Edgenuity Distance Learning:
An Analysis of Participation, Usage, and Impact,
4th Grading Period 2019-2020

1. What is the purpose of this report?

This report examines the outcomes of the Edgenuity application suites, which were widely adopted as an adjunct to virtual instruction during the shutdown of schools (fourth grading period of the 2019-20 school year) due to the Coronavirus pandemic. Edgenuity is a customizable standards-aligned video-based curriculum for middle and high school blended learning environments, which allows students to monitor their own progress while completing lessons, assessments, and interactive activities. The courses use audio, video, and text content along with different types of assignments including writing assignments and projects. Its curricular programs align with state standards and provide for secondary instruction and credit recovery in the form of either a standalone (credit bearing) or supplemental (non-credit bearing) basis. Students access the curriculum via the internet through their computer or tablet and begin the program with a pre-test followed by lecture-style lessons.

2. Which populations are targeted in this report?

The sample for the analyses of participation, usage, and outcome comprised students in Grade 6 through 12 who during the 2019-20 school year were listed as enrolled in one or more core courses (i.e., English Language Arts, Mathematics, Science, and Social Science) during the spring semester, and used Edgenuity for one minute or more during the fourth grading period. The sample for analyses of impact was limited to students in Grades 6-8 with valid teacher-assigned core course-grades for the fourth grading period and who also had pre-test scores on the iReady diagnostic assessments (AP2, December 2019 administration) in Reading and Mathematics. Students without complete data were excluded from the analyses.

3. How were the data for this report collected and analyzed?

Participation data were prepared by matching the M-DCPS student course registration data file to the Edgenuity cumulative usage file provided by the program vendor. Usage and participation were examined through descriptive statistics. Impact was analyzed by gauging whether variations in use were associated with variation in outcomes (as measured by fitting teacher-assigned grades to a continuous scale of measurement) once students' demographic characteristics and baseline achievement were considered.

4. How was Edgenuity deployed in the District?

Edgenuity was used in 181 secondary school locations throughout the district as an adjunct to instruction in blended learning and in the form of standalone courses. Students were given the opportunity to use 689 course modules in English Language Arts (n=102), Mathematics (n=284), Science (n=182), and Social Science (n=121).

Schools. Table 1 lists the number of schools that implemented Edgenuity by grade organization and governance structure during the fourth quarter of the 2019-20 school year.

Table 1. Edgenuity Deployment by School Type

| | Overall | | School Type | | | |
| | | | Traditional | | Charter | |
Grade Span	N	%	N	%	N	%
K-8 Centers	54	29.8	52	96.3	2	3.7
Middle	52	28.7	49	94.2	3	5.8
Senior	55	30.3	47	85.5	8	14.5
Other	20	11.0	18	90.0	2	10.0
Total	181	100.0	166	91.7	15	8.3

- 58.5% of the schools were middle or K-8 centers serving students in Grades 6 through 8 while 30.3% of the schools were senior high schools serving students in Grades 9 through 12.
- 91.7% of the schools were traditional schools and 8.3% were charter schools.

Format. Edgenuity was offered under two formats: as a blended learning tool (non-credit bearing) where it served as an adjunct to instruction with practice guided by a teacher, and as a standalone virtual course (credit bearing) where progress is guided by the application and the final grade is assigned by the software. It may be noted that a student using Edgenuity as a blended learning tool may be assigned to complete one, ten, or more units by the teacher, but the student is counted only once on Table 2, which follows. The table lists for each subject area and grade organization, the total number of student- Edgenuity-modules, followed by the number and percent of student-modules in each format (blended and standalone).

