of Phase One educators than last year. Teachers from both groups were more likely than last year to agree that their students demonstrated these attributes. Multiple data sources confirm that students as communicators and collaborators are the most encouraged and demonstrated attributes. Students as ethical and global citizens is the attribute that educators are most interested in cultivating in the future.

While awareness and implementation of the framework has improved overall, there is varied emphasis on the framework across schools within and between Chantilly Pyramid and eLearning Backpack groups. Of the two groups, the framework was much more prominent in Chantilly Pyramid schools. In general, teachers appear to need more professional development in specifically developing the *Portrait of a Graduate* attributes (e.g., actual activities, teaching practices, and instructional methods). Such focuses extend teachers' merely knowing about the framework and its goals.

FCPSOn Perceptions

Overall, stakeholders remain optimistically invested in the success of the initiative at their school. Teachers prioritize the positive changes the initiative has brought to their instructional practice and students' learning routines. Teachers' concerns about distractions were relatively limited and minor in severity. However, these issues should be monitored to ensure they do not become more prevalent as students become increasingly skilled in using devices for classwork, social activities, and gaming.

Although parents expressed mostly positive views of technology-enhanced learning in their questionnaire responses, those participating in the focus group raised concerns about issues such as distractions and off-task-behavior, sufficient peer interactions, and acquiring basic instructional skills and handwriting. While these concerns are common and understandable in association with technology infusion initiatives, particularly among more involved and vocal parents, we want to emphasize that just 6 parents participated in focus groups, though roughly 50 were invited to attend one of four scheduled events. Questionnaire responses indicated that the majority of parents are supportive of the initiative, though they may need more information related to it. Increasing communications to parents about FCPSOn, including major evaluation results, should be valuable in allaying many of the concerns and explaining the rationale for key practices.

Similar to last year, educators are united in recognizing the greatest benefit of the initiative—the equity it has brought to students of varying socio-economic backgrounds and learning needs. Guaranteed access to a computer, and the ability of technology-enhanced education to meet the unique needs of students, was described

by teachers, principals, SBTSs, and students as significantly impacting the lives of students in Phase One schools. Another success, most prominently voiced by principals and SBTSs, is the progress of their teachers in more effectively meeting student needs.

Summary and Recommendations

The present findings from schools now in their third year (2018-19) of implementing FCPSOn indicate that stakeholders are strongly invested in the initiative's success and are more comfortable overall with the 1:1 learning environment. Important differences in implementation are observed between the two groups that comprise Phase One that appear to be the result of a more cohesive and intentional approach to implementation in the Chantilly Pyramid than in eLearning Backpack schools. Nonetheless, SBTSs and principals in both types of schools commended their teachers for being more effective users of technology tools and, as a result, more flexible and effective teachers.

Findings also suggest that students are more engaged and accountable learners. Students have gained important skills and have embraced an emerging emphasis on self-guided learning. Guaranteed access to a personal computer has succeeded in "leveling the playing field" among students of varying socio-economic backgrounds, learning interests, and needs.

Based on the findings presented in this preliminary report, the following recommendations are offered for future FCPSOn implementation:

- As advocated by teachers, increase opportunities for peer-to-peer professional development; encourage intra-pyramid PD opportunities that involve teachers from across grade levels and types of schools.
- Continue to invest in the SBTS role; clarify the SBTS role as primarily in support of teachers relative to FCPSOn practices and goals, and encourage principals to protect the time of SBTSs for those purposes.
- Invest in teacher proficiency in Google Classroom; intentionally cultivate students' digital literacy through mandatory computer skills courses that address typing and basic troubleshooting skills.
- Continue to diversify teachers' professional development opportunities; ensure that resources and strategies are in place to prepare new teachers for implementing FCPSOn *and* meet the needs of intermediate and advanced implementers.
- Provide parents with information on major district initiatives and frameworks, including what they are *and* why they will benefit students. Ensure this information is conveyed to parents of children new to FCPSOn.

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Appendix A: Classroom Observation Protocol

FCPSOn Phase One Evaluation Classroom Observation Guide

Observer: _____ School: _____ Grade: ___

Guiding research questions:

- What does FCPSOn "look like" in an average Phase One classroom?
- 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?
- To what degree do teachers promote PoaG skills?
- What is the fidelity of implementation of the program implementation each year and across years?

Observation of Physical Environment:

- Arrangement of classroom
- Student use of classroom space
- Visual supports? Content of visual supports?

Observation of Curriculum and Instruction:

- Inquiry approaches to instruction
- Authentic/real world contexts for learning
- Cross-curricular connections

Observation of Teacher Practices:

a. Encouraged student collaboration and communication (physically and virtually)
b. Design multiple ways and opportunities to access learning and content
c. Facilitation vs. instruction

Observation of Student Activities and Engagement:

d. Use of personal device
e. Collaboration, communication, creativity, etc.
f. Positive digital citizenship
g. Self-directed learning
h. Student choice

Appendix B: Principal Interview Protocol

General Topic: Introduction

- 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 FCPSOn

- (If they were there for implementation) Think back to implementation and startup, how have things changed in your school?
- What is your role, day-to-day, in terms of supporting the FCPSOn initiative at your school?

General Topic: Impact of FCPSOn on Students

- How has the FCPSOn initiative impacted students overall (in terms of engagement and achievement)?
- Do you feel the FCPSOn 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?

General Topic: Impact of FCPSOn 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? How has teacher response change over time?
- To what degree are your teachers prepared to integrate technology into teaching and learning?
- What changes have you observed in teachers' instructional practices since the implementation of FCPSOn?
- 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 FCPSOn initiative overall?
- What have been the greatest successes you have observed at your school specifically?
- What immediate challenges are you facing this year?
- What are the most exciting or interesting issues in technology for you personally right now?

Appendix C: SBTS Interview Protocol

General Topic: General Questions

- How long have you been in your current position?
- 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 FCPSOn?
- What are the challenges you or your school currently face?

General Topic: Implementation of FCPSOn

- What does FCPSOn look like right now in your school? How are things going?
- How has FCPSOn changed in your school? What, if anything, is different or new each year or semester that goes by?

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 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 FCPSOn on Teachers

- What does technology integration look like in an average classroom at your school?
- What changes have you observed in teachers' instructional practices over time? What is new or different this year?
- To what degree are teachers in your school prepared to effectively integrate technology and learning?
- In your opinion, what areas do teachers need more support, professional development or access?

General Topic: Overall Perceptions

- What do you see as the strengths of the FCPSOn initiative? What have been the greatest successes you have observed at your school?
- What areas do you or your school need more support?
- What are the most exciting or interesting issues in technology for you personally right now?

Appendix D: Teacher Focus Group Protocol

General Topic: Implementation of FCPSOn

- To begin, how would you describe the startup and implementation of FCPSOn, as you experienced it at your school?
- What does FCPSOn look like in your school/classroom today? How are things going?

General Topic: Professional Development

- What type of support is available to teachers during implementation? To what degree are you satisfied with your professional development opportunities?
- How has support for teachers changed over time?
- 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)?
- How have students changed, in terms of their relationship with technology and use of technological tools, over time?
- 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?
- How have your teaching practices changed over time, relative to technology?

General Topic: Overall Perceptions

- To what degree do you believe the FCPSOn initiative benefits your school overall, and why?
- What challenges or opportunities are most important for *you personally* to address, relative to the integration of technology with teaching and learning?
- What challenges or opportunities are most important for *the district* to address, relative to the integration of technology with teaching and learning?

Appendix E: Student Focus Group Protocol

General Topic: Implementation

- Think back to when you first got your computer. What was it like to get your computer?
- How have things changed, from when you first got your computer and now?

