

2021 Annual Technology Survey

Results Report

April 5, 2022

Issued by the Vermont Agency of Education



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Introduction

The Annual Technology Survey gathers information about education technology in Vermont supervisory unions/districts (SU/SDs) and schools. The survey is a tool for the Agency of Education (AOE) to collect information on how schools are using technology and the challenges they are facing in providing the infrastructure and equipment needed to equitably and effectively utilize technology to support student-centered learning. The survey also enables the AOE to observe patterns of technology use and infrastructure across SU/SDs and explore opportunities to leverage state investments to support coherence and access across the state. The FY21 survey (2020-2021 academic year) was opened in August 2021 and closed on September 30, 2021. There was 100 percent participation in the survey from Vermont SU/SDs. *Survey results are reported both by SU/SD and by schools. SU/SD responses represent 54 districts—51 SU/SD and three regional technical center school districts. School responses represent 304 schools—289 public schools and 15 technical and career centers that reported as separate schools.*

The Survey Instrument

This is the fifth year for the annual technology survey. Starting last year, the AOE utilized a new survey platform called Cognito. Cognito enabled the online survey to be better coordinated at the SU/SD level. It is the SU/SD education technology directors and information technology managers that typically administer the network systems and broadband connections and contracts for schools within a district. As such, the survey is directed to these individuals who are also well positioned to oversee the responses from individual schools. School specific inquiries address one-to-one programs, device use within a school, specific school policies and individual school responses to the pandemic. District-wide questions addressed internet service providers, connectivity, network platforms and function, and technology administration issues. A list of survey questions is provided in the appendix section of this report.

AOE would like to thank the education technology directors and other educational staff members and leaders for their work to compile responses to the 2021 survey.

Summary of Key Findings

COVID-19 & Connectivity: Home connectivity remained a priority in the 2020-2021 school year as remote and hybrid learning continued in response to COVID-19. The primary practices implemented by Vermont schools to facilitate home connectivity were distribution of information on low-cost and no-cost internet services -- a practice not commonly in-place before the pandemic; extending Wi-Fi access at the school building; and providing Wi-Fi hotspots. Practices not widely implemented by Vermont schools were Wi-Fi hotspots on school buses and direct financial subsidies for home internet services. In the current school term, and with the return to in-person learning, 27 percent of schools will continue to use Wi-Fi hotspots and 61 percent will maintain a free Wi-Fi signal to the school parking lot.

“The rural nature of our schools makes it almost impossible to provide home access for families. As a result, we will work to make schools our ongoing hub.” – Survey Respondent

Broadband Speed Gains: Gains in internet speeds continued within Vermont schools. Seventy-one percent of schools responding to this question now have 1 Gbps or greater upload speeds compared with 67 percent of schools in last year's survey. Download speeds also increased. Schools reporting download speeds of 1 Gbps or greater represented 75 percent of the responses as compared to 69 percent of the responses in the 2020 report. Fiber direct to the site was the principal connection type for schools. As technology use in education continues to grow, having a secure, reliable, and robust internet connection at schools remains of primary importance.

"The pandemic has positively impacted the effective use of technology in our schools. From the acquisition of basic skills to communications and collaboration, all students and teachers have learned how to better use technology." - Survey Respondent

One-to-One Device Availability at 100 Percent: This year, every school reported having one-to-one computing programs. This is the first technology survey to indicate that all schools had such a program in place. One-to-one computing is defined as a program where each student has a computing device dedicated to them over the course of a year, or multiple years, at their school. Seventy-nine percent of schools described their one-to-one program as across the entire building and 18 percent reported a program across multiple grades. Device availability grew significantly. There was a 48 percent increase in the number of available school devices as compared to last year. Schools reported there were 108,471 devices available for school use during the 2020-2021 term. In last year's survey, schools reported 73,290 devices were available for school use. Additional federal funding, coupled with the demands of remote and hybrid learning, likely drove this increase in device acquisition and availability.

"Tech is used in every class, at every level, at least part of every day." - Survey Respondent

Online Learning Provider Programs: Vermont SU/SDs were almost evenly split on whether the use of online learning providers during the pandemic increased the likelihood of using such services in the future. Fifty-four percent of districts indicated they were less likely to utilize online providers, while 46 percent indicated they were more likely to use such providers. Those districts less likely to use online providers cited a return to in-person learning as reducing the need for such services and had questions regarding the effectiveness of this approach as compared to in-person learning. Districts more likely to use online providers in the future credited the experience with online learning due to the pandemic for their interest and for their future exploration of online learning to augment in-person instruction. Twenty-two percent of the SU/SDs reported creating their own virtual academies. It was unclear whether these virtual academies were independently developed or were supported through the VTVLC expansion Collaborative School Option.

"Last year provided us with experience and practice with supporting students in an online learning environment. We recognize the value of online learning as an appropriate flexible pathway for some students and learned a lot about how to maintain rigor and engagement. Not all learning platforms are appropriate for every student and online learning is not a good pathway for every child."
– Survey Respondent

Broadband Connectivity

In considering broadband connectivity progress within Vermont SU/SDs, AOE has found it useful to refer to standards recommended by the State Educational Technology Directors Association (SETDA). In 2019, SETDA updated its methodology and recommendations for broadband targets. SETDA now recommends broadband capacity on a per user basis with peak usage as a statistical measure within larger districts. Peak usage correlated with the broadband capacity at a given service location reflects the quality and speed of that connection when most users may require the connection. If a school district has all students simultaneously using the broadband connection, internet users may experience lag or latency issues.

To help facilitate the discussion that follows on broadband connectivity, this report would clarify the following definitions and concepts. Bandwidth is the capacity of a channel to transmit data. “Bandwidth is traditionally expressed in bits per second (bps). Modern network links now have far greater capacity, which is why bandwidth is now more often expressed as megabits per second (Mbps) or gigabits per second (Gbps). The more bandwidth a data connection has, the more data it can send and receive at one time. In concept, bandwidth can be compared to the volume of water that can flow through a pipe. The wider the pipe’s diameter, the more water can flow through it at one time. Bandwidth works on the same principle. The higher the capacity of the communication link, the more data can flow through it per second.” ([TechTarget](#), “How does bandwidth work?”) One thousand Mbps equals one Gbps.

In considering future educational needs, SETDA detailed recommended broadband targets in its [Broadband Imperatives III](#) report. The following are SETDA’s target recommendations to be in place starting with the 2023-2024 school year. All recommendations refer only to download speeds.

- Small Districts – At least 2.8 Mbps per user with a minimum of 300 Mbps per district (less than 1,000 students)
- Medium Districts – At least 2 Mbps per user (1,000 to 10,000 students)
- Large Districts – At least 1.4 Mbps per user (more than 10,000 students)

How do these per-user targets apply to a district’s broadband capacity? As an example, for a small district of 500 students to reach the target of 2.8 Mbps per user, the district would need approximately 1.4 Gbps of capacity. For a medium district of 1,000 students, to reach the target of 2 Mbps per user would require a district broadband capacity of approximately 2 Gbps.

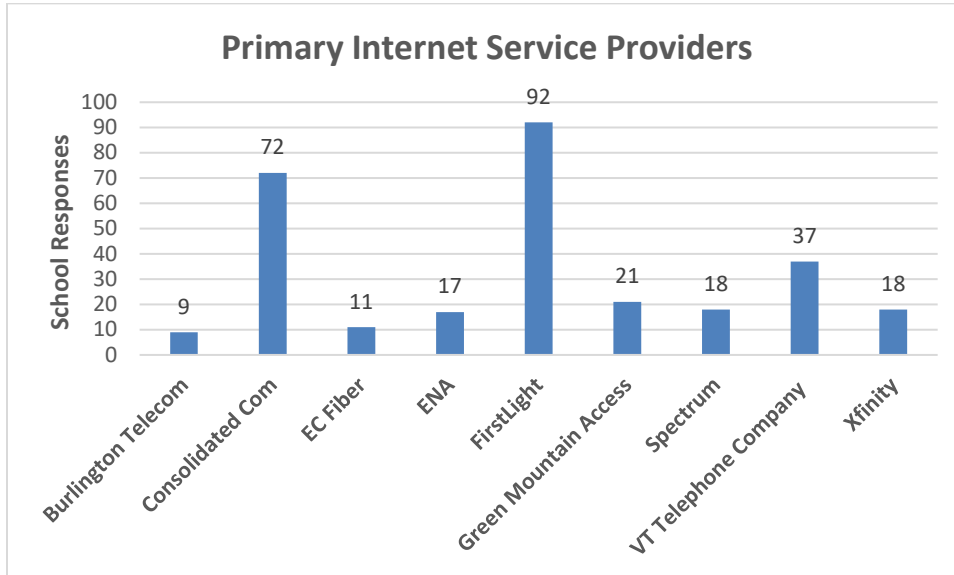
At this time, AOE does not have data on peak usage periods to compare to the download speeds as reported by Vermont SU/SDs. However, we can draw comparisons to the SETDA recommendations by Vermont district sizes. The majority of Vermont’s SU/SDs have enrollments that are less than 2,000 students. Approximately 25 percent of SU/SDs have less than a thousand students. The largest school district in Vermont has slightly more than 4,000 students. With the bulk of Vermont’s district enrollment numbers at the SETDA medium level, we may observe that our districts are well on their way to meeting the recommended broadband capacity for the 2023-2024 school term. In this year’s survey, 29 percent of districts (15 SU/SDs) reported download speeds of 2 Gbps or greater. It is also encouraging to observe the steady growth in both upload and download speeds as reported later in this report. As

Internet Service Providers or ISPs continue to upgrade their networks, it is anticipated that SU/SDs will receive improved service resulting in greater broadband capacity.

The following are survey questions and responses related to broadband connectivity.