Table 2. Edgenuity Student-Modules by Subject Area and Grade Organization, 2019-20 4th Quarter

| | Middle | | | | | Senior | | | | | Total | | | | |
| | | Blended Learning | | Standalone | | | Blended Learning | | Standalone | | | Blended Learning | | Standalone | |
Subject Area	N	N	%	N	%	N	N	%	N	%	N	N	%	N	%
English Language Arts	28,722	28,514	99.3	208	0.7	16,533	16,154	97.7	379	2.3	45,255	44,668	98.7	587	1.3
Mathematics	28,610	28,332	99.0	278	1.0	11,397	10,995	96.5	402	3.5	40,007	39,327	98.3	680	1.7
Science	36,222	36,071	99.6	151	0.4	11,944	11,675	97.7	269	2.3	48,166	47,746	99.1	420	0.9
Social Science	20,503	20,314	99.1	189	0.9	6,685	6,240	93.3	445	6.7	27,188	26,554	97.7	634	2.3
Total[a]	51,702	51,328	99.3	374	0.7	33,886	32,813	96.8	1,073	3.2	85,588	84,141	98.3	1,447	1.7

[a]Total represents an unduplicated count of students.

- 99.3% of the middle level students used the blending learning format while 0.7% used the standalone format.

- Overall, 96.8% of the senior level students used the blending learning format but use of the standalone format varied with grade from 2.3 to 6.7%.

5. Which students used Edgenuity and how often did they use it?

The remainder of this report is focused on the extent to which variations in the use of Edgenuity are associated with changes in students' academic achievement. Due to the similarity of content across modules, student's practice times on the modules within a given subject area are summed together to create an aggregated usage variable. Each student's aggregate usage is then matched to all of their courses within that subject area, as recorded on the course registration file for spring 2020. The teacher-assigned grades serve as the outcome measures. Because the relationship between usage and outcome in standalone courses is fixed by the software, students with one or more such courses in a given subject area are excluded from further analyses of the outcomes of those subject areas.

- **Participation**. Table 3 lists for each grade the total unduplicated number and percentage of students who registered for core courses during the spring of 2020, followed by the number and percentage of Edgenuity users enrolled in core courses, overall and by subject area.

Table 3. Students Using Edgenuity by Subject Area

Spring Grade	Total Students Enrolled	Edgenuity Users									
		Total		English Language Arts		Mathematics		Science		Social Science	
		N	%	N	%	N	%	N	%	N	%
Middle											
6	26,870	16,193	60.3	10,301	63.6	9,322	57.6	10,343	63.9	5,867	36.2
7	26,406	17,049	64.6	9,177	53.8	9,347	54.8	11,057	64.9	8,444	49.5
8	27,050	18,086	66.9	9,036	50.0	9,663	53.4	14,671	81.1	6,002	33.2
Total	80,326	51,328	63.9	28,514	55.6	28,332	55.2	36,071	70.3	20,313	39.6
Senior											
9	26,136	10,802	41.3	4,954	45.9	3,690	34.2	5,192	48.1	1,717	15.9
10	25,532	9,406	36.8	4,674	49.7	3,790	40.3	4,406	46.8	108	1.1
11	24,854	8,008	32.2	3,474	43.4	2,135	26.7	1,717	21.4	3,294	41.1
12	24,344	4,597	18.9	3,051	66.4	1,370	29.8	357	7.8	1,118	24.3
Total	100,866	32,813	32.5	16,153	49.2	10,985	33.5	11,672	35.6	6,237	19.0

- o Overall, 63.9% of all enrolled middle-grade students used Edgenuity modules at a teacher's direction during the fourth grading period of the 2019-20 school year for at least one core course. Of those students, over 55% took English Language Arts and Mathematics, over 70% Science, and nearly 40% Social Science courses using Edgenuity.
- o Overall, 32.5% of all enrolled senior-grade students used Edgenuity modules at a teacher's direction during the fourth grading period of the 2019-20 school year for at least one core course. Of those students, nearly 50% took English Language Arts, over 33% Mathematics and Science, and nearly 20% Social Science courses.
- **Usage**. The total practice time on the modules within a given subject area is summed together for each student to create an aggregated usage variable. Table 4 lists for each grade, the number of users followed by each of three levels (Low, bottom 25%; Medium, median; and High, top 25%) of usage for each subject area.