General Topic: Impact on Teaching and Learning

- Do you think having a personal device has made learning easier? Why or why not?
- Do you think using your personal device made learning more fun? Why or why not?
- What do you like most about using computers and other technologies for learning?
- What do you like least about using computers for learning?
- Think about the ways your teachers use technology in school. What are the activities or types of technology that are most effective for you personally?
- How have your classes changed as technology has become more integrated into your classrooms?

General Topic: Other Impressions

- 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.
- To what degree does your personal device facilitate communication and cooperation with your teachers and peers?
- (older students only) What are the most important or exciting issues in technology for you personally right now?
- Is there anything else you want to say about your personal device?

Appendix F: 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. Think back to when your child first received their school-issued laptop. How has your child's learning and classroom instruction changed since then?
4. What impact has the initiative had, overall, on your child's learning?
5. What impact has the initiative had, overall, on your child's enjoyment of or engagement in school?
6. What do you think is going well this year with the FCPSOn initiative?
7. What do you think needs to be improved?
8. What is the most important or exciting issue in technology for you and your child right now?

Appendix G: Teacher Questionnaire

[begins with consent information]

Introduction and Basic Information:

Great! Thanks for participating. How long have you been participating in FCPSOn?

This is my first year in a Phase One classroom or school.
This is my second year (I have participated for one school year).
This is my third year ...
This is my fourth year ...
This is my fifth year ...

Section One: Knowledge and Beliefs
Use the scale (No, Somewhat, Yes) to indicate the degree to which you agree or disagree with the following statements.

1. I am knowledgeable of the FCPSOn initiative.
2. I am knowledgeable of the FCPS Learning Model and its role in teaching and learning.
3. I am knowledgeable of the FCPS *Portrait of a Graduate*
4. I believe that the FCPSOn initiative will contribute to greater success for FCPS students, in later education and work experiences.
5. I believe that the FCPSOn initiative is appropriate for students.
6. I feel confident that *Portrait of a Graduate* attributes will contribute to greater success for FCPS students, in later education and work experiences.

Use the scale (NA, Strongly Disagree to Strongly Agree) to indicate the degree to which you agree or disagree with each statement regarding the use of technology in your classroom. 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.

1. I enjoy using technology in my classroom.
2. Integrating technology into instruction supports learning.
3. The culture of my school supports the use of technology-enhanced instruction to support student learning experiences.
4. I am confident that I integrate 1:1 technology effectively in my classroom.
5. The use of technology tools (smartboards, personal computers, digital classroom spaces, etc.) allows me to better apply the domains of the FCPS Learning Model in my classroom.

6. The presence of 1:1 technology (personal devices) among students in my classroom allows me to better apply the domains of the FCPS Learning Model in my classroom.
7. I feel confident planning opportunities for students to practice and develop Portrait of a Graduate skills.
8. The presence of 1-1 technology in my classroom allows me to better apply the domains of the FCPS Learning Model in my classroom.
9. FCPSOn supports a broad array of instructional strategies that I use to support my students' learning.
10. With proper training, I am confident in my ability to learn new digital resources and tools.
11. I can deal with most technical difficulties I encounter when using computers and other digital resources and tools available to me.
12. I feel my school was successful this year in fulfilling its role as an FCPSOn Phase One school.

Section Two: Professional Development

Use the scale (NA, Strongly Disagree to Strongly Agree) 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.

1. I have received sufficient professional development on the following practices:
    a. Personalizing OR providing choice of time, place, pace, or path for student learning
    b. engaging my students in higher-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.

2. I have opportunities to participate in professional learning that allow a choice in what I can focus on.
3. The professional development opportunities provided are appropriate for the amount of time I have participated in FCPSOn.
4. I was adequately informed of the expected role of my school as an FCPSOn Phase One school

Section Four: Current Teacher Practices

Use the scale (NA, Never to Frequently) 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.

1. In an average week/month, how frequently do you…
    a. Provide whole class instruction or lecture for 20 minutes or longer?
    b. Facilitate cooperative/collaborative learning?
    c. Facilitate project-based or other inquiry-based approaches to learning?
    d. Provide student choice in topic or tool used to demonstrate learning?
    e. Promote individualized learning (e.g., students working alone at desk or personal computer)?
    f. Involve students in designing their own learning experiences according to personal goals, needs, and interests?
    g. Foster cross-curricular connections? (e.g., using topical content across several subjects; integrating 2 or more subjects in one learning or play activity)?
    h. Facilitate differentiated learning experiences?
    i. Use digital resources (online textbooks, web-based platforms, software programs, etc.)?
    j. Deliver electronic formative or summative assessments
    k. Plan opportunities for students to practice POG skills?
    l. Allow students opportunities to support each other’s learning (e.g. peer conferencing, peer feedback, etc.)?

Use the scale (NA, Strongly Disagree to Strongly Agree) 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.

2. The use of technology is
    a. an integral part of my instructional practices this year.
    b. an integral part of my instructional planning and administration (preparing lessons, grading, data management, etc.) this year.
    c. an integral part of my classroom learning environment (e.g., online resources, document management, student collaboration, etc.) this year.
    d. supportive of personalizing the time, place, path, and pace of instruction for my students this year.
    e. a key component in my approach to cultivating Portrait of a Graduate attributes and outcomes in students.
    f. a key component in my approach to supporting student learning through the FCPS Learning Model.

Section Five: Students and Student Impact

Use the scale (NA, Strongly Disagree to Strongly Agree) 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.

1. Technology has contributed positively to student achievement in my classroom this year.
2. Technology has contributed positively to student engagement in my classroom this year.
3. My students are motivated to use technology during learning in my classroom.
4. My students are motivated to use technology to support their learning outside of my classroom.
5. My students are motivated to use technology to support self-directed learning opportunities.
6. My students have improved in their use of technology as a learning tool this year.

7. My students have improved in their demonstration of Portrait of a Graduate skills this year
    a. as a communicator.
    b. as a collaborator.
    c. as an ethical and global citizen.
    d. as a creative and critical thinker.
    e. as a goal directed and resilient individual.

Section Six: General Questions

(open-ended, optional)

1. What has been the most positive aspect(s) of being a FCPSOn Phase One School?
2. What has been the most challenging?
3. What is the next instructional change or challenge you would like to undertake through the use of technology in your classroom?

Appendix H: Student Questionnaire

[begins with consent information]

Section One: Technology and Learning
Use the scale (NA, Strongly Disagree to Strongly Agree) to indicate the degree to which you agree or disagree with each statement regarding the use of technology by teachers and students.

1. Classes are more interesting when I use my computer for learning.
2. I use my computer to create products that show what I've learned
3. I've learned to use my computer in new ways this year.
4. My computer makes turning in homework and completing assignments easy.
5. Using my computer during learning feels natural to me.
6. My computer is an important part of every school day.
7. My computer works well.
8. I know how to use my computer to complete assignments and homework.
9. Without a computer, it would be difficult to be successful at school.
10. Using a computer for learning encourages me to be responsible for my success in school.

Section two: 21st Century [*Portrait of a Graduate*] Learning Skills
We want to know how you feel about your abilities at school. Use the scale (NA, Strongly Disagree to Strongly Agree) to indicate the extent to which you agree or disagree with each statement.

[elementary students]

1. I listen and ask questions so I can understand.
2. I use digital tools to research and share ideas.
3. I respectfully listen to other points of view.
4. I help find solutions to problems.
5. I encourage people to help each other when I work in a group.
6. I give and use feedback to help improve work.
7. I use many sources to gather information.
8. I show I am a friend by making good choices.
9. I can say why an idea is a good one.
10. I treat others with respect and kindness.
11. I understand that there are different cultures and perspectives in the world.
12. I make a plan to achieve my goals.
13. I don't give up when something is hard.