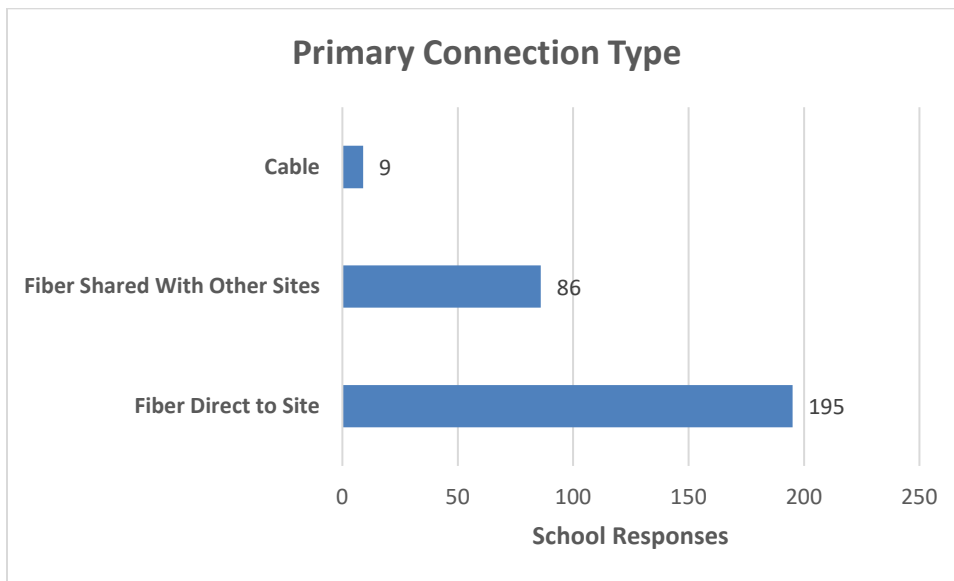
Internet Service & Connection

Who is the primary Internet Service Provider [ISP] for this school?



Consolidated Communications and FirstLight maintained their position as the primary internet service suppliers to schools. Both companies have a statewide presence. No new internet providers were named in this year's survey. The nine providers listed above have remained consistent from last year's report. ISP vendors with less than five responses were not included in this chart. There is more information on home internet access in Vermont on the Public Service Department website, [Public Service Department Interactive Broadband Map](#).

What is the primary connection type for schools in your SU/SD to connect to the Internet?



Fiber remains the primary connection type for schools. However, more SU/SDs reported that schools in their district had a direct fiber connection as opposed to a shared connection. A direct fiber connection serves a single customer and provides the highest level of bandwidth and guaranteed speeds. A shared fiber connection supports multiple destinations and/or customers. During peak use there is more competition for the available bandwidth and having shared fiber may result in degraded connectivity and slower speeds. Typically, the cost for a shared connection is less than a direct fiber connection. This year, AOE asked an additional question on the shared connection to determine whether there was any impact on the quality of the service. As seen in the table below, a shared connection did not significantly impact the quality of service.

If your schools share a connection, which response below describes the quality of the shared connection?

Response Options	School Response
Steady efficient connectivity throughout the schools.	185
During high-use periods connectivity slows.	18
Shared with the district via ELAN.*	10
No response.	91

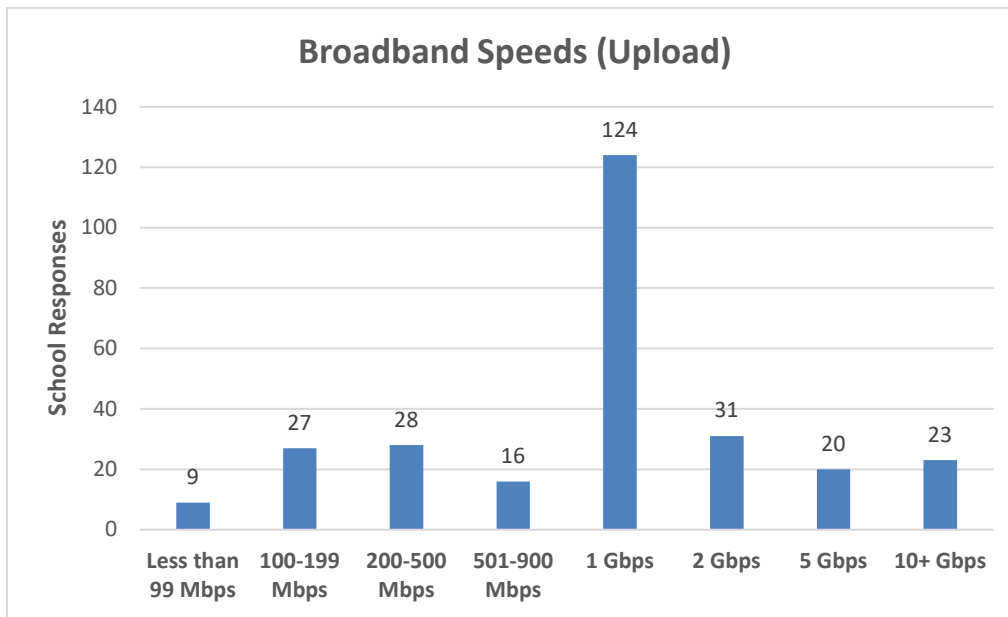
* ELAN is short for Ethernet local-area network, a piece of IT infrastructure that uses Ethernet cable to connect computers, servers, printers, and other devices that reside within a close geographical area, typically within a single office or building.

Upload and Download Speeds

In the 2020-2021 school year, Vermont schools continued to rely on video conferencing software as they pivoted from remote learning to hybrid and in-person learning. With the increased reliance on video conferencing software, upload speeds remained an important consideration in evaluating connectivity. When engaging in video conferencing, users are downloading the

video of the person they are talking to and simultaneously uploading live video to the servers. Both the download and upload speeds are important to ensure a good connection and video quality. According to the Federal Communications Commission (FCC), good internet speed should be at or above 25 Mbps. The download speed should be at or above 25 Mbps while the upload speed should not be less than 3 Mbps. Many Internet Service Providers (ISPs) allow different bandwidth limits for downloading and uploading. The upload bandwidth is less than the download bandwidth in many cases as most of the user activities require downloading of data from the internet.

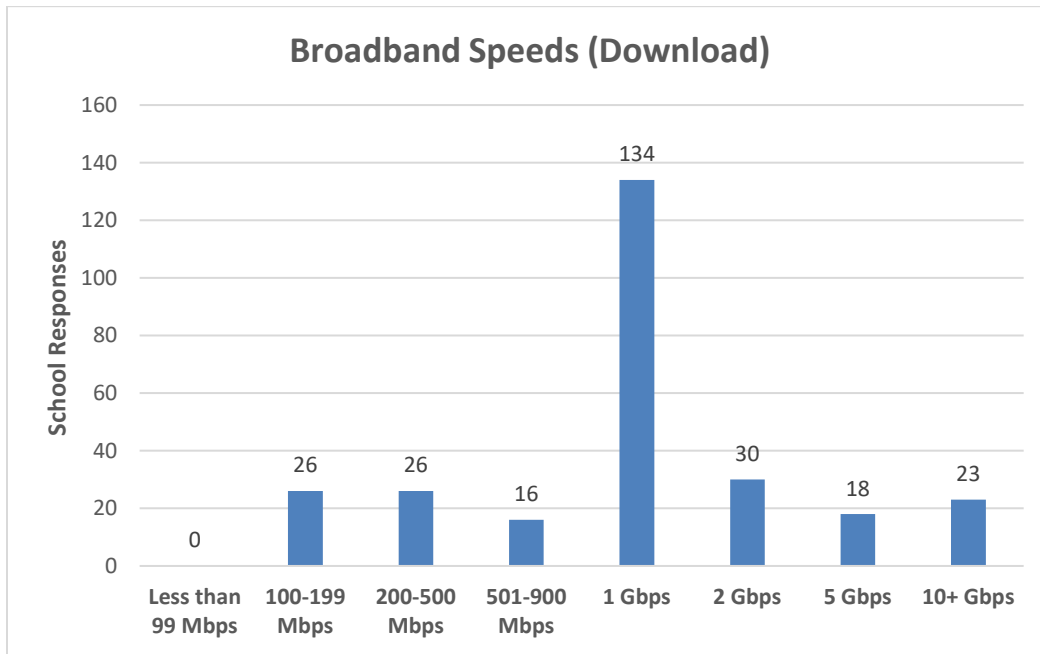
What is the current upload speed for schools in your SU/SD (as advertised by your provider)?



Note: data above is based on 278 schools responding.

In this year's survey, there was an increase in reported upload connectivity speeds. Seventy-one percent of schools responding to this question now have 1 Gbps or greater upload speeds compared with 67 percent of schools in last year's survey. As noted previously in this report, FirstLight and Consolidated Communications have remained the leading providers of internet to Vermont schools. Such increases in speed likely indicates broadband provider upgrades in services. The Vermont Department of Public Service maintains data on broadband high-speed internet availability in the state. To review their data, go to [Broadband High-Speed Internet Availability in Vermont | Department of Public Service](#).

What is the current download speed for schools in your SU/SD (as advertised by your provider)?



Note: data above is based on 273 schools responding.

As with upload speeds, broadband speed gains were similarly noted by schools in the reported download data. In the 2021 survey, responding schools reporting download speeds of 1 Gbps or greater represented 75 percent of the responses as compared to 69 percent of the responses in the 2020 report.