Table 4. Edgenuity Usage by Subject Area by Grade Level

Spring	English Language Arts				Mathematics			
		Usage (minutes)[a]				Usage (minutes)[a]		
Grade	Students (N)	Low	Medium	High	Students (N)	Low	Medium	High
		Middle				Middle		
6	10,301	120	330	636	9,322	162	511	1,078
7	9,177	138	316	581	9,347	164	467	937
8	9,036	124	297	552	9,663	167	465	963
Total	28,514	126	313	593	28,332	164	477	991
		Senior				Senior		
9	4,954	140	350	660	3,690	122	401	929
10	4,674	149	396	709	3,790	137	454	942
11	3,474	126	334	601	2,135	163	479	911
12	3,051	172	377	639	1,370	165	471	868
Total	16,153	145	365	658	10,985	138	446	922

Spring	Science				Social Science			
		Usage (minutes)[a]				Usage (minutes)[a]		
Grade	Students (N)	Low	Medium	High	Students (N)	Low	Medium	High
		Middle				Middle		
6	10,343	169	456	801	5,867	97	317	651
7	11,057	146	360	699	8,444	135	342	630
8	14,671	193	451	863	6,002	128	353	740
Total	36,071	171	421	791	20,313	122	339	668
		Senior				Senior		
9	5,192	145	399	776	1,717	136	440	886
10	4,406	151	385	757	108	215	467	742
11	1,717	163	390	669	3,294	216	442	825
12	357	268	496	774	1,118	177	387	704
Total	11,672	152	396	750	6,237	192	431	816

Note. Maximum exceeded "High" usage in **English Language Arts** by a factor of 12-15 times (middle grades) and 9-13 times (senior high grades); in **Mathematics** by a factor of 8 times (middle grades) and 6-10 times (senior high grades); in **Science** by a factor of 7-10 times (middle grades) and 6-11 times (senior high grades); in **Social Science** by a factor of 9-13 times (middle grades) and 3-8 times (senior high grades).
[a]Low usage is the bottom 25%. Average usage is the midpoint. High usage is the top 25%.

- o Typical usage in English Language Arts and Social Science in the middle grades was around 333 (5.6 hours) minutes during the fourth grading period, or 42 minutes per week; and in Mathematics and Science was 445 minutes during the fourth grading period (56 minutes per week).
- o Typical usage in English Language Arts and Social Science in the senior grades was around 383 minutes during the fourth grading period (48 minutes per week) and in Mathematics and Science was 423 minutes during the fourth grading period (53 minutes per week).
- o High usage was generally more than double those amounts.

6. What was the effect of Edgenuity use on students' academic performance?

The effect of Edgenuity was examined in two ways: (a) the outcome of instruction, as measured by teacher-assigned academic grades in all grades 6 through 12; and (b) impact, limited to grades 6 through 8 due to the absence of assessment data in grades 9 through 12, as measured by the relationship between usage and teacher-assigned grade, taking into consideration demographic variables and initial ability (iReady diagnostic assessment, AP2, Reading and Mathematics). Note that the impact analysis could not be carried out for students in senior high as no consistent measure of initial ability was available.

English Language Arts

- **Outcomes**. Table 5 lists the number of students who used Edgenuity for English Language Arts courses, followed by the percent who were awarded grades and the number and percent of students who earned academic grades of A through F during Grading Period 4.

Table 5. English Language Arts Courses

Spring Grade	Total Courses	Percent Graded	Academic Grade Grading Period 4									
			A		B		C		D		F	
			n	%	n	%	n	%	n	%	n	%
Middle												
6	15,064	99.6	3,238	21.6	4,373	29.2	4,112	27.4	1,735	11.6	1,542	10.3
7	13,621	99.6	3,180	23.4	3,847	28.4	3,749	27.6	1,461	10.8	1,325	9.8
8	13,523	99.8	3,394	25.2	3,876	28.7	3,733	27.7	1,413	10.5	1,077	8.0
Total	42,208	99.6	9,812	23.3	12,096	28.8	11,594	27.6	4,609	11.0	3,944	9.4
Senior												
9	7,673	99.8	1,710	22.3	2,114	27.6	2,242	29.3	769	10.0	824	10.8
10	7,833	99.7	1,864	23.9	2,330	29.8	2,102	26.9	729	9.3	787	10.1
11	5,627	99.5	1,555	27.8	1,633	29.2	1,469	26.2	492	8.8	452	8.1
12	4,199	99.5	1,137	27.2	1,257	30.1	1,181	28.3	345	8.3	258	6.2
Total	25,332	99.7	6,266	24.8	7,334	29.0	6,994	27.7	2,335	9.2	2,321	9.2

Note. Counts are duplicated as students can take multiple courses.