[secondary students]

1. I listen and ask questions to further my understanding.
2. I use digital tools to research and share ideas.
3. I use digital tools to explore new ideas.
4. I listen to, acknowledge, and appreciate diverse ideas when I participate in conversations.
5. I gather multiple sources on a topic before constructing arguments and drawing conclusions.
6. I am a supportive team member.
7. I make meaningful contributions to collaborative teams.
8. I consider information from different sources when I explore ideas.
9. I am a strategic problem solver.
10. I evaluate sources for validity, relevancy, and the impact it has on others.
11. I demonstrate empathy, compassion, and respect for others.
12. I consider local, national, and global perspectives when examining issues.
13. I reflect on my experiences and advocate for myself to grow and improve.
14. I can identify challenges and adjust to overcome them.
15. I persevere through difficult tasks and situations.

Section Three: Reflections on FCPSOn and the 1:1 Initiative

1. Do you primarily use a school-issued or a personal laptop for learning?
    a. School-Issued
    b. Personal

If personal is selected: Why do you prefer to use a personal laptop for learning, rather than your school-issued laptop? (open-ended)

We would like to know how you use your school-issued personal device at school and home. Use the following scale to answer the questions in this section.

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

2. How often do you use your **school-issued laptop** or the following SCHOOL-RELATED activities?

    a. Work on school work or complete homework at home?
    b. View 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. Collaborate with other students from home?
h. Look up information on the internet?
i. Type notes during class?
j. Receive feedback from teachers?
k. Receive feedback from other students?
l. Communicate with other students or my teacher?
m. Listen to music that supports your learning?
n. Watch TV or Youtube videos that support your learning?
o. Play educational games?
p. Create new or innovative things as part of your learning?
q. Learn about things that aren't covered in school?
r. Access Blackboard (FCPS 24-7)?
s. Access Google Classroom?

3. How often do you use your **school-issued laptop** for the following PERSONAL activities?

a. Read the news?
b. Search for information related to your hobbies?
c. Send or receive personal email?
d. Listen to music?
e. Watch TV or Youtube videos?
f. Access social media?
g. Play games not related to school?
h. Create podcasts or videos?

4. What classes do you use your **school-issued laptop** in the most (select 3)?
   a. Science
   b. Mathematics
   c. History
   d. English/Language Arts
   e. Social Studies
   f. Art, Music, Specials *[Visual or Performing Arts]*
   g. Health/Physical Education *[/Driver's Ed]*
   h. Foreign Language Arts
   i. [Career and Technical (CTE)]
   j. Other

5. What classes do you use your device in the least (select 3)?
   a. Science

b. Mathematics
c. History
d. English/Language Arts
e. Social Studies
f. Art, Music, Specials *[Visual or Performing Arts]*
g. Health/Physical Education *[/Driver's Ed]*
h. Foreign Language Arts
i. [Career and Technical (CTE)]
j. Other

6. Do you have internet at home? (Yes/No/I Don't Know)

if No, prompt appears that says something like, "Did you know you can receive internet access at home for free? Ask you school's counselor for more information!"

7. Is there anything else you want to say about your school issued or personal device? (open-ended and optional)

Appendix I: Parent Questionnaire

[begins with consent information]

Section One: Knowledge of FCPSOn and *Portrait of a Graduate*

Use the following scale to respond.

1 = Yes
2 = No
3 = Somewhat

1. I am knowledgeable of the FCPSOn initiative.
2. Prior to completing this survey, I was aware my child(ren) is/are enrolled at an FCPSOn Phase One school.
3. I am knowledgeable of the *Portrait of a Graduate* attributes as they apply to my child(ren).
4. I am knowledgeable of the FCPS Learning Model.

Section Two: Overall Impressions and Technology-Related Beliefs

Use the scale (NA, Strongly Disagree to Strongly Agree) to indicate the degree to which you agree or disagree with each statement regarding technology in general and the FCPSOn initiative.

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 PoaG 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 21st century citizen(s).
5. The laptop provided by FCPS has contributed positively to my child(ren)'s achievement in school this year.
6. My child(ren) is/are motivated to use their laptop to complete homework, assignments, and other school-related tasks.
7. The laptop provided by FCPS is an integral part of my child's learning experiences.
8. If necessary, I can assist my child(ren) with homework, assignments, and other school-related tasks they must complete using their laptop.

Section Three: Conclusion

9. What else would you like to share about your experiences with FCPS and/or your child's experiences as a student in an FCPSOn Phase One school? (open-ended/optional)

10. 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 FCPSOn Phase One school? (Y/N/Maybe)
    - If yes, prompt for email to receive an invitation to attend a focus group

11. Do you have internet at home? (Yes/No)

    if No, prompt appears that says something like, "Did you know you can receive internet access at home for free? Contact your child's counselor."

Appendix J: Teacher Questionnaire Descriptive Statistics and Response Frequencies

How long have you been participating in FCPSOn?

	This is my first year in a Phase One classroom or school.	This is my second year in a Phase One classroom or school.	This is my third year in a Phase One classroom or school.	This is my fourth year in a Phase One classroom or school.	This is my fifth year in a Phase One classroom or school.	N
Chantilly Pyramid	12.44%	26.02%	52.94%	4.07%	4.52%	442
eLearning Backpack	24.23%	29.93%	28.74%	9.26%	7.84%	421

What type of teacher are you?

	Grade-level elementary classroom teacher (1st grade, 2nd grade, etc.)	Core content teacher (middle or high school English, math, science, etc.)	Student support teacher (reading teacher, LD/MD teacher)	Special subjects or electives teacher (art, music, photography, CTE, etc.)	ESOL teacher	N
Chantilly Pyramid	28.96%	30.54%	15.16%	22.17%	3.17%	421
eLearning Backpack	0.48%	54.39%	10.45%	20.90%	13.78%	442

Use the scale to respond to statements regarding your familiarity with major initiatives and approaches to teaching and learning in your school district.

	No	Somewhat	Yes	N	*M*	*SD*
I am knowledgeable of the FCPSOn initiative.						
Chantilly Pyramid	1.36%	17.65%	81.00%	442	2.8	0.044
eLearning Backpack	9.64%	33.49%	56.87%	415	2.47	0.67
I am knowledgeable of the FCPS Learning Model and its role in teaching and learning.						
Chantilly Pyramid	0.90%	18.55%	80.54%	442	2.8	0.43

eLearning Backpack	6.27%	29.64%	64.10%	415	2.58	0.61
I am knowledgeable of the FCPS Portrait of a Graduate.						
Chantilly Pyramid	0.45%	9.95%	89.59%	442	2.89	0.33
eLearning Backpack	1.93%	18.80%	79.28%	415	2.77	0.46

Rate the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N	*M*	*SD*
I believe that the FCPSOn initiative will contribute to greater success for FCPS students, in later education and work experiences.								
Chantilly Pyramid	1.37%	3.42%	11.87%	42.47%	40.87%	438	4.18	0.87
eLearning Backpack	1.26%	2.26%	20.10%	47.74%	28.64%	398	4.00	0.83
I believe the FCPS Learning Model is appropriate for students.								
Chantilly Pyramid	0.68%	1.82%	10.93%	48.06%	38.50%	439	4.22	0.76
eLearning Backpack	0.75%	2.49%	18.70%	54.36%	23.69%	401	3.98	0.77
I am confident that Portrait of a Graduate attributes will contribute to greater success for FCPS students, in later education and work experiences.								
Chantilly Pyramid	0.91%	1.59%	11.85%	42.82%	42.82%	439	4.25	0.79
eLearning Backpack	0.74%	3.47%	21.34%	46.40%	28.04%	403	3.98	0.84