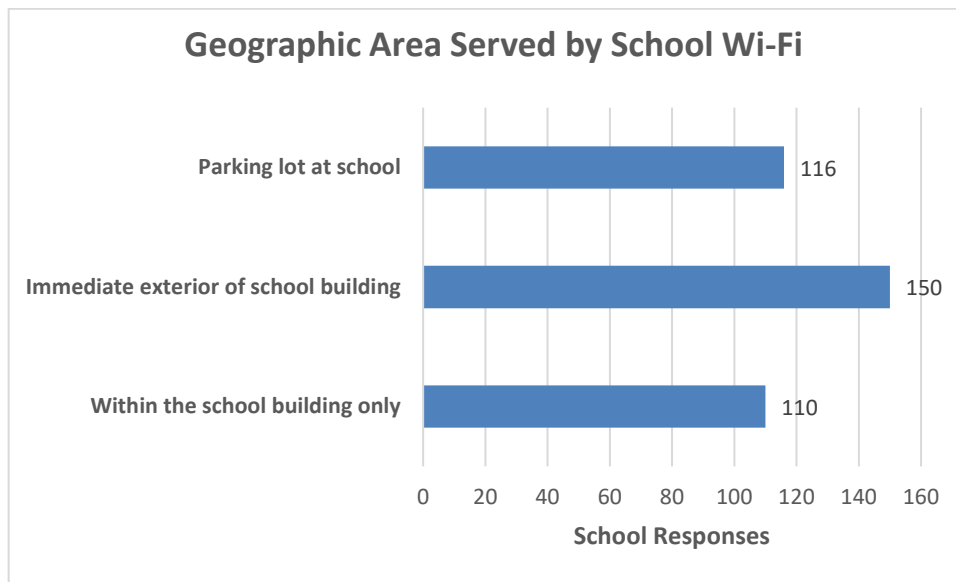
Wi-Fi Access

Wi-Fi access outside of the school building remained important for Vermont schools as the pandemic continued to interrupt in-person learning. Last year's survey documented that the majority of schools, 92 percent, had public Wi-Fi access. This year's survey reflected that more than 90 percent of schools continued to offer such access. The specific answers to the Wi-Fi survey questions are provided below.

Do the schools in your SU/SD provide "guest" or "public" Wi-Fi access?

- 29 schools reported there **was no** public Wi-Fi access provided by the school
- 275 schools reported there **was** public Wi-Fi access provided by the school

If schools in your SU/SD provide “guest” or “public” Wi-Fi, please select the option below that best describes the area served by the Wi-Fi.



Schools providing “guest” or “public” Wi-Fi were asked to indicate where the signal could be detected. Schools could pick more than one response. Among the answers to other locations were school sports fields and guest signal availability allowed only in specific parts of the school building. Compared to last year’s survey, fewer schools indicated their guest Wi-Fi was available in the parking lot. This year, 42 percent of schools had public Wi-Fi networks that covered the parking lot compared with 72 percent of schools last year. The change may reflect increased in-school instruction toward the end of last school year and a reinstatement of policies to discourage student browsing outside of the main buildings.

Is there another location in the community to access free Wi-Fi?

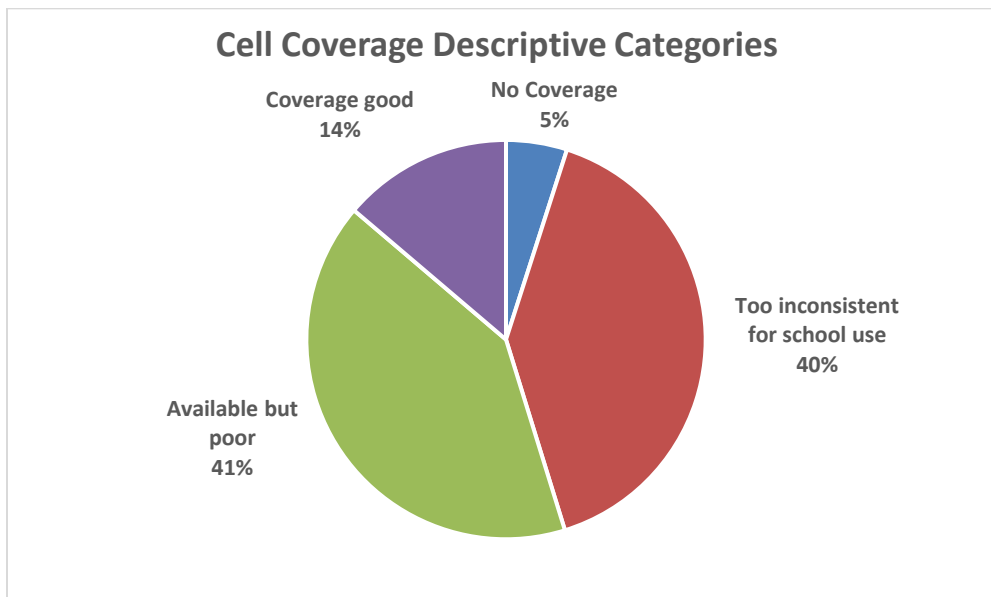
- 6 schools indicated there **was no** free Wi-Fi in their community
- 298 schools indicated that there **was other** free Wi-Fi in the community

It should be noted that gains appear to have been made in the availability of free community Wi-Fi. In last year’s survey, 22 schools indicated there was no free Wi-Fi in their local area compared to just six schools this year. The pandemic has spurred many state and local organizations to step-up and begin providing more access to free Wi-Fi. It is probable that this change indicates those efforts.

Cell Phone & Broadband Service

AOE surveys schools on the presence and quality of their cell service to ascertain the viability of phones being used as instructional tools or resources. The question of cell phone coverage also gives a sense of the viability of using cell towers as access to the internet for schools and students.

What is the typical cell phone coverage at the schools in your SU/SD?



While a small increase in coverage quality was noted in the 2021 survey, no apparent substantial gains were documented. In this year's survey, 55 percent of schools reported coverage as good to available but poor, and 45 percent of schools indicated coverage was not reliable enough for school use or not available. Last year's survey indicated a similar split on cell coverage availability and quality. In the 2020 survey, 52 percent of schools reported good to available but poor coverage and 48 percent of schools indicated coverage was nonexistent or too inconsistent for school use. For more information on cell coverage in Vermont, the Department of Public Service has an interactive mobile [wireless map](#) on their website.

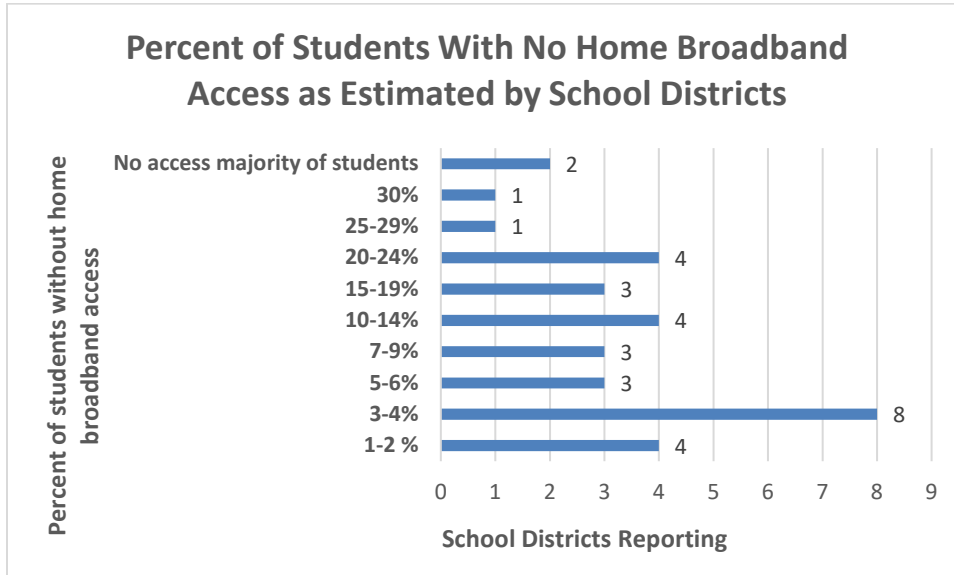
Does your SU/SD or individual schools survey students to determine their home broadband access?

- 117 schools reported they do not survey students for home broadband access
- 187 schools reported they do survey students for home broadband access

The 2021 survey revealed fewer schools surveying students for home broadband access. In the 2020 survey, 82 percent of schools reported they surveyed students compared to 62 percent of schools in this survey. Schools were not queried regarding why they did not survey for home broadband use. However, the majority of schools indicated they maintained a list of student home addresses that have no/low broadband. Schools were hyper-focused on connectivity issues the previous school year as personnel worked to ensure students had the connectivity needed for remote and hybrid learning. It is possible that this informed procedures and decision-making in the FY21 year. If this trend continues it may be worthy of further exploration.

Among the schools that did survey, 71 percent conducted a written or electronic survey of parents, 11 percent relied on requests from a student or family for assistance, six percent administered a written or electronic student survey, and three percent relied on anecdotal accounts. The remaining responses fell in the “other” category.

If yes that you do survey, what percentage of students in the schools of your SU/SD do not have broadband access at home?



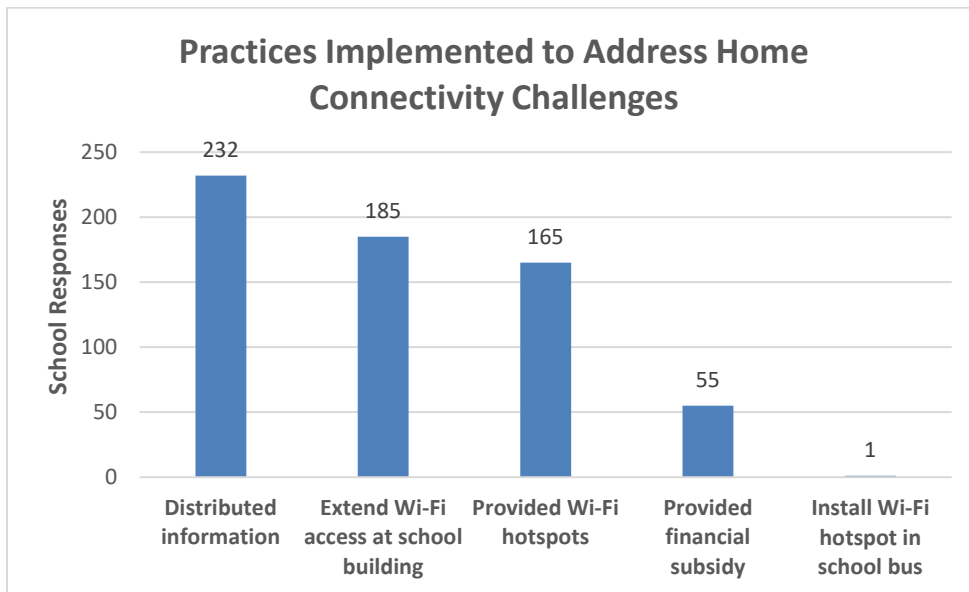
Thirty-three SU/SD responded to this question. Of those, seven SU/SD estimated that 15 percent or more of their students lacked home broadband access compared to nine SU/SD in the 2020 survey. It is important to note that the percentages below are estimates only.