- Nearly all students received grades in the fourth grading period, of whom over 50% earned grades of A or B.

Impact. The impact of Edgenuity was analyzed by gauging whether variations in use were associated with variation in outcomes, once students' demographic characteristics, Prior Usage (usage of Edgenuity from AP2 to the shutdown), and baseline achievement were considered. The outcomes used were teacher-assigned grades, fit to a continuous scale of measurement where A=4 and F=0. Baseline achievement was measured by the iReady diagnostic assessment, AP2, administered in December 2019 in Reading. It should be noted that only 25 of the 46 (54.3%) possible course/grade units of analysis had the number of students with usage of at least 200 students, required for the calculation. For the purposes of the impact analysis students' usage was divided into five bands (quintiles) for each course and grade.

The expected pattern of a "dose response" for a successful program would be lower grades associated with low program usage, and higher grades associated with high usage. Specifically, in this analysis a

significant positive "dose response" is identified where one or more lower usage bands (Q1 and Q2) are significantly associated with lower grades **and** one or more higher usage bands (Q4 or Q5) are significantly associated with higher grades as compared to that of the median (Q3).

Table 6 lists for each English Language Arts course and grade level: the number of participants, median minutes of usage, and arrows depicting the direction of each usage band's impact on the grading scale. Course grade combinations with a significant positive dose response, which represent appropriate program functioning, are shown shaded.

- o   Significant positive dose response was seen in 84% of course grade combinations.
- o   An increase in usage of 25 minutes per week was generally associated with an increase of around a one-quarter of a letter grade in the middle of the grading scale.
- o   Significant interaction effects were found in 6% of cases, all of which were small in magnitude indicating that the programs' benefits were not limited by students' ability.
- o   The incomplete dose response found in Creative Writing and Journalism may have been due to the relatively small number of included cases.
- o   The incomplete dose response found in Developmental Language through ESOL for students in Grades 7 and 8 suggests that higher usage was significantly associated with higher grades but lower usage did not have a significant effect on grades; a significant positive response was found in Grade 6.

Table 6. Impact of Usage on Middle-School Teacher-Assigned Grades (Grading Period 4, 2019-20)
English Language Arts - Course Title x Grade Level

Course Title	Grade	n	Median Usage (minutes)	Usage Levels Q1	Q2	Q4	Q5
M/J Creative Writing	6	282	145	↓	--	--	↑
	7	258	155	--	--	--	--
M/J Develop. Lang. Arts Thru ESOL	6	1,117	224	↓	↓	--	↑
	7	776	225	--	--	↑	↑
	8	880	252	--	--	--	↑
M/J English Cambridge	6	1,383	438	↓	↓	↑	↑
	7	1,369	381	↓	--	--	↓
	8	1,169	438	↓	--	--	--
M/J Intern. Baccalaureate Lang./Liter.	6	481	729	↓	--	--	--
	7	556	719	↓	↓	↓	↓
	8	398	502	↓	↓	--	↑
M/J Intensive Reading Plus	7	225	198	↓	--	--	↑
M/J Intensive Reading	6	2,652	240	↓	↓	↑	↑
	7	2,563	254	↓	↓	↑	↑
	8	2,529	241	↓	↓	↑	↑
M/J Journalism	8	240	210	--	--	↑	↑
M/J Language Arts Thru ESOL	6	1,098	233	↓	↓	--	↑
	7	771	225	--	--	↑	↑
	8	884	253	↓	↓	--	↑
M/J Language Arts	6	3,868	244	↓	↓	↑	↑
	7	3,469	255	↓	↓	--	↑
	8	3,300	246	↓	↓	↑	↑
M/J Language Arts Advanced	6	3,007	354	↓	--	↑	--
	7	2,608	309	↓	--	↑	↑
	8	2,945	279	↓	--	--	--

Note. Course-grade combinations with a significant positive dose response are shaded. Down arrow (↓) indicates a usage band which is significantly associated with lower grades. Up arrow (↑) indicates a usage band which is significantly associated with higher grades. A cell shown as dashed ("—") indicates a usage band which does not have a significant effect on grades.