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N	*M*	*SD*
I enjoy using technology in my classroom.								
Chantilly Pyramid	0.00%	1.87%	11.21%	39.25%	47.66%	428	4.33	0.75
eLearning Backpack	0.25%	1.26%	9.60%	44.19%	44.70%	396	4.32	0.72

Integrating technology into instruction supports learning.								
Chantilly Pyramid	0.93%	1.16%	10.00%	43.95%	43.95%	430	4.29	0.77
eLearning Backpack	0.25%	1.26%	10.58%	45.09%	42.82%	397	4.29	0.72
The culture of my school supports the use of technology-enhanced instruction to support student learning experiences.								
Chantilly Pyramid	0.46%	0.93%	3.48%	38.98%	56.15%	431	4.49	0.66
eLearning Backpack	0.00%	1.76%	5.54%	48.61%	44.08%	397	4.35	0.67
I am confident that I use 1:1 technology effectively in my classroom.								
Chantilly Pyramid	0.93%	3.73%	15.15%	46.15%	34.03%	429	4.09	0.85
eLearning Backpack	0.51%	5.60%	14.50%	46.82%	32.57%	393	4.05	0.86
The use of technology tools (e.g., your personal laptop/computer, SMART board, digital classroom space, other computer programs) allows me to better apply the domains of the FCPS Learning Model in my classroom.								
Chantilly Pyramid	0.93%	2.32%	11.14%	42.00%	43.62%	431	4.25	0.81
eLearning Backpack	0.26%	1.79%	13.78%	48.98%	35.20%	392	4.17	0.75
I feel confident planning opportunities for students to practice and develop Portrait of a Graduate skills.								
Chantilly Pyramid	0.93%	2.09%	15.35%	46.51%	35.12%	430	4.13	0.81
eLearning Backpack	1.27%	5.34%	20.36%	47.33%	25.70%	393	3.91	0.88
The presence of 1:1 technology (students' personal devices) in my classroom allows me to better apply the domains of the FCPS Learning Model in my classroom.								
Chantilly Pyramid	1.87%	2.80%	21.73%	36.21%	37.38%	428	4.04	0.93
eLearning Backpack	1.79%	5.12%	20.46%	42.71%	29.92%	391	3.94	0.93
FCPSOn supports the use of a broad array of instructional strategies to support my students' learning.								

Chantilly Pyramid	0.47%	2.10%	9.58%	46.96%	40.89%	428	4.26	0.75
eLearning Backpack	0.51%	1.27%	16.03%	47.84%	34.35%	393	4.14	0.76
With proper training, I am confident in my ability to learn new digital resources and tools.								
Chantilly Pyramid	0.46%	0.70%	6.73%	42.69%	49.42%	431	4.40	0.69
eLearning Backpack	0.00%	1.01%	4.04%	47.73%	47.22%	396	4.41	0.62
I can deal with most technical difficulties I encounter when using computers and other digital resources and tools available to me.								
Chantilly Pyramid	2.31%	6.71%	12.96%	48.61%	29.40%	432	3.96	0.95
eLearning Backpack	1.26%	5.04%	16.12%	45.84%	31.74%	397	4.02	0.89
I feel my school was successful this year in fulfilling its role as an FCPSOn Phase One school.								
Chantilly Pyramid	1.17%	2.34%	6.31%	44.63%	45.56%	428	4.31	0.79
eLearning Backpack	1.52%	2.28%	16.46%	45.57%	34.18%	395	4.09	0.85

Rate the degree to which you agree or disagree with the following statements.

I have received sufficient professional development in…

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N	*M*	*SD*
Personalizing OR providing choice of time, place, pace, or path for student learning.								
Chantilly Pyramid	1.42%	7.35%	17.06%	50.47%	23.70%	422	3.88	0.90
eLearning Backpack	2.11%	11.84%	22.89%	43.68%	19.47%	380	3.67	0.99
Engaging my students in higher-order (inquiry, problem-solving, analysis/synthesis) learning activities.								
Chantilly Pyramid	1.18%	8.51%	17.02%	50.35%	22.93%	423	3.85	0.91
eLearning Backpack	1.31%	9.71%	19.95%	46.72%	22.31%	381	3.79	0.94
Creating collaborative learning experiences with my students.								

Chantilly Pyramid	1.18%	6.60%	12.50%	51.89%	27.83%	424	3.99	0.88
eLearning Backpack	1.05%	7.09%	14.44%	54.07%	23.36%	381	3.92	0.87
Differentiating instruction through technology-rich, blended learning activities.								
Chantilly Pyramid	1.18%	8.04%	14.42%	47.99%	28.37%	423	3.94	0.92
eLearning Backpack	2.09%	12.79%	16.71%	46.48%	21.93%	383	3.73	1.01
Designing personalized learning experiences for students based on students' goals, strengths, needs, interests, and learning preferences.								
Chantilly Pyramid	1.66%	10.93%	18.05%	45.37%	23.99%	421	3.79	0.98
eLearning Backpack	1.84%	13.39%	19.69%	44.36%	20.73%	381	3.69	1.01
Implementing effective digital citizenship practices.								
Chantilly Pyramid	1.43%	4.04%	14.73%	53.68%	26.13%	421	3.99	0.84
eLearning Backpack	2.64%	11.61%	24.27%	43.27%	18.21%	379	3.63	1.00
Developing a learner-centered physical environment.								
Chantilly Pyramid	1.19%	5.73%	13.13%	51.07%	28.88%	419	4.01	0.87
eLearning Backpack	1.84%	7.35%	18.11%	51.44%	21.26%	381	3.83	0.91
Developing a learner-centered virtual environment.								
Chantilly Pyramid	1.19%	8.08%	16.39%	50.12%	24.23%	421	3.88	0.91
eLearning Backpack	1.84%	8.95%	21.32%	47.11%	20.79%	380	3.76	0.94

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N	*M*	*SD*
I have opportunities to choose the topic about which I learn during professional learning opportunities at my school.								
Chantilly Pyramid	0.71%	4.24%	11.53%	46.12%	37.41%	425	4.15	0.84
eLearning Backpack	5.48%	9.66%	16.45%	48.04%	20.37%	383	3.68	1.07

The professional development opportunities provided are appropriate for the amount of time I have participated in FCPSOn.								
Chantilly Pyramid	1.18%	7.78%	16.98%	43.40%	30.66%	424	3.95	0.95
eLearning Backpack	4.44%	11.23%	20.89%	46.74%	16.71%	383	3.60	1.03
I was adequately informed of the expected role of my school as an FCPSOn Phase One school.								
Chantilly Pyramid	1.42%	4.72%	13.21%	44.81%	35.85%	424	4.09	0.89
eLearning Backpack	5.45%	12.73%	22.60%	41.04%	18.18%	385	3.54	1.09
I feel my school was successful this year in fulfilling its role as an FCPSOn Phase One school.								
Chantilly Pyramid	1.17%	2.34%	6.31%	44.63%	45.56%	428	4.31	0.79
eLearning Backpack	1.52%	2.28%	16.46%	45.57%	34.18%	395	4.09	0.85

Rate the frequency you employ the following teaching practices.