Supervisory Union/School District	Estimated % Students With No Home BB
Caledonia Central SU*	30%
Central Vermont SU	15-19%
Kingdom East SD*	20-24%
Missisquoi Valley SD*	25-29%
Orange East SU	15-19%
Orleans Central SU*	15-19%
Orleans Southwest SU*	20-24%

* Denotes SU that reported lack of broadband access of 15%+ in the previous (2020) survey. Please note, last year’s report mistakenly identified Orange Southwest SU in this category instead of correctly identifying Orleans Southwest SU.

In response to COVID-19, what actions did your school take to address home connectivity issues for students?

The pandemic prompted schools to expand or implement new programs to address home connectivity issues. Home connectivity remained a priority in the 2020-2021 school term as remote and hybrid learning continued in response to COVID. The 2021 survey sought to document the practices schools were taking to facilitate connectivity. The majority of schools, 78 percent, distributed information on low-cost and no-cost internet services, a practice not commonly in-place before the pandemic. Wi-Fi access at the school building was extended by 64 percent of the schools and 56 percent of schools provided Wi-Fi hotspots. Practices not widely implemented by Vermont schools were Wi-Fi hotspots on school buses and direct financial subsidies for home internet services. Ninety-nine percent of schools declined to place hotspots on buses and 79 percent did not provide financial subsidies.

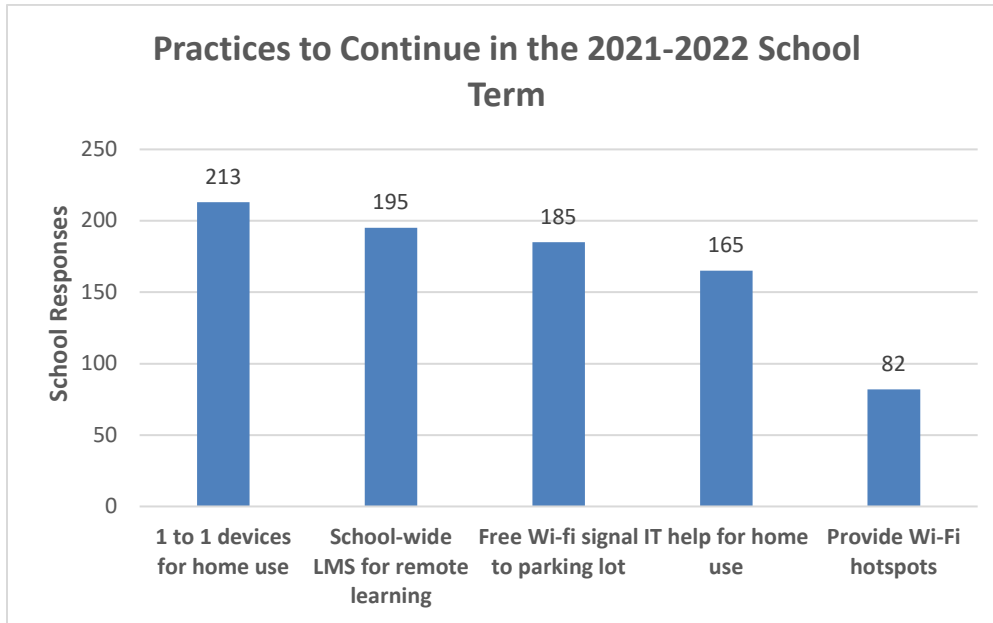


Schools were asked to comment on other actions they implemented to address home connectivity issues. Below are some of those responses.

- We worked very closely with ECFiber to get access to families. In some cases, ECFiber found money or donated money for trenching and conduit. ECFiber should be commended for their work in Central Vermont. We have one of the highest connectivity rates in the state and it is really because of them.
- We negotiated with Internet Service Providers to help families connect.
- (We provided) tech support for optimizing home internet connections.
- During COVID, we worked with hotels that housed some of our homeless families to provide internet access to the students at those locations.

The 2021 survey also sought to document those measures schools decided to continue within our current school term (2021-2022).

Below is a list of technology options. Please indicate by each option the status of use by your school in the UPCOMING school year.



The graph above illustrates the practices schools planned to continue during this current school term. Below are responses regarding other measures schools plan to continue to address home connectivity issues.

- Wi-Fi hotspots were used during the pandemic for families in need that required access at home. This year, without remote learning required, we have returned to the communication of reduced-cost services such as the Comcast Essentials package.
- We purchased Phonak speaker systems for every classroom. The main reason for this was to help students hear their masked teachers better. It has also helped masked teachers with voice fatigue.
- We are moving to Newline Smart TVs in classrooms this fall 2021 instead of projectors and smartboards.
- The rural nature of our schools makes it almost impossible to provide home access for families. As a result, we will work to make schools our ongoing hub.
- Looking to implement a standard LMS such as Canvas or Schoology.
- In-class live streaming (to continue).
- Communication systems (SeeSaw, Class DoJo) - increased use.
- Zoom and SeeSaw for remote learning.

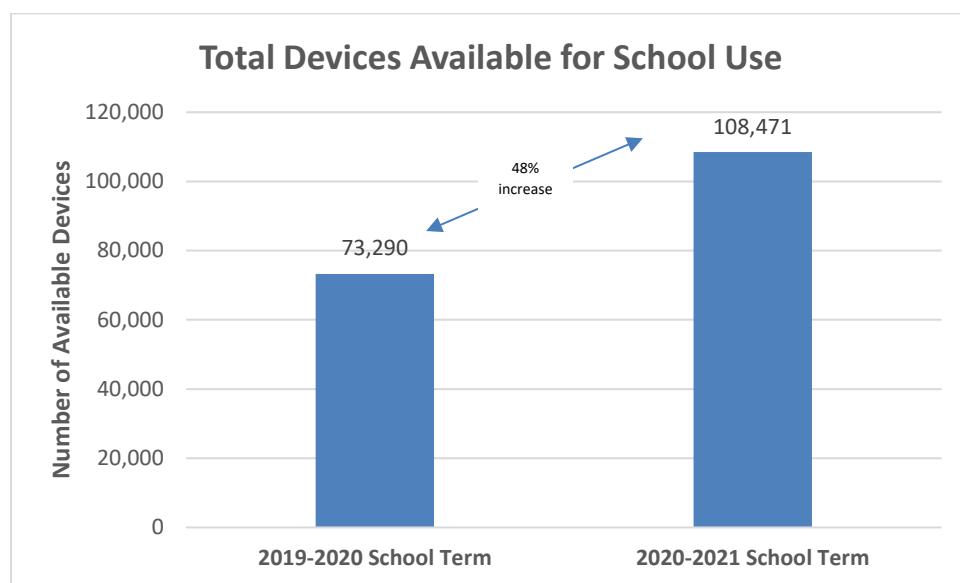
School Technology & Device Availability

This section of questions focuses on SU/SD's school device profile, one-to-one status, school device policies and classroom capabilities.

Student Devices

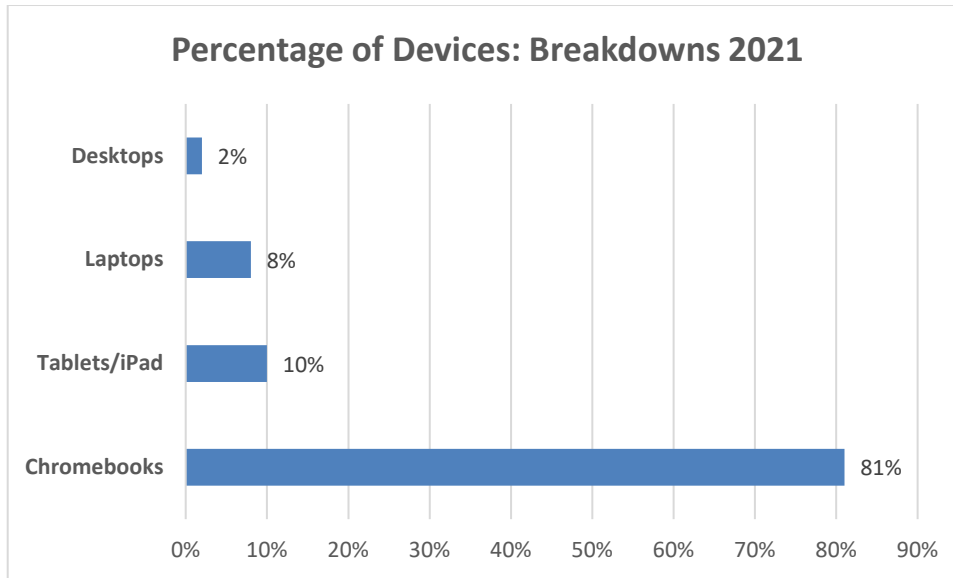
How many TOTAL devices are currently available for school use?

The number of devices available system-wide for school use compared to K-12 student enrollment was greater than current enrollment figures. Schools reported there were 108,471 devices available for school use. The most recent enrollment for K-12 students was 72,255. The number of devices reported also was up significantly from the previous survey. In last year's survey, schools reported 73,290 devices were available for school use. Significant federal funding was made available to schools through the [Coronavirus Aid, Relief and Economic Security \(CARES\) Act](#) passed in March, 2020. CARES included three funding programs that benefitted Vermont's education system and included funds for technology purchases. This additional funding, coupled with the demands of remote and hybrid learning, likely encouraged the stepped up purchasing of devices.