Mathematics

- **Outcomes**. Table 7 lists the total number of courses who attempted Mathematics courses using Edgenuity, followed by the percent who were awarded grades and the number and percent of students who earned academic grades of A through F during Grading Period 4.

Table 7. Mathematics Courses

Spring Grade	Total Courses	Percent Graded	A		B		C		D		F	
			n	%	n	%	n	%	n	%	n	%
			Middle									
6	10,569	99.0	2,495	23.9	2,994	28.6	2,666	25.5	1,250	12	1,055	10.1
7	10,726	99.8	2,621	24.5	3,028	28.3	2,689	25.1	1,255	11.7	1,113	10.4
8	11,049	99.8	2,888	26.2	3,056	27.7	2,898	26.3	1,177	10.7	1,004	9.1
Total	32,344	99.5	8,004	24.9	9,078	28.2	8,253	25.6	3,682	11.4	3,172	9.9
			Senior									
9	5,473	99.4	1,342	24.7	1,430	26.3	1,422	26.1	621	11.4	624	11.5
10	5,037	99.6	1,226	24.4	1,235	24.6	1,387	27.6	589	11.7	580	11.6
11	2,198	99.3	601	27.5	658	30.1	552	25.3	192	8.8	180	8.2
12	1,516	99.2	345	22.9	435	28.9	478	31.8	155	10.3	91	6.1
Total	14,224	99.4	3,514	24.8	3,758	26.6	3,839	27.1	1,557	11.0	1,475	10.4

Note. Counts are duplicated as students can take multiple courses.

- o Nearly all students received grades in the fourth grading period, of whom over 50% earned grades of A or B.
- **Impact.** The impact of Edgenuity was analyzed as described under English Language Arts above. The iReady diagnostic assessment, AP2in Mathematics served as the measure of initial ability. It should be noted that only 16 of the 35 (45.7%) possible course/grade units of analysis had the number of students in attendance (n >= 200) as required for the calculation. In addition, 3 had incomplete data (fourth grading period and initial ability), so only 13 course/grade units were included in the analysis.

  Table 8 lists for each Mathematics course and grade level: the number of participants, median minutes of usage, and arrows depicting the direction of each usage band's impact on the grading scale when compared to that of average usage. Course grade combinations with a significant positive dose response, which indicates that the program in functioning appropriately, are shown shaded.

Table 8. Impact of Usage on Middle-School Teacher-Assigned Grades (Grading Period 4, 2019-20)
Mathematics - Course Title x Grade Level

Course Title	Grade	n	Median Usage (minutes)	Usage Levels			
				Q1	**Q2**	**Q4**	**Q5**
Algebra 1 Honors	8	400	453	↓	↓	--	↑
M/J Mathematics	6	4,001	359	↓	↓	↑	↑
	7	4,139	349	↓	↓	↑	↑
	8	4,075	360	↓	↓	↑	↑
M/J Mathematics Advanced	6	3,500	644	↓	↓	↑	--
	7	2,523	566	↓	↓	↑	↑
M/J Inter. Bacc. Mathematics	6	430	735	--	--	↑	↑
M/J Intensive Mathematics	6	1,157	219	↓	--	--	↑
	7	1,180	212	--	--	↑	↑
	8	1,161	206	--	--	↑	↑
M/J Mathematics Cambridge	6	462	593	↓	↓	--	--
	7	378	1,118	↓	--	--	--
	8	237	241	↓	--	--	--