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

	Never	Rarely	Moderately	Frequently	N	*M*	*SD*
provide whole class instruction or lecture for 20 minutes or longer?							
Chantilly Pyramid	7.56%	29.51%	35.12%	27.80%	410	2.83	0.92
eLearning Backpack	5.00%	31.84%	35.26%	27.89%	380	2.86	0.88
facilitate cooperative/collaborative learning?							
Chantilly Pyramid	0.00%	3.13%	39.28%	57.59%	415	3.54	0.56
eLearning Backpack	0.00%	4.74%	40.79%	54.47%	380	3.50	0.59
facilitate project-based or other inquiry-based approaches to learning?							
Chantilly Pyramid	1.47%	19.85%	45.10%	33.58%	408	3.11	0.76
eLearning Backpack	3.99%	18.88%	44.15%	32.98%	376	3.06	0.82
provide student choice in topic or tool used to demonstrate learning?							
Chantilly Pyramid	1.23%	15.97%	50.61%	32.19%	407	3.14	0.72

eLearning Backpack	2.92%	21.49%	49.87%	25.73%	377	2.98	0.77
promote individualized learning (e.g., students working alone, with or without a computer)?							
Chantilly Pyramid	0.73%	7.77%	43.20%	48.30%	412	3.39	0.66
eLearning Backpack	0.53%	7.37%	43.68%	48.42%	380	3.40	0.65
involve students in designing their own learning experiences according to personal goals, needs, and interests?							
Chantilly Pyramid	4.22%	35.48%	43.42%	16.87%	403	2.73	0.79
eLearning Backpack	9.92%	32.17%	39.14%	18.77%	373	2.67	0.89
fostering cross-curricular connections (e.g., using topical content across several subjects; integrating 2 or more subjects in one learning or play activity)?							
Chantilly Pyramid	2.94%	23.28%	44.61%	29.17%	408	3.00	0.80
eLearning Backpack	10.22%	27.15%	40.59%	22.04%	372	2.74	0.92
facilitate differentiated learning experiences?							
Chantilly Pyramid	0.00%	5.76%	47.72%	46.52%	417	3.41	0.60
eLearning Backpack	0.79%	9.47%	48.95%	40.79%	380	3.30	0.67
use digital resources (online textbooks, web-based platforms, software programs, etc.)?							
Chantilly Pyramid	0.24%	9.90%	36.96%	52.90%	414	3.43	0.68
eLearning Backpack	1.32%	7.89%	36.58%	54.21%	380	3.44	0.70
deliver electronic formative or summative assessments?							
Chantilly Pyramid	6.34%	17.56%	38.54%	37.56%	410	3.07	0.90
eLearning Backpack	1.85%	11.35%	34.30%	52.51%	379	3.37	0.76
plan opportunities for students to practice POaG skills?							
Chantilly Pyramid	2.00%	12.25%	50.00%	35.75%	400	3.20	0.72
eLearning Backpack	5.16%	23.21%	45.56%	26.07%	349	2.93	0.83
allow students opportunities to support each other's learning (e.g., peer conferencing, peer feedback, etc.)?							

Chantilly Pyramid	1.72%	18.87%	50.00%	29.41%	408	3.07	0.74
eLearning Backpack	4.22%	25.07%	40.11%	30.61%	379	2.97	0.85

Rate the degree to which you agree or disagree with the following statements.

The use of technology is....

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N	*M*	*SD*
an integral part of my instructional practices this year.								
Chantilly Pyramid	1.70%	3.41%	12.65%	38.20%	44.04%	411	4.19	0.91
eLearning Backpack	0.53%	2.90%	8.44%	35.09%	53.03%	379	4.37	0.80
an integral part of my instructional planning and administration (preparing lessons, grading, data management, etc.) this year.								
Chantilly Pyramid	0.73%	1.95%	6.81%	40.15%	50.36%	411	4.37	0.76
eLearning Backpack	0.79%	1.58%	5.80%	35.62%	56.20%	379	4.45	0.74
an integral part of my classroom learning environment (e.g., online resources, document management, student collaboration, etc.) this year.								
Chantilly Pyramid	0.98%	3.92%	9.56%	40.93%	44.61%	408	4.24	0.85
eLearning Backpack	0.53%	2.12%	8.99%	35.98%	52.38%	378	4.38	0.78
supportive of personalizing the time, place, path, and pace of instruction for my students this year.								
Chantilly Pyramid	1.49%	4.23%	15.17%	45.02%	34.08%	402	4.06	0.89
eLearning Backpack	0.80%	3.98%	15.92%	39.79%	39.52%	377	4.13	0.88
a key component in my approach to cultivating Portrait of a Graduate attributes and outcomes in students.								
Chantilly Pyramid	1.96%	5.88%	22.79%	39.46%	29.90%	408	3.89	0.96
eLearning Backpack	1.61%	5.38%	22.85%	38.71%	31.45%	372	3.93	0.95

a key component in my approach to supporting student learning through the FCPS Learning Model.								
Chantilly Pyramid	2.21%	4.17%	15.20%	45.10%	33.33%	408	4.03	0.92
eLearning Backpack	0.80%	3.74%	20.05%	43.05%	32.35%	374	4.02	0.86

Rate the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	N	*M*	*SD*
Technology has contributed positively to student achievement in my classroom this year.								
Chantilly Pyramid	1.72%	4.68%	18.72%	41.38%	33.50%	406	4.00	0.93
eLearning Backpack	1.59%	5.31%	15.12%	48.81%	29.18%	377	3.99	0.89
Technology has contributed positively to student engagement in my classroom this year.								
Chantilly Pyramid	2.46%	4.68%	15.52%	39.90%	37.44%	406	4.05	0.97
eLearning Backpack	3.45%	6.37%	13.26%	45.89%	31.03%	377	3.95	1.00
My students are motivated to use technology during learning in my classroom.								
Chantilly Pyramid	2.23%	3.71%	16.09%	37.13%	40.84%	404	4.11	0.95
eLearning Backpack	1.86%	5.31%	15.38%	49.07%	28.38%	377	3.97	0.90
My students are motivated to use technology to support their learning outside of my classroom.								
Chantilly Pyramid	3.01%	6.52%	20.55%	39.35%	30.58%	399	3.88	1.02
eLearning Backpack	2.41%	9.12%	24.13%	40.21%	24.13%	373	3.75	1.00
My students are motivated to use technology to support self-directed learning opportunities.								
Chantilly Pyramid	3.00%	5.00%	21.50%	39.25%	31.25%	400	3.91	1.00
eLearning Backpack	2.40%	9.87%	23.47%	41.07%	23.20%	375	3.73	1.00
My students have improved in their use of technology as a learning tool this year.								
Chantilly Pyramid	1.98%	2.72%	15.84%	45.30%	34.16%	404	4.07	0.89

eLearning Backpack	0.80%	5.05%	16.22%	48.94%	28.99%	376	4.00	0.85

Rate the degree to which you agree or disagree with the following statements.

My students have improved in their demonstration of Portrait of a Graduate skills...