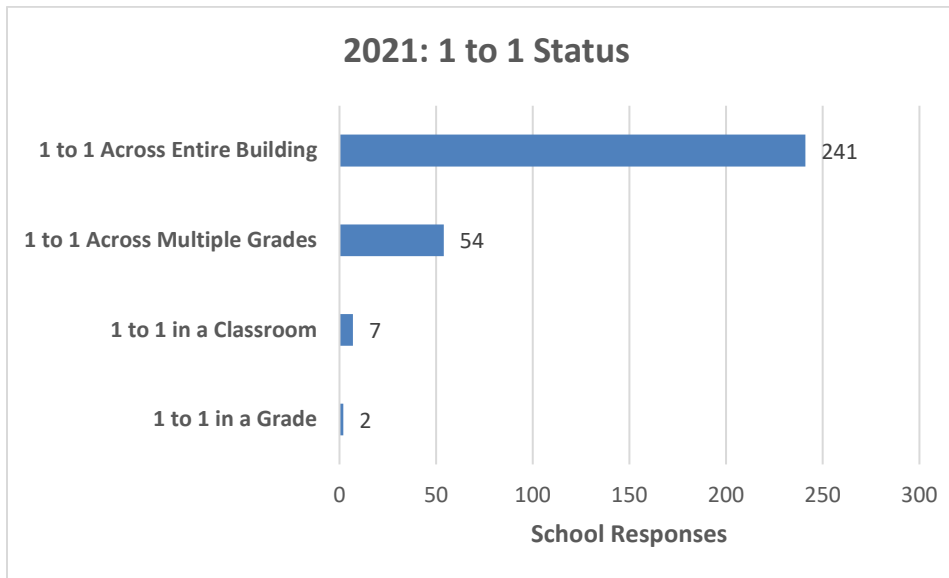
Additionally, Congress appropriated \$7.17 billion for the [Emergency Connectivity Fund](#) (ECF) Program in May of 2021. This program aims to close the homework gap by providing funds for device purchases and broadband internet services for students, schools staff and public library patrons to facilitate connectivity at locations other than a school or library. In Vermont, 35 SU/SD applied for ECF. In the next technology survey, AOE will survey districts to determine what impact the ECF program had on their acquisition of devices and on home connectivity challenges for students and staff.

Please provide an estimate percentage (%) by type of devices your school has for student use – needs to add to 100%.



Chromebooks remained the dominant device provided to students. The 81 percent use reported in this survey is a slight increase from the 79 percent Chromebook use reported last year. Cost and platform standardization continue to support this growth. Standardization enables students to work with a familiar platform throughout their school career. From a network perspective, standardization also makes it easier to update software, install new security patches, and facilitate file sharing protocols.

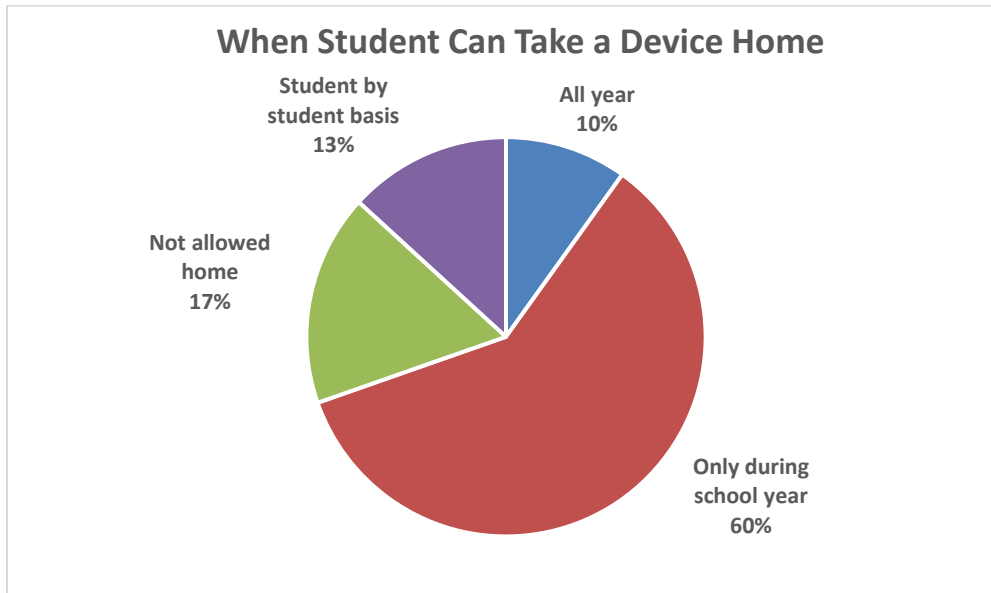
Which option most accurately describes the one-to-one status in your school?



One-to-one computing is defined as a program where each student has a computing device dedicated to them over the course of a year, or multiple years, at their school. This year, every school reported having one-to-one computing programs. This is the first technology survey to indicate that all schools had such a program in place. Seventy-nine percent of schools described their one-to-one program as across the entire building and 18 percent reported a program across multiple grades. As previously noted in this report, the increase in remote and hybrid learning necessitated schools provide devices to students to facilitate learning. Federal funding provided

the financial means for schools to purchase the needed devices and related technology. This “perfect storm” of need and available funding provided the environment to facilitate this change. It should be noted that as recently as 2018, the technology survey had indicated only 71 Vermont schools had one-to-one computing available building wide.

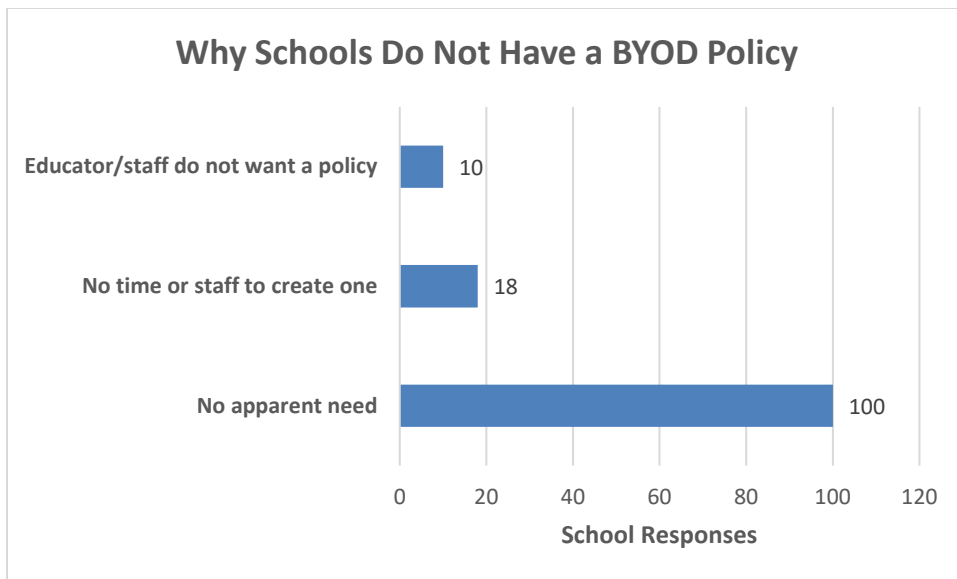
Does your one-to-one program allow students to take a device home?



With the increase in access to one-to-one computing, AOE wanted to know when students had access to these devices. This year’s technology survey revealed schools continued similar practices for student access to devices as was put in place at the end of the 2019-2020 school term. After the pandemic occurred, 206 Vermont schools reported allowing students to take a device home. This year’s survey showed 211 schools allowed students to take devices home. Anecdotally, SU/SD education technology directors have shared that student devices are collected during the summer to allow for inventory, repairs, and updates.

Does your school currently have a Bring Your Own Device (BYOD) policy?

BYOD policies allow a school to clarify when and how a student may use a personal device during the school day. Of the 304 school responses, 76 percent of schools reported they did not have such a policy. This rate is consistent with school responses to this question since AOE first queried about this. In this year’s survey, AOE sought to understand why Vermont schools did not have a policy in place. There were 230 schools that did not have a BYOD policy. Among the schools responding to the question of why there was no policy in-place, the majority indicated it was because there was no apparent need.



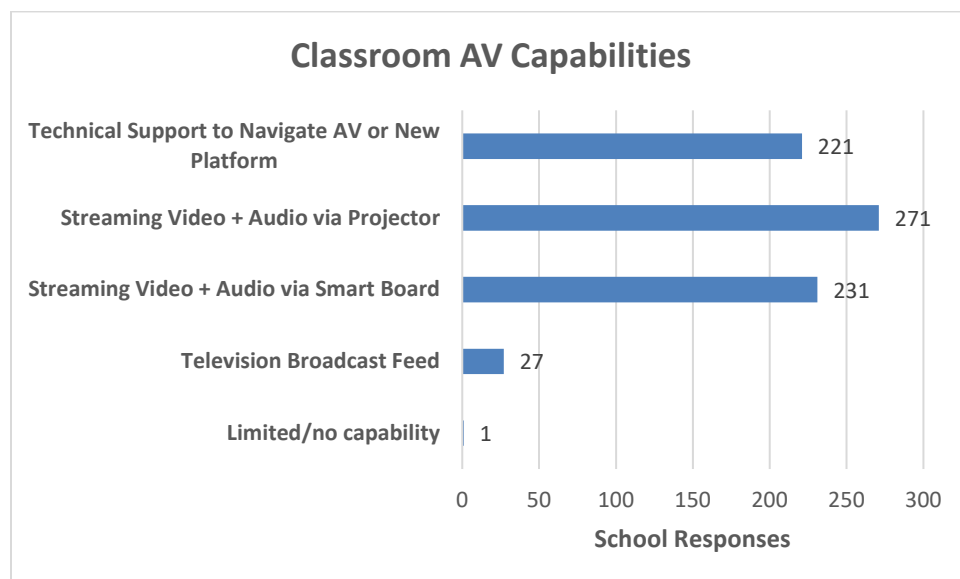
Other responses to this question are listed below.

- School provides the device, no need for a student or family to provide a device.
- Can provide devices for every student and the ability to limit them on what they browse and cyber safety.
- We allow students to bring their own devices, but have rarely had students participate, so we do not have a full policy.
- Encouraged to use provided devices. BYOD is allowed but not written in formal policy.
- Do not believe that students or families should be burdened with having to supply their own devices and we have made sure that this is something we can supply for all students. This is also for safety reason.