Note. Course-grade combinations with significant positive dose response are shaded. Down arrow (↓) indicates a usage band which is significantly associated with lower grades. Up arrow (↑) indicates a usage band which is significantly associated with higher grades. A cell shown as dashed ("—") indicates a usage band which does not have a significant effect on grades.

o Significant positive dose response was seen in 53.8% (7 of 13) of the course grade combinations.

o An increase in usage of 35 minutes per week was generally associated with an increase of around a one-quarter of a letter grade in the middle of the grading scale.

o Significant interaction effects were found in 16% of cases, all of which were very small in magnitude, indicating that the program's benefits were not limited by the students' initial ability.

o In Grades 7 and 8, higher usage of Edgenuity in the Intensive Mathematics course, was significantly associated with higher grades, but lower usage did not have a significant impact on grades.

o In Cambridge Mathematics, lower usage was significantly associated with lower grades, but higher usage did not have a significant impact on grades.

Science

- **Outcomes**. Table 9 lists the total number of students who attempted Science courses followed by the percent who were awarded grades and the number and percent of students who earned academic grades of A through F during Grading Period 4.

Table 9. Science Courses

Spring Grade	Total Courses	Percent Graded	A n	A %	B n	B %	C n	C %	D n	D %	F n	F %
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Academic Grade Grading Period 4

Spring Grade	Total Courses	Percent Graded	A n	A %	B n	B %	C n	C %	D n	D %	F n	F %
					Middle							
6	10,460	99.6	2,955	28.4	3,128	30.0	2,349	22.5	977	9.4	1,011	9.7
7	11,269	99.9	3,326	29.5	3,335	29.6	2,596	23.1	913	8.1	1,087	9.7
8	15,138	99.8	5,253	34.8	4,427	29.3	3,205	21.2	1,206	8.0	1,023	6.8
Total	36,867	99.8	11,534	31.4	10,890	29.6	8,150	22.2	3,096	8.4	3,121	8.5
					Senior							
9	5,484	98.5	1,744	32.3	1,546	28.6	1,146	21.2	411	7.6	554	10.3
10	4,853	99.5	1,510	31.3	1,395	28.9	1,043	21.6	439	9.1	440	9.1
11	1,916	99.5	627	32.9	554	29.1	441	23.1	160	8.4	125	6.6
12	398	99.5	191	48.2	91	23.0	70	17.7	20	5.1	24	6.1
Total	12,651	99.1	4,072	32.5	3,586	28.6	2,700	21.5	1,030	8.2	1,143	9.1

Note. Counts are duplicated as students can take multiple courses.

- o Nearly all students were graded, of whom over 60% earned grades of A or B.
- **Impact.** The impact of Edgenuity was analyzed as described under Mathematics above. The iReady diagnostic assessment, AP2, December 2019 in both Reading Mathematics served as the measures of initial ability. It should be noted that only 14 of the 41 (34.1%) possible course/grade units of analysis had the required number of students in attendance ($n \geq 250$) for the calculation. In addition, 3 had incomplete data (fourth grading period and initial ability), so only 11 course/grade units were included in the analysis.

Table 10 lists for each course and grade level: the number of participants, median minutes of usage, and arrows depicting the direction of each usage band's impact on the grading scale when compared to that of average usage. Course grade combinations with a significant positive dose response, which indicates that the program in functioning appropriately, are shown shaded.

Table 10. Impact of Usage on Middle-School Teacher-Assigned Grades (Grading Period 4, 2019-20)
Science - Course Title x Grade Level

Course Title	Grade	n	Median Usage	Usage Levels			
				Q1	Q2	Q4	Q5
Inter. Bacc. M/J Comprehensive Science	6	516	671	↓	↓	--	--
	7	354	458	↓	--	--	--
M/J Comprehensive Science	6	4,746	371	↓	↓	↑	↑
	7	4,637	252	↓	↓	↑	↑
	8	5,637	367	↓	↓	↑	↑
M/J Comprehensive Science Advanced	6	3,325	495	↓	↓	↑	↑
	7	2,136	386	↓	--	--	--
M/J Science Cambridge	6	980	545	↓	↓	--	↓
	7	556	398	--	--	--	↓
Physical Science Honors	7	747	514	↓	--	--	↑
	8	653	675	--	--	--	↑

Note. Course-grade combinations with significant positive dose response are shaded. Down arrow (↓) indicates a usage band which is significantly associated with lower grades. Up arrow (↑) indicates a usage band which is significantly associated with higher grades. A cell shown as dashed ("—") indicates a usage band which does not have a significant effect on grades.