	Not Applicable	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	N	*M*	*SD*
as a communicator.									
Chantilly Pyramid	1.70%	1.21%	2.18%	16.75%	48.06%	30.10%	405	4.05	0.82
eLearning Backpack	2.65%	0.53%	5.03%	18.52%	56.35%	16.93%	368	3.86	0.78
as a collaborator.									
Chantilly Pyramid	1.94%	0.97%	0.49%	15.29%	51.46%	29.85%	404	4.11	0.75
eLearning Backpack	2.12%	0.26%	3.97%	19.58%	53.97%	20.11%	370	3.92	0.77
as an ethical and global citizen.									
Chantilly Pyramid	2.43%	1.46%	3.40%	30.10%	44.66%	17.96%	402	3.76	0.84
eLearning Backpack	3.97%	0.79%	7.67%	32.80%	41.27%	13.49%	363	3.61	0.85
as a creative and critical thinker.									
Chantilly Pyramid	2.18%	0.97%	2.18%	17.23%	50.00%	27.43%	403	4.03	0.80
eLearning Backpack	2.12%	0.79%	5.82%	20.63%	52.91%	17.72%	370	3.83	0.82
as a goal directed and resilient individual.									
Chantilly Pyramid	2.18%	1.46%	4.37%	25.97%	46.60%	19.42%	403	3.80	0.86
eLearning Backpack	2.38%	1.59%	5.82%	25.40%	51.32%	13.49%	369	3.71	0.84

Appendix K: Student Questionnaire Descriptive Statistics and Response Frequencies

Rate the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	*N*	*M*	*SD*
Classes are more interesting when I use my computer for learning.								
Chantilly Pyramid	2.5%	4.8%	21.2%	44.1%	27.5%	3094	3.89	0.94
eLearning Backpack	2.4%	5.4%	23.0%	45.2%	24.0%	2242	3.83	0.93
I use my computer to create products that show what I've learned.								
Chantilly Pyramid	3.1%	5.8%	18.8%	37.6%	34.8%	3084	4.06	0.84
eLearning Backpack	2.5%	5.6%	18.8%	43.5%	29.5%	2248	3.92	0.90
I've learned to use my computer in new ways this year.								
Chantilly Pyramid	10.6%	19.1%	31.6%	22.8%	15.9%	3124	3.83	1.05
eLearning Backpack	5.6%	12.9%	28.5%	30.2%	22.8%	2266	3.78	1.06
My computer makes turning in homework and completing assignments easy.								
Chantilly Pyramid	3.7%	8.0%	31.0%	36.9%	20.5%	3120	4.08	1.05
eLearning Backpack	3.2%	6.6%	25.4%	41.7%	23.1%	2289	4.22	0.92
Using a computer during learning feels natural to me.								
Chantilly Pyramid	1.4%	3.6%	13.2%	51.0%	30.8%	3102	3.95	1.02
eLearning Backpack	2.0%	5.8%	15.5%	52.0%	24.7%	2259	3.92	0.96
My computer is an important part of every school day.								
Chantilly Pyramid	3.4%	9.6%	15.7%	42.9%	28.3%	3148	4.10	0.98
eLearning Backpack	4.3%	9.0%	16.9%	44.2%	25.6%	2275	4.16	0.89
My computer works well.								
Chantilly Pyramid	3.5%	5.4%	13.5%	34.8%	42.8%	3172	3.95	1.00
eLearning Backpack	2.1%	3.4%	10.7%	38.1%	45.7%	2287	3.99	0.96

I know how to use my computer to complete assignments and homework.								
Chantilly Pyramid	2.5%	4.7%	15.0%	36.4%	41.5%	3166	4.43	0.74
eLearning Backpack	1.7%	3.5%	12.4%	41.8%	40.6%	2300	4.37	0.76
Without a computer, it would be difficult to be successful at school.								
Chantilly Pyramid	3.2%	6.4%	13.8%	45.5%	31.1%	3064	3.14	1.21
eLearning Backpack	2.5%	6.5%	11.8%	47.7%	31.5%	2256	3.52	1.14
Using a computer for learning encourages me to be responsible for my success in school.								
Chantilly Pyramid	1.1%	1.2%	4.7%	39.2%	53.7%	3027	3.63	1.01
eLearning Backpack	1.2%	1.5%	5.5%	43.3%	48.5%	2267	3.75	0.99

How often do you use your school-issued laptop for the following SCHOOL-RELATED activities?

	Never	Once a week	2-3 Times Per Week	Almost Everyday	Daily	*N*	*M*	*SD*
Work on school work or complete homework at home?								
Chantilly Pyramid	7.4%	7.0%	13.9%	29.7%	41.9%	3009	3.92	1.22
eLearning Backpack	8.4%	9.0%	18.6%	31.7%	32.3%	2041	3.71	1.24
View/Download notes or presentations from teachers?								
Chantilly Pyramid	12.6%	20.1%	24.9%	23.7%	18.8%	3009	3.16	1.29
eLearning Backpack	17.5%	19.9%	23.6%	22.0%	17.1%	2041	3.01	1.34
View your grades?****								
Chantilly Pyramid	5.3%	13.4%	20.0%	26.2%	35.1%	3009	3.86	1.16
eLearning Backpack	5.8%	14.2%	20.1%	25.8%	34.1%	2041	3.84	1.10
Submit homework?								
Chantilly Pyramid	5.4%	8.5%	17.7%	31.8%	36.6%	3009	2.87	1.11
eLearning Backpack	4.2%	7.6%	21.9%	33.3%	33.1%	2041	3.21	1.16
Take a test or quiz?								
Chantilly Pyramid	5.8%	38.8%	30.0%	12.8%	12.6%	3009	2.63	1.20
eLearning Backpack	6.2%	22.8%	31.9%	21.7%	17.4%	2041	2.84	1.24

Design PowerPoint presentations, drawings, or web pages?								
Chantilly Pyramid	15.6%	40.2%	20.4%	13.2%	10.6%	3009	3.54	1.23
eLearning Backpack	12.9%	34.1%	23.6%	15.3%	14.1%	2041	3.40	1.24
Collaborate with other students during class?								
Chantilly Pyramid	6.4%	15.7%	22.8%	27.4%	27.7%	3009	2.42	1.39
eLearning Backpack	8.7%	16.7%	22.9%	29.0%	22.7%	2041	2.58	1.41
Collaborate with other students from home?								
Chantilly Pyramid	35.1%	24.8%	15.4%	12.6%	12.1%	3009	3.67	1.20
eLearning Backpack	31.2%	22.2%	17.4%	15.4%	13.8%	2041	3.76	1.18
Look up information on the Internet / related to classroom assignments?								
Chantilly Pyramid	5.6%	12.6%	21.6%	29.1%	31.1%	3009	2.70	1.43
eLearning Backpack	5.9%	9.4%	20.4%	31.4%	32.9%	2041	2.95	1.45
Type notes during class?								
Chantilly Pyramid	29.3%	18.5%	20.0%	16.6%	15.5%	3009	2.96	1.27
eLearning Backpack	24.4%	15.5%	19.7%	21.1%	19.2%	2041	3.06	1.29
Receive feedback from teachers?								
Chantilly Pyramid	12.9%	28.7%	23.3%	19.4%	15.7%	3009	2.46	1.34
eLearning Backpack	12.7%	24.1%	24.9%	20.9%	17.5%	2041	2.49	1.40
Receive feedback from other students?								
Chantilly Pyramid	30.9%	28.0%	17.0%	12.9%	11.3%	3009	3.29	1.40
eLearning Backpack	34.0%	22.1%	17.1%	14.5%	12.3%	2041	3.16	1.38
Communicate with other students or my teacher?								
Chantilly Pyramid	13.0%	20.5%	19.1%	18.9%	28.5%	3009	2.71	1.58
eLearning Backpack	15.0%	21.1%	19.9%	21.2%	22.8%	2041	3.17	1.61
Listen to music that supports your learning?								
Chantilly Pyramid	34.9%	16.7%	12.8%	13.9%	21.8%	3009	2.77	1.35
eLearning Backpack	26.6%	10.8%	12.9%	18.2%	31.5%	2041	3.00	1.45