Twenty-four percent of the schools did have a policy in place. Reasons schools listed for allowing BYOD was to provide flexibility, empower self-direction for students, and to allow when a personal device worked better for an online class. One school noted that it provides a separate guest network for personal device use.

Classroom Capabilities

What capabilities are there in your school for in-classroom video/audio?



As was reported last year, the most common capabilities reported in Vermont classrooms were streaming video plus audio via projector (271 schools). Schools also reported having streaming video plus audio via smart board (231 schools) in most classrooms. The majority of schools, 73 percent, reported having the technical support to navigate audio visual tools or use a new platform. Only 27 schools reported having a television broadcast feed in classrooms. These classroom capabilities have largely remained unchanged through the past several surveys, indicating schools are finding these basic tools are meeting their classroom instructional needs.

Does your school have the technology to support your academic programming?

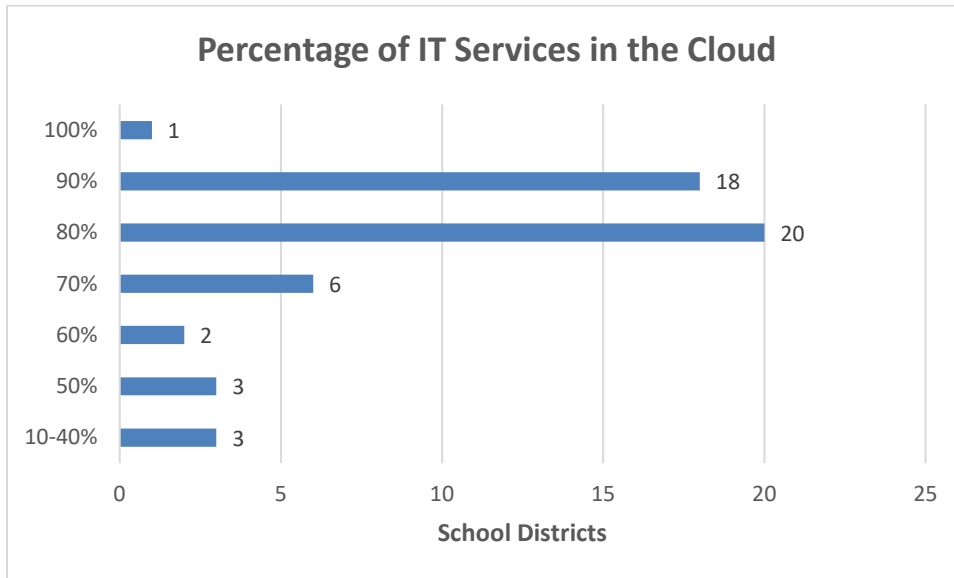
Schools unanimously responded “yes” to this question. Only three out of the 304 schools responding indicated they did not have the needed technology. Of those schools responding “no” to this question, they offered the responses below.

- Smart boards are outdated and starting to fail. A swivel camera is needed for use during observations and to record exemplar teaching strategies.
- More access points/stronger system/more tech support for all the devices/storage capabilities.
- We sent equipment home if it required specific software while schools provide Chromebooks. Sending schools provided Wi-Fi, if available. It would be great if we could have additional equipment as a designated resource to send home if needed to.

Technology Platforms & Functions

Questions in this section explore those learning and information platforms schools rely on to stay connected and deliver instruction.

Approximately what percent (%) of your IT services are currently in the cloud?



The majority of SU/SD continued to report using some level of cloud-based services. Thirty-nine of 54 SU/SD reported more than 80 percent of their services utilized the cloud. Cloud-based services are used to store data and deploy programs and offer many benefits. Among those benefits is the accessibility of cloud-based software platforms that enable teachers and students to have access to school materials and programs whether physically on-campus or learning remotely. Cloud-based services also facilitate collaboration and the sharing of information as materials may be simultaneously available to students online for a class to interact with on a particular assignment. IT staff may implement security protocols to access these services in the form of passwords and other identification, creating a safer and more secure online learning environment.

Student Information Systems (SIS)

A Student Information System (SIS) is a software platform used to manage student data. Student information systems provide capabilities for registering students for courses; documenting grading, transcripts, results of student tests and other assessment scores; building student schedules; tracking student attendance; and managing many other student-related data needs in school.

What technology platform(s) do the schools in your SU/SD use for an SIS? Listed below are online platforms previously reported to the AOE as in use within Vermont schools. Please indicate by each platform whether your school is using it as an SIS.

SIS Platform	Using as SIS*
Alma	3
Alpine Achievement	0
Canvas	1
Empower	0
Infinite Campus	7
MMS	2
PowerSchool	37
Rediker	1
Tyler SIS	2
Web2School	2
Other - JumpRope	2

* Could select more than one SIS.

As in last year’s survey, the majority of Vermont SU/SD reported using PowerSchool as their SIS. Infinite Campus remained a distant second in use by districts. It is important to note that PowerSchool has certified on the Ed-Fi data standard. A data standard is a set of rules for the collection, management, and organization of educational data to allow multiple systems to share information in a seamless actionable way. (*Definition-SETDA, “State Education Leadership Interoperability”*) AOE is planning on piloting Ed-Fi as a standard to use with data reporting. If this is successful, districts using Ed-Fi certified platforms should find it easier to exchange and report data to AOE.

Would you favor AOE adopting a statewide SIS platform?

A majority of SU/SD indicated that they did not favor AOE adopting a statewide SIS platform. Thirty-four, or 63 percent of districts did not favor the adoption, while 20 districts, 37 percent, favored such adoption. The survey did not ask responders to explain their reasons for their answers. Anecdotally, SU/SDs have indicated concerns about probable costs for individual districts to adopt a new SIS platform. If the AOE piloting of the Ed-Fi standard is successful, and a majority of districts are already using PowerSchool, concerns regarding costly platform changes may be mitigated. Platforms utilizing a common data standard should be able to exchange information with fewer difficulties. For more details on the AOE examination of adoption of a statewide SIS platform, visit the agency’s website. [Presentation: RFI Findings on Statewide Student Information System | Agency of Education \(vermont.gov\)](#)

Does your grade book tool platform (SIS) track proficiency graduation requirements?

As in previous surveys, the majority of SU/SD reported that they have a platform in-place to track graduation proficiencies. This year, 42 SU/SD or 78 percent, indicated their SIS did track proficiencies. While the 2021 survey did not specifically ask which platform was used to track

proficiencies, the 2020 survey indicated more than 100 schools were using PowerSchool to perform this function. There were no indications that schools had changed platforms.

Learning Management Systems (LMS)

A Learning Management System is a software application for the administration, documentation, tracking, reporting, automation, and delivery of educational courses or learning and development programs.

What technology platform(s) do the schools in your SU/SD use for an LMS? Listed below are online platforms previously reported to the AOE as in use within Vermont schools. Indicate by each platform whether your schools are using it as an LMS.

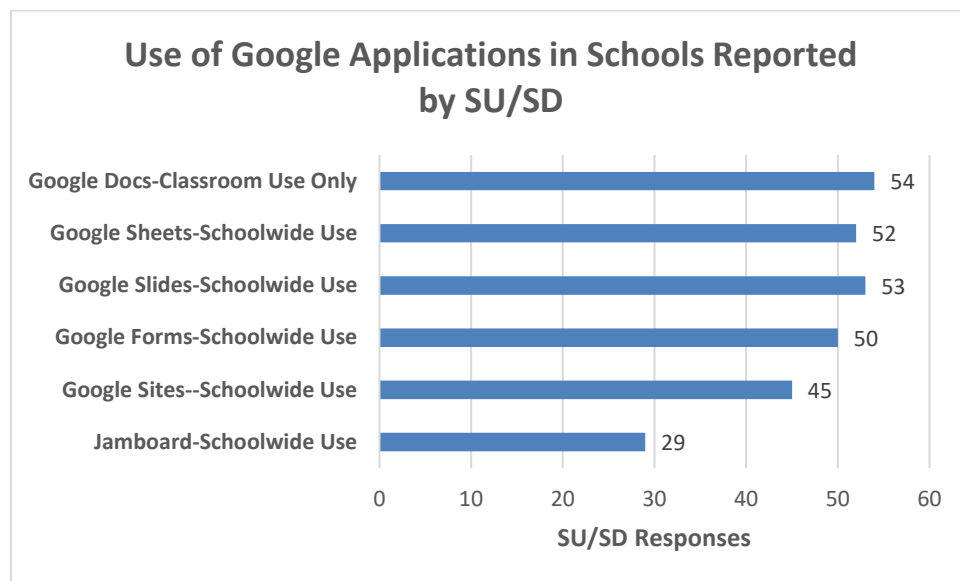
LMS Platform	Using as LMS*
Alma	0
Canvas	8
JumpRope	7
ManageBac	1
Otus	1
PowerSchool	4
Schoology	7
Seesaw	29
Toddle	2
Unified Classroom	1
Web2School	2
Other	21

* Could select more than one LMS.

Last year a majority of schools indicated that Google Classroom was their LMS. In this year’s survey, clarifying information was shared with participants regarding what is a system versus an application. Google Classroom is not classified by Google as an LMS and was omitted from the choices that could be made on this question. A separate question regarding Google Workspace for Education was asked and is reported later in this document. Seesaw remains a popular LMS. In the 2020 survey, Seesaw was the second most cited LMS in use by schools. This year, 29 districts or 54 percent of SU/SD reported using Seesaw. While the “other” category had quite a few responses by districts, 20 districts still cited Google Classroom as their LMS. Five SU/SD reported they were not utilizing an LMS.

Google Application Use

Google Workspace for Education is a popular application used by many Vermont schools. In last year's survey, schools listed this suite of programs as their primary Learning Management System (LMS). Google describes its applications as tools to be used with a school's LMS and not as an LMS. Please indicate for each application the PRIMARY use of the program by schools in your SU/SD.