- o Significant positive dose response was seen in only 45.5% of course grade combinations. An increase in usage of 35 minutes per week was generally associated with an increase of around a one-third of a letter grade in the middle of the grading scale.
- o Significant interactions were found in 6.8% of cases, all of which were very small in magnitude indicating that the program's benefits were not influenced by the students' initial ability.
- o In Science Cambridge, an inconsistent effect of usage was found, suggesting that usage was significantly associated with lower grades possibly indicating that students who practiced with the software did so because they needed extra help.
- o In International Baccalaureate Comprehensive Science, relative to average usage, lower usage was significantly associated with lower grades, but higher usage did not have a significant impact on grades.

Social Science

- **Outcomes**. Table 11 lists the total number of students who attempted Social Science courses followed by the percent who were awarded grades and the number and percent of students who earned academic grades of F through A during Grading Period 4.

Table 11. Social Science Courses

Spring Grade	Total Courses	Percent Graded	Academic Grade Grading Period 4									
			A		B		C		D		F	
			n	%	n	%	n	%	n	%	n	%
Middle												
6	5,953	99.9	1,300	21.9	1,710	28.8	1,641	27.6	618	10.4	676	11.4
7	8,815	99.8	2,694	30.6	2,519	28.6	1,873	21.3	744	8.5	965	11.0
8	6,166	99.8	1,566	25.4	1,840	29.9	1,473	23.9	580	9.4	696	11.3
Total	20,934	99.8	5,560	26.6	6,069	29.0	4,987	23.9	1,942	9.3	2,337	11.2
Senior												
9	1,813	95.4	455	26.3	511	29.6	426	24.6	116	6.7	221	12.8
10	132	97	52	40.6	26	20.3	17	13.3	23	18.0	10	7.8
11	3,820	99.5	1,334	35.1	1,134	29.8	805	21.2	260	6.8	266	7.0
12	1,357	99.3	387	28.7	438	32.5	354	26.3	113	8.4	55	4.1
Total	7,122	98.3	2,228	31.8	2,109	30.1	1,602	22.9	512	7.3	552	7.9

Note. Counts are duplicated as students can take multiple courses.

o   Nearly all students were graded, of whom over 55% earned grades of A or B.

- **Impact.** The impact of Edgenuity was analyzed as described under Science above. The iReady diagnostic assessment, AP2, December 2019 in Reading served as the measure of initial ability. It should be noted that only 15 of the 39 (38.5%) possible course/grade units of analysis had the required number of students in attendance (n >= 200) for the calculation. In addition, 2 had incomplete data (fourth grading period and initial ability), so only 13 course/grade units were included in the analysis.

  Table 12 lists for each course and grade level: the number of participants, median minutes of usage, and arrows depicting the direction of each usage band's impact on the grading scale when compared to that of average usage. Course grade combinations with a significant positive dose response, which indicates that the program in functioning appropriately, are shown shaded.

Table 12. Impact of Usage on Middle-School Teacher-Assigned Grades (Grading Period 4, 2019-20)
Social Science - Course Title x Grade Level

Course Title	Grade	n	Median Usage (minutes)	Usage Levels			
				Q1	Q2	Q4	Q5
M/J U.S. History	6	2,255	229	↓	--	↑	↑
M/J U.S. History and Career Planning	6	746	254	↓	↓	↑	↑
M/J U.S. History Advanced	6	1,775	399	↓	↓	--	--
Inter. Bacc. M/J U.S. History	6	225	607	--	--	--	--
M/J Civics	7	2,275	259	↓	--	↑	↑
M/J Civics & Career Planning	7	1,527	295	↓	↓	--	--
M/J Civics Advanced	7	1,622	380	↓	--	--	↑
M/J Civics Advanced & Career Planning	7	1,374	448	↓	↓	--	--
M/J Inter. Bacc. Civics Advanced	7	282	1,145	↓	--	--	--
M/J World History	8	206	131	--	--	--	↑
M/J World History & Career Planning	8	2,976	317	↓	↓	↑	↑
M/J World History Advanced	8	202	200	--	--	--	--
M/J World History Advanced & Career Planning	8	1,853	586	↓	↓	--	--