Watch TV or Youtube videos that support your learning?								
Chantilly Pyramid	20.3%	28.0%	21.3%	14.6%	15.8%	3009	2.44	1.39
eLearning Backpack	20.4%	21.4%	18.2%	17.7%	22.3%	2041	2.35	1.45
Play educational games / games that support your learning?								
Chantilly Pyramid	34.0%	25.2%	16.5%	11.6%	12.8%	3009	2.71	1.33
eLearning Backpack	41.6%	19.1%	15.5%	9.9%	13.8%	2041	2.64	1.38
Create new or innovative things as part of your learning?								
Chantilly Pyramid	21.3%	29.2%	20.7%	15.0%	13.8%	3009	2.66	1.42
eLearning Backpack	27.1%	24.7%	18.9%	15.5%	13.8%	2041	2.90	1.44
Learn about things that aren't covered in school?								
Chantilly Pyramid	27.3%	25.9%	16.1%	14.7%	16.1%	3009	3.63	1.23
eLearning Backpack	22.2%	22.4%	18.1%	17.4%	19.8%	2041	3.40	1.27
Access Blackboard (FCPS 24-7)								
Chantilly Pyramid	4.2%	18.4%	20.0%	25.1%	32.2%	3009	3.43	1.69
eLearning Backpack	7.7%	20.1%	21.7%	25.1%	25.4%	2041	2.56	1.61
Access Google Classroom / G Suite for Education								
Chantilly Pyramid	26.7%	6.6%	7.7%	14.6%	44.4%	1948	3.72	1.22
eLearning Backpack	42.4%	12.8%	11.5%	12.7%	20.6%	2041	3.68	1.24

How often do you use your school-issued laptop for the following PERSONAL activities?

	Never	Once a week	2-3 Times Per Week	Almost Everyday	Daily	*N*	*M*	*SD*
Read the news?								
Chantilly Pyramid	65.5%	14.6%	8.5%	5.5%	5.9%	2977	1.72	1.19
eLearning Backpack	46.1%	21.5%	14.1%	9.0%	9.3%	2007	2.14	1.33
Search for information related to your hobbies?								
Chantilly Pyramid	41.7%	22.7%	14.5%	10.4%	10.7%	2977	2.26	1.37
eLearning Backpack	27.1%	22.9%	20.3%	13.7%	16.1%	2007	2.69	1.41

Send or receive personal email?									
	Chantilly Pyramid	51.5%	17.8%	11.8%	8.9%	10.0%	2977	2.08	1.37
	eLearning Backpack	38.3%	16.5%	16.6%	13.7%	15.0%	2007	2.51	1.48
Listen to music?									
	Chantilly Pyramid	38.7%	14.8%	11.0%	11.8%	23.8%	2977	2.67	1.63
	eLearning Backpack	29.8%	11.5%	11.2%	15.4%	32.0%	2007	3.08	1.65
Watch TV or YouTube videos?									
	Chantilly Pyramid	50.5%	12.9%	9.7%	9.3%	17.7%	2977	2.31	1.57
	eLearning Backpack	28.4%	14.0%	15.2%	14.3%	28.1%	2007	3.00	1.59
Access social media?									
	Chantilly Pyramid	72.0%	5.7%	4.8%	4.9%	12.6%	2977	1.80	1.43
	eLearning Backpack	52.8%	9.7%	8.3%	9.0%	20.2%	2007	2.34	1.64
Play games?									
	Chantilly Pyramid	57.0%	14.0%	10.0%	7.3%	11.7%	2977	2.03	1.42
	eLearning Backpack	45.3%	15.7%	13.1%	10.1%	15.8%	2007	2.35	1.51
Read a book?*****									
	Chantilly Pyramid	57.2%	14.4%	11.1%	7.4%	9.8%	2977	1.39	0.98
	eLearning Backpack	51.4%	17.5%	13.3%	9.1%	8.7%	2007	1.59	1.16
Create podcasts or videos?									
	Chantilly Pyramid	81.4%	8.5%	3.6%	2.3%	4.2%	1933	1.98	1.36
	eLearning Backpack	74.0%	9.3%	6.3%	4.5%	5.8%	2007	2.06	1.34

Elementary students: 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.

	I don't know	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	*N*	*M*	*SD*
I listen and ask questions so I can understand.	2.7%	1.0%	2.3%	14.0%	47.8%	32.2%	1061	4.11	0.81
I use digital tools to research and share ideas.	4.3%	1.2%	2.7%	11.0%	44.3%	36.5%	1044	4.17	0.83
I respectfully listen to other points of view.	3.2%	0.2%	1.6%	9.3%	49.7%	36.0%	1056	4.24	0.70
I help find solutions to problems.	4.6%	0.3%	2.1%	14.6%	47.5%	31.0%	1041	4.12	0.76

I encourage people to help each other when I work in a group.	5.8%	0.6%	2.5%	17.9%	41.7%	31.5%	1028	4.07	0.83
I give and use feedback to help improve work.	8.4%	1.5%	4.3%	17.9%	42.7%	25.2%	999	3.94	0.89
I use many sources to gather information.	3.7%	0.5%	2.4%	10.4%	47.4%	35.7%	1051	4.20	0.76
I show I am a friend by making good choices.	4.6%	0.7%	1.6%	10.4%	43.1%	39.6%	1041	4.25	0.77
I can say why an idea is a good one.	6.2%	0.5%	2.5%	14.0%	45.0%	31.7%	1023	4.12	0.80
I treat others with respect and kindness.	2.2%	0.4%	0.5%	7.1%	40.6%	49.3%	1067	4.41	0.68
I understand that there are different cultures and perspectives in the world.	3.2%	0.3%	0.4%	3.4%	28.2%	64.5%	1056	4.62	0.60
I make a plan to achieve my goals.	6.0%	1.0%	6.3%	20.8%	38.2%	27.7%	1026	3.91	0.93
I don't give up when something is hard.	3.4%	1.1%	3.1%	18.7%	40.1%	33.5%	1054	4.06	0.88

Secondary students: 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.

	I don't know	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	*N*	*M*	*SD*
I listen and ask questions to further my understanding.									
Chantilly Pyramid	2.2%	1.1%	4.1%	15.6%	50.5%	26.6%	1952	4.00	0.84
eLearning Backpack	2.8%	1.5%	4.2%	17.2%	50.3%	24.0%	2055	3.94	0.86
I use digital tools to enhance my communication.									
Chantilly Pyramid	3.3%	1.5%	3.6%	16.3%	46.7%	28.7%	1931	4.01	0.86
eLearning Backpack	4.4%	1.4%	5.0%	18.6%	45.9%	24.7%	2022	3.92	0.89
I use digital tools to explore new ideas.									
Chantilly Pyramid	3.3%	1.2%	3.8%	15.4%	48.8%	27.5%	1930	4.01	0.84
eLearning Backpack	4.1%	1.4%	4.3%	16.7%	49.4%	24.1%	2028	3.94	0.86
I listen to, acknowledge, and appreciate diverse ideas when I participate in conversations.									
Chantilly Pyramid	2.8%	1.0%	1.7%	10.8%	54.1%	29.7%	1940	4.13	0.75
eLearning Backpack	3.9%	0.9%	2.1%	13.7%	50.4%	29.0%	2033	4.09	0.78