All school districts, 100 percent, reported using Google Docs in schools within the classroom only. Google Docs is primarily a browser-based word processor. As a Chromebook partner, Google application use is strongly tied to this device, which is the dominant tool Vermont schools provide to students through one-to-one programs. Responders likely did not indicate the application was used schoolwide because Microsoft Word was the dominant software used for word processing by administrators, teachers and school staff. Significant schoolwide use was reported for Google Sheets, Google Slides, Google Forms and Google Sites. Jamboard was reported to be used within schools by 29 SU/SD. (Jamboard is a digital interactive whiteboard developed by Google to work with Google Workspace, formerly known as G Suite.)

Why are Google applications so popular within schools? As of 2021, there were approximately 150 million users of Google Classroom. Prior to the pandemic, Google applications were something educators and older students would have been familiar with and were already using to some degree. The pandemic dictated an abrupt switch to remote learning and educators likely turned to online applications they were already familiar with. As a free option, Google Classroom would have been an attractive first option for school use. Google cites that the primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students. As the remarks that follow illustrate, Google applications are viewed as reliable and flexible tools to facilitate learning. In upcoming surveys, AOE will survey to see if the utilization of schoolwide LMS platforms like Seesaw supplant Google applications or if SU/SD continue tandem use of multiple systems.

Other responses:

- We enjoy using Google as a whole - It makes it easy for people to connect on all different types of devices and the collaborative options are unparalleled. The interface is a bit clunky and constantly changing which can make finding settings difficult. Overall, we have a positive view of Google Workspace.
- We also use Google Workspace as our online communication platform (Meets, email, chat). All teachers PreK-12 are required to have a Google Classroom. Both Blogger and YouTube are also used as instructional tools and, in older grades, student tools.
- Google Classroom syncs with our SIS.
- Google Classroom is the dominant learning platform.
- Google Classroom has offered an additional method for our teachers to post classwork in a streamlined way that is highly accessible to students. Classroom has also enabled students to submit classwork easily and quickly.
- Although Google Classroom is not an LMS, we use it as a substitute for that purpose in grades 3-12.

Personalized Learning Plans

A Personalized Learning Plan (PLP) is a plan created by a student, with the support of parents/guardians, teachers/mentors and peers, that defines the scope and rigor of academic and experiential opportunities that will lead to secondary school completion, postsecondary readiness, and civic engagement. In Vermont, Act 77 requires that every publicly funded Vermont student in grades 7-12 participate in the personalized learning planning process.

What technology platform(s) are students in your SU/SD using to develop their Personalized Learning Plans (PLPs)? Listed below are online platforms previously reported to the AOE as in use within Vermont schools. Please indicate by each platform whether your school is using it to manage PLPs.)

PLP Platform	Using for PLPs*
Alpine Achievement	0
bulb	0
Canvas	3
Dreambox Learning	3
Google Workspace for Education	47
Naviance	9
PowerSchool	7
SchoolHack/Lift	1

* SU/SDs could name more than one platform.

Other programs named as in use for PLP creation were Empower, Managebac, Seesaw, Schoology, Toddle and Xello. Google Workspace for Education was once again the dominant platform cited by schools to develop student PLPs. In the 2020 and 2019 surveys, Google also was listed as the most used application, with only very limited use of other programs by schools.

Technology Assistance

What professional learning or other resources would assist your SU/SD in the area of technology?

This open-ended question garnered a wide variety of responses. Below are some of the remarks. Comments that were repeated are listed only once.

- We could use continuing professional development on best practices for teaching with technology and innovative technologies.
- Vita-Learn regional meetings for both curriculum support (teacher training) as well as "Pizza Meetings" for tech staff.
- Time to implement and explore.
- The state should work with Google to make a discounted purchase statewide for Google Education Licenses.
- State/Federal sponsored cybersecurity (notably email security awareness and data safety) training for end users. Government funds made available to cover ongoing security awareness training/testing for end-users.
- Statewide contracts for products, for example reduced prices for software.
- Standardized SIS and training.
- Regional and online trainings around integrating technology into SEL practices, as well as using tech for project and challenge-based learning (including specifically in the area of equity and identity). A statewide buying consortium with Apple would help if it could leverage our buying power.
- Positions
- PD for Google Workspace for EDU
- More structure from the state on how around digital citizenship and computer literacy should be tied into curriculum in districts and schools. Once we provide equitable access to the technology, how do we verify that we are providing equitable education about technology and digital citizenship skills? More emphasis on ITSE standards would be a great start.
- Micro-credentials (badges) for asynchronous modules on common tech platforms that automatically had licensure hours approval (even better if licensure was proficiency based).
- More emphasis on media literacy in AOE sponsored offerings and Vita-Learn; media literacy PD has received little spotlight in Vermont considering the information crises of the past five years and is much needed for core academic teachers to see it as a priority, esp. in humanities (ELA & SS) and in science. The ISTE standards are important, but lack emphasis on critical thinking about messages, meanings and institutions as well as civic participation.
- It would be helpful to uncouple VTVLC from state-sponsored support to Canvas. It is far too cumbersome (on the backend, SIS) for our district to access these state-funded resources. It would far better for the equity of this statewide program, for the state to directly fund Canvas for districts so that it could be managed through our SIS.
- ISTE Certification Training. BOCES in NY is providing it. More STEAM training that is hands-on in the summer and free.

- Including technology integration as a consistent and regular component of all professional learning opportunities options would help. Encouraging attendance at Dynamic Landscape and Vermont Fest would also be helpful. Giving technology use in the classroom a prominent place in teacher and administrator evaluations is necessary!

Online Learning

Have schools in your SU/SD invested in Online Teaching Specialist certification for teachers?

- 41 - SU/SD indicated they had not invested in this certification
- 13 - SU/SD indicated they had invested in this certification

With the pandemic bringing increased emphasis to online learning, AOE asked this new question to determine how schools were supporting professional standards for this area. All Vermont educators facilitating online course work with Vermont students must obtain the 5440-25 Online Teaching Specialist (OTS) endorsement. The holder of an OTS endorsement is authorized to teach students from a distance who are enrolled in online coursework. The endorsement is an add-on endorsement only and is limited to holders of PK-12 teaching endorsements. During the pandemic State of Emergency, the Vermont State Legislature waived the OTS requirement. It has since been reinstated.

What online provider(s) do you use? Listed below are providers previously reported to the AOE as in use by Vermont schools. Please indicate by each option whether schools in your SU/SD utilize that provider.

Online Provider*	Use
Brigham Young University Online	5
Edgenuity	3
Khan	22
Oak Meadow	2
Virtual High School	17
VT Virtual Learning Cooperative (VTVLC)	37
SU/SD Created Virtual Academy	11

* School districts could select more than one learning provider.

Similar to last year, VTVLC was the top online education partner used within schools. Among the 51 SU/SDs that responded to this question, 73 percent indicated they used this provider. The second most utilized provider was Khan, followed by Virtual High School. Of particular note was the presence of SU/SD created virtual academies to meet the online learning needs of students. Twenty-two percent of districts indicated they had such academies in-place. In next year's survey, AOE will examine whether districts continued, increased or decreased use of their own virtual academies and how such academies are incorporated into the overall school learning environment.

If you use an online provider not listed in the previous question, please list it here. If you do not use any online provider, please indicate.

- Procure Therapy, Presence Learning

- Managebac, Toddle
- Johns Hopkins
- Intelitek, NCCER Connect (Pearson)
- Google Classroom
- Edmentum
- CCV, VTC, WMCC, HUSSOM, Middlebury College

As a result of COVID-19 and the increased experience schools had with online learning, will schools in your SU/SD be more likely or less likely to utilize online learning providers such as VTVLC?

- 29 SU/SDs indicated they were **less likely** to utilize online learning providers.
- 25 SU/SDs indicated they were **more likely** to utilize online learning providers.

As you have indicated schools in your SU/SD are less likely to utilize online learning platforms, please explain why. Note: The statements below reflect the response of the survey participants and, as such, were not verified or confirmed against existing data.

Most common responses from SU/SDs that were less likely to utilize online providers are below.

- We're likely to continue to use at the level we are currently, so it won't be an increase or a decrease.
- We provide school-based online learning as needed.
- We lack the staff, resources, and infrastructure to support full in-house online learning at this time.
- We had many parents complain that online learning did not work for their kids. Although there are a few families who believed that their kids thrived with online learning, I am afraid that the majority of parents who claimed that online learning was not good for their kids will make our schools less likely to utilize online learning.
- We feel that we're already using them where appropriate. We're not currently pushing to add more online learning than we already offer.
- We anticipate standard/same access to online learning as pre-pandemic.
- The pandemic forced many of our students to online learning. We have found that even at the high school level many of them are not developmentally ready to learn independently. Face-to-face learning is much more effective. That being said, we do have students who are ready, and we will continue to use online learning platforms for those students.
- The online learning platform does not work for all students, and it is difficult to do online and in-person learning at the same time. Students feel disconnected from school and school routines.
- The lack of training and preparation for students and parents to be successful in this made it difficult for our district. Many of our Families are ELL which also presented challenges.
- Teachers are familiar and like Google Classroom and Seesaw.
- Students who might take a course using an online learning platform have the option of attending Vermont State Colleges which is their preference.

- Students are back in the school's full time.
- Students and parents struggled with using the Canvas platform and the technical support was not always provided in a timely manner. Technical support for these platforms is a challenge for the technical staff. In fall 2020, the rollout of Canvas through VTVLC was delayed and challenging, coinciding with the start of school. Teachers were stressed and struggled to learn a new platform at the same time as planning for in-person school. This resulted in a difficult and negative experience overall. I think the negative could be turned into a positive if a platform was rolled out with lots of planning and PD time for teachers. For example, start trainings towards the end of a school year and offer a teacher academy during the summer, and then roll it out with confidence at the start of a new school year. Prefer in-school learning.
- Need for hands-on learning.
- Many students require more support than can be delivered through online learning.
- Generally, our graded school and most middle school students did not benefit from this type of learning. Better to focus limited resources on one-one online meetings and education.

As you have indicated schools in your SU/SD are more likely to utilize online learning platforms, please explain why.