Note. Course-grade combinations with significant positive dose response are shaded. Down arrow (↓) indicates a usage band which is significantly associated with lower grades. Up arrow (↑) indicates a usage band which is significantly associated with higher grades. A cell shown as dashed ("—") indicates a usage band which does not have a significant effect on grades.

o Significant positive dose response was seen in only 38.5% of course grade combinations. An increase in usage of 25 minutes per week was generally associated with an increase of around a one-quarter of a letter grade in the middle of the grading scale.

o Significant interactions were found in 25% of cases, all of which were very small in magnitude indicating that the program's benefits were not influenced by the students' initial ability.

o In most of the advanced courses, relative to average usage, lower usage was significantly associated with lower grades, but higher usage did not have a significant impact on grades.

o In International Baccalaureate U.S. History and World History advanced usage did not have a significant effect on grades possibly due to the small number of cases available for analysis.

7. What are the principal conclusions of this report?

This report examined the outcomes of the Edgenuity application suites, which were widely adopted as an adjunct to virtual instruction during the shutdown of schools in March 2020 due to the Coronavirus pandemic. Edgenuity is a customizable standards-aligned video-based curriculum for middle and high school blended learning environments, which allows students to monitor their own progress while completing lessons, interactive activities, and assessments. It provides for secondary instruction and credit recovery in the form of a standalone (credit bearing) or a supplemental (non-credit bearing) basis.

The sample for the analyses of participation, usage, and outcome comprised students in Grade 6 through 12 who were enrolled in one or more core courses during the spring semester and practiced with Edgenuity for one minute or more during the fourth grading period. The sample for analyses of impact

was limited to students in Grades 6-8 having all requisite data. Impact was analyzed through a controlled analysis of the relationship between the length of time Edgenuity was used and the teacher-assigned grade.

Edgenuity was used in 181 secondary school locations throughout the district and used under two different formats: as an adjunct to instruction in blended learning, and in the form of standalone courses. Students were given the opportunity to practice on 689 course modules across four core content areas: English Language Arts (n=102), Mathematics (n=284), Science (n=182), and Social Science (n=121). Over 95% of the students who used Edgenuity, followed the blended learning format, but the percentage of senior high students who took standalone courses was in some cases much larger. Overall, 63.9% of all enrolled middle-grade students and 32.5% of senior-grade students used Edgenuity during the fourth quarter of the 2019-2020 school year. Typical usage in English Language Arts and Social Science was around 46 minutes per week and in Mathematics and Science was 55 minutes per week. Most of the students who used Edgenuity received teacher-assigned grades, 50% of which were A and B.

The impact of Edgenuity for students in Grades 6 through 8 was analyzed by gauging whether variations in usage were associated with variations in teacher-assigned grades once students' demographic characteristics, prior usage, and baseline achievement on the iReady diagnostic assessment. The program was considered to have been effective if at least one band of below average usage was significantly associated with lower grades and at least one band of higher usage was significantly associated with higher grades once all other factors were considered.

Significant positive dose response was seen for middle-grade students in 84% of the English Language Arts courses/grade combinations, 53.8% of those in Mathematics, 45.5% in Science, and 38.5% in Social Science. An increase in usage of 25-35 minutes per week was generally associated with an increase of around a one-quarter to one-third of a letter grade in the middle of the grading scale. Further analysis indicated the program's benefits tended to be equally effective across all initial ability levels. The middle school students in the Cambridge and International Baccalaureate courses were least likely to have been impacted by completing Edgenuity modules, and those in the standard education and intensive courses were most consistently positively impacted.