I gather multiple sources on a topic before constructing arguments and drawing conclusions.									
Chantilly Pyramid	3.8%	1.5%	3.8%	16.9%	51.0%	23.1%	1920	3.94	0.84
eLearning Backpack	4.5%	0.8%	4.3%	20.6%	47.8%	22.1%	2019	3.90	0.83
I am a supportive team member.									
Chantilly Pyramid	3.1%	0.8%	2.2%	10.2%	51.6%	32.1%	1934	4.16	0.76
eLearning Backpack	3.6%	1.7%	1.8%	14.8%	49.8%	28.1%	2038	4.04	0.83
I make meaningful contributions to collaborative teams.									
Chantilly Pyramid	3.9%	1.2%	1.4%	12.4%	53.4%	27.8%	1918	4.10	0.76
eLearning Backpack	5.3%	1.0%	2.6%	16.5%	50.8%	23.7%	2002	3.99	0.79
I consider information from different sources when I explore ideas.									
Chantilly Pyramid	3.1%	1.1%	1.8%	14.0%	55.8%	24.2%	1934	4.04	0.75
eLearning Backpack	4.2%	0.7%	2.0%	13.3%	54.7%	25.1%	2026	4.06	0.74
I am a strategic problem solver.									
Chantilly Pyramid	4.1%	1.0%	3.5%	19.5%	48.2%	23.7%	1914	3.94	0.83
eLearning Backpack	4.9%	1.1%	4.3%	23.3%	46.3%	20.0%	2012	3.84	0.85
I evaluate sources for validity, relevancy, and the impact it has on others.									
Chantilly Pyramid	6.1%	1.0%	4.5%	19.5%	48.1%	20.7%	1874	3.89	0.84
eLearning Backpack	6.1%	0.9%	3.8%	20.9%	49.2%	19.2%	1987	3.87	0.81
I demonstrate empathy, compassion, and respect for others.									
Chantilly Pyramid	3.0%	1.2%	1.3%	9.8%	48.3%	36.5%	1936	4.21	0.77
eLearning Backpack	3.0%	0.7%	1.4%	11.3%	46.4%	37.1%	2052	4.21	0.76
I consider local, national, and global perspectives when examining issues.									
Chantilly Pyramid	6.5%	1.4%	6.0%	24.1%	42.3%	19.7%	1867	3.78	0.90
eLearning Backpack	6.8%	1.1%	4.3%	25.6%	42.8%	19.4%	1972	3.80	0.86
I reflect on my experiences and advocate for myself to grow and improve.									
Chantilly Pyramid	3.6%	1.2%	2.6%	15.2%	51.6%	25.9%	1925	4.02	0.80

	eLearning Backpack	3.9%	0.8%	2.3%	16.2%	50.9%	26.0%	2033	4.03	0.78
I can identify challenges and adjust to overcome them.										
	Chantilly Pyramid	3.5%	0.8%	2.5%	14.2%	54.9%	24.2%	1926	4.03	0.75
	eLearning Backpack	3.9%	1.0%	2.3%	18.7%	53.3%	20.9%	2033	3.94	0.77
I persevere through difficult tasks and situations.										
	Chantilly Pyramid	3.3%	1.5%	3.1%	15.7%	52.2%	24.3%	1931	3.98	0.82
	eLearning Backpack	4.7%	1.2%	2.9%	20.3%	49.7%	21.2%	2016	3.91	0.81

What classes do you use your school-issued laptop in the most (select 3)?

	Chantilly Pyramid	eLearning Backpack
Career and Technical (CTE)	6.4%	6.0%
English/Language Arts	65.7%	69.0%
Foreign Language Arts	22.0%	16.5%
Health/Physical Education/Drivers Ed	11.4%	15.4%
History	46.2%	64.0%
Mathematics	50.9%	38.5%
Other	13.1%	10.4%
Science	60.1%	60.5%
Social Studies	31.8%	15.3%
Visual or Performing Arts	2.8%	4.6%

What classes do you use your school-issued laptop in the least (select 3)?

	Chantilly Pyramid	eLearning Backpack
Career and Technical (CTE)	8.9%	11.5%
English/Language Arts	30.8%	30.0%
Foreign Language Arts	25.4%	28.6%
Health/Physical Education/Drivers Ed	48.3%	36.7%
History	30.3%	36.0%
Mathematics	48.4%	54.0%

Other	20.5%	21.8%
Science	36.4%	38.2%
Social Studies	20.1%	13.4%
Visual or Performing Arts	22.7%	29.9%

Appendix L: Parent Questionnaire Descriptive Statistics and Response Frequencies

Do you have Internet at home?

	No	Yes
Chantilly Pyramid	0.45%	99.55%
eLearning Backpack	0.63%	99.37%

Use the scale to respond to statements regarding your familiarity with major initiatives and approaches to teaching and learning in your school district.

	No	Somewhat	Yes	*N*	*M*	*SD*
I am knowledgeable of the FCPSOn initiative.						
Chantilly Pyramid	12.72%	37.93%	49.35%	1392	2.37	0.70
eLearning Backpack	32.94%	44.21%	22.85%	337	1.90	0.74
Prior to completing this survey, I was aware my child(ren) is/are enrolled at an FCPSOn Phase One school.						
Chantilly Pyramid	17.60%	14.08%	68.32%	1392	2.51	0.78
eLearning Backpack	41.84%	20.77%	37.39%	337	1.96	0.89
I am knowledgeable of the Portrait of a Graduate attributes as they apply to my child(ren).						
Chantilly Pyramid	32.33%	31.75%	35.92%	1392	2.04	0.83
eLearning Backpack	41.84%	27.89%	30.27%	337	1.88	0.84
I am knowledgeable of the FCPS Learning Model.						
Chantilly Pyramid	17.39%	42.31%	40.30%	1392	2.23	0.72
eLearning Backpack	32.05%	40.36%	27.60%	337	1.96	0.77

Rate the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	*N*	*M*	*SD*

It is important to me as a parent that my child is exposed to technology as part of their learning experiences.								
Chantilly Pyramid	3.5%	1.6%	5.0%	35.1%	54.8%	1042	4.39	0.98
eLearning Backpack	2.8%	0.9%	3.8%	27.3%	65.2%	319	4.81	1.42
Positive digital citizenship and appropriate online behaviors are important for my child(ren) to acquire as part of their overall positive growth and development.								
Chantilly Pyramid	2.7%	0.9%	2.2%	26.0%	68.2%	1042	4.59	0.88
eLearning Backpack	2.2%	0.6%	0.6%	27.6%	69.0%	319	4.92	1.32
Technology skills are important for my child(ren) to acquire as a 21st century citizen (s).								
Chantilly Pyramid	2.9%	0.9%	3.4%	25.6%	67.3%	1042	4.56	0.91
eLearning Backpack	1.9%	0.6%	1.6%	24.1%	71.8%	319	4.95	1.30
The laptop provided by FCPS has contributed positively to my child(ren)'s achievement in school this year.								
Chantilly Pyramid	5.5%	6.4%	18.3%	32.1%	37.7%	1042	3.94	1.20
eLearning Backpack	3.1%	4.1%	15.0%	32.9%	44.8%	319	4.44	1.57
My child(ren) is/are motivated to use their laptop to complete homework, assignments, and other school-related tasks.								
Chantilly Pyramid	3.6%	6.2%	17.0%	35.7%	37.4%	1042	4.00	1.13
eLearning Backpack	2.5%	6.9%	14.1%	30.1%	46.4%	319	4.42	1.59
The laptop provided by FCPS is an integral part of my child's learning experiences.								
Chantilly Pyramid	4.9%	5.7%	18.5%	36.1%	34.8%	1042	3.93	1.16
eLearning Backpack	2.2%	8.8%	10.0%	34.5%	44.5%	319	4.42	1.58
If necessary, I can assist my child(ren) with homework, assignments, and other school-related tasks they must complete using their laptop.								
Chantilly Pyramid	3.2%	5.1%	12.2%	37.6%	41.9%	1042	4.14	1.06
eLearning Backpack	3.8%	3.1%	15.0%	35.4%	42.6%	319	4.41	1.49