Most common responses from SU/SDs that were more likely to utilize online providers are below.

- We see the benefit to using this as a "flexible pathway." We are not pursuing this in SY21-22 but will engage in the future in this work.
- We had strong online offerings before COVID, but this has expanded interest and opportunity, so many programs are being added as trials by coaches.
- We currently utilize Google Classroom. It has provided resources that have greatly aided teachers and students.
- We are currently using VTVLC, Virtual High School, and online dual enrollment courses. Each of these options have their own strengths and shortcomings, which in turn make each a good fit for certain students.
- There is still concern that schools will go remote again due to COVID.
- The convenience of online learning; time, place and pace. Increased curricular offerings.
- Teachers are now realizing the value of teaching online.
- Remains a functional option for homeschool students.
- New protocols pertaining to students/staff when feeling unwell are likely to increase the number of missed school days. As a result, we've had some discussions about how online learning tools could augment learning for students who are staying home due to illness or COVID-19 symptoms.
- It would better meet the overall needs of our student population to partner with an IN-State online entity like VTVLC.
- Despite the struggles of many students and families with remote learning during the pandemic, schools observed some students succeeding in online learning where they sometimes had struggled in-person. Also, middle schools at small schools may use VTVLC to expand offerings (e.g., computer science, world languages, etc)

- We've been steadily increasing VTVLC use, and I see it to continue to increase.
- Allow more courses than we can provide with a limited number of teachers and classes per day.

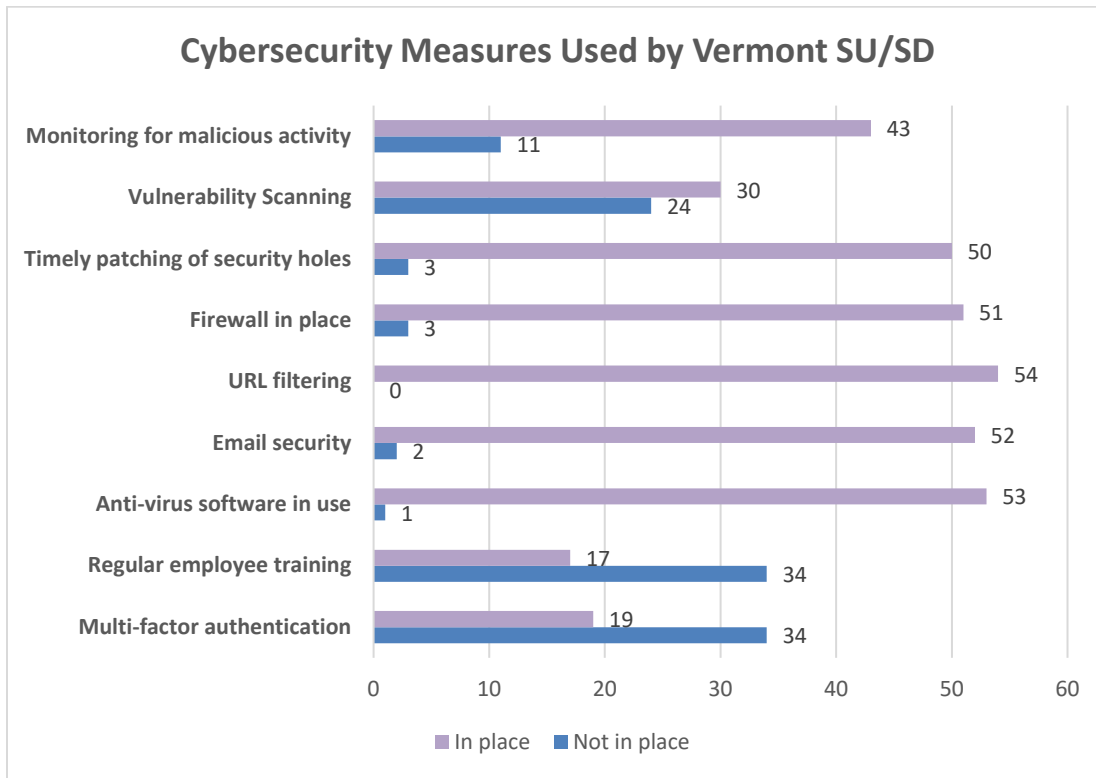
Technology Administration

Questions in this section explore issues and functions that pertain to cybersecurity, student data privacy practices, digital learning plans, and assistive technology.

Cybersecurity

Vermont schools need to prepare for cyber incidents. During calendar year 2020, the K-12 Cyber Incident Map cataloged 408 publicly disclosed school incidents, including student and staff data breaches, ransomware and other malware outbreaks, phishing attacks and other social engineering scams, denial-of-service attacks, and a wide variety of other incidents. This is 18 percent more incidents than were publicly disclosed during the prior calendar year. New this year, AOE queried SU/SD on their cybersecurity posture.

Schools are increasingly the focus for attacks by cyber criminals. Listed below are measures SU/SD can take to improve their cybersecurity posture. Please indicate your SU/SD actions for the following measures. Which actions have your SU/SD implemented to improve your cybersecurity posture?



The cybersecurity measures listed in the graph above are considered industry best practices for creating secure networks. There were 23 SU/SDs that expressed a need for training on security practices for teachers, staff and students. In October 2021, AOE facilitated two one-day trainings on data privacy and cybersecurity. AOE will continue to explore resources and professional learning opportunities for districts in the upcoming year.

What is the greatest need your SU/SD has in the area of cybersecurity? (open-ended)

- Training on security practices for teachers, staff, and students.
- Funding for equipment & applications.
- Funding for IT staff.
- Affordable knowledgeable support.
- Difficult to say – understanding and compliance by staff on safe practices would be a start.
- Not knowing what we don't know; hard to discern opportunistic alarmism from would-be vendors and honest risk assessment/advice.
- Lack of time and inability to be aware of the latest threat.
- Support from school administrators.

Data Privacy

Information that is tied to individual students is referred to as personally identifiable information, or PII, and is subject to federal laws and regulations. New technologies—including personal computers, mobile devices, apps, websites, programs, and online services—are used in classrooms in ways that cause new data to be generated about individual students that never existed before. AOE supports SU/SD implementation of policies and practices that protect PII. The following questions seek to document SU/SD interest and involvement in data privacy protection measures.

Federal laws mandate the protection of student data. In Vermont, AOE supports the Vermont Student Privacy Alliance (VSPA), a collaborative group of SU/SD representatives sharing common concerns around student privacy. Is your SU/SD a member of the VSPA?

- 36 SU/SDs reported their district **was** a member.
- 18 SU/SDs reported their district **was not** a member.

Does your SU/SD request online application vendors sign a student data privacy agreement?

- 25 SU/SDs reported their district **does** request signed data privacy agreements.
- 29 SU/SDs reported their district **does not** request data privacy agreements.

Digital Learning Plans

While digital learning plans are no longer required by the state or other entities, AOE supports the creation of such plans by SU/SD. In the upcoming year, AOE plans to update planning guidance for the development and implementation of digital learning plans. The following questions seek to document the status of such planning among Vermont SU/SD.

A digital learning plan is a guide for how your SU/SD will support digital learning. Digital learning is any instructional practice that effectively uses technology to strengthen a student's learning experience. Does your SU/SD have a digital learning plan in place?

- 20 SU/SDs **have** a digital learning plan in place.
- 34 SU/SDs **do not have** a digital learning plan in place.

If you have a digital learning plan, how often is the plan updated?

Among those SU/SDs that reported having a DLP in place, below is how often those plans are updated.

Every year	3
Every 2-3 years	11
Longer than 3 years	6
Never updated	0

Among those SU/SDs that did not have a plan in place, below are their responses.

No apparent need	5
No staff or time to create one	15
Schools resistant to having SU/SD plan	2
No expertise to create one	2
Don't know	7

How can AOE best support your SU/SD in creating and maintaining a digital learning plan?

- The AOE could supply examples and templates to create a digital learning plan and statewide financial support of ten additional teacher professional learning days.
- We need training on how to create an effective plan that works. We supposedly have a plan but there are no follow-ups to evaluate how it is working.
- We currently have elements of a digital learning plan woven into our other strategic plans. The best way the AOE can support future planning is to support a comprehensive "one plan" planning process that includes tech, curriculum, infrastructure, etc.
- We are working to start a new plan this year. We will reach out for support as needed. (Sample plans would help, especially plans from different sized SU's--we'd all like to see comparable size SU plans to have a reference point.)
- Our digital learning needs shifted significantly during the pandemic. We are currently working on a plan to move forward. We think it is important to incorporate the elements of a digital learning plan in all the other required plans - CIP, Recovery, MTSS, proficiency-based education pedagogy, rather than a separate plan.

Assistive Technology

Assistive technology is a term for creative tools and strategies that help people accomplish tasks at home, school, work, and in the community. AOE works collaboratively with SU/SDs to support children and students with disabilities in their pursuit of a free appropriate education designed to meet their unique needs. The following questions seeks input on measures implemented to provide assistive technology to students.

Does your SU/SD invest in or provide assistive technology to students?

- 48 SU/SDs **invest in** assistive technology.
- 6 SU/SDs **did not** invest in assistive technology.

If your SU/SD invests in assistive technology. How many students in your district are using assistive technology?

Twenty-three SU/SDs indicated that 25 or fewer students were using assistive technology in their district. Seven SU/SDs reported between 26 to 50 students utilized assistive technology. Two districts said between 100 to 200 students used assistive technology. One SU/SD reported more than 200 students were using assistive technology. Eight SU/SDs did not know the number of students utilizing such technology.

Are those students on IEP, 504, EST plans?

Thirty-one SU/SDs reported the students who utilized assistive technology also were participating in an Individualized Education Program (IEP). One district reported the students using assistive technology also were on a 504 plan. Nine SU/SDs did not know whether these students were on an IEP, 504, or EST plans.

Is assistive technology at your SU/SD funded through IDEA initiatives? (Individuals with Disabilities Education Act)

Thirty-two SU/SDs indicated their district used IDEA funds for assistive technology, while 22 SU/SDs said IDEA funding was not used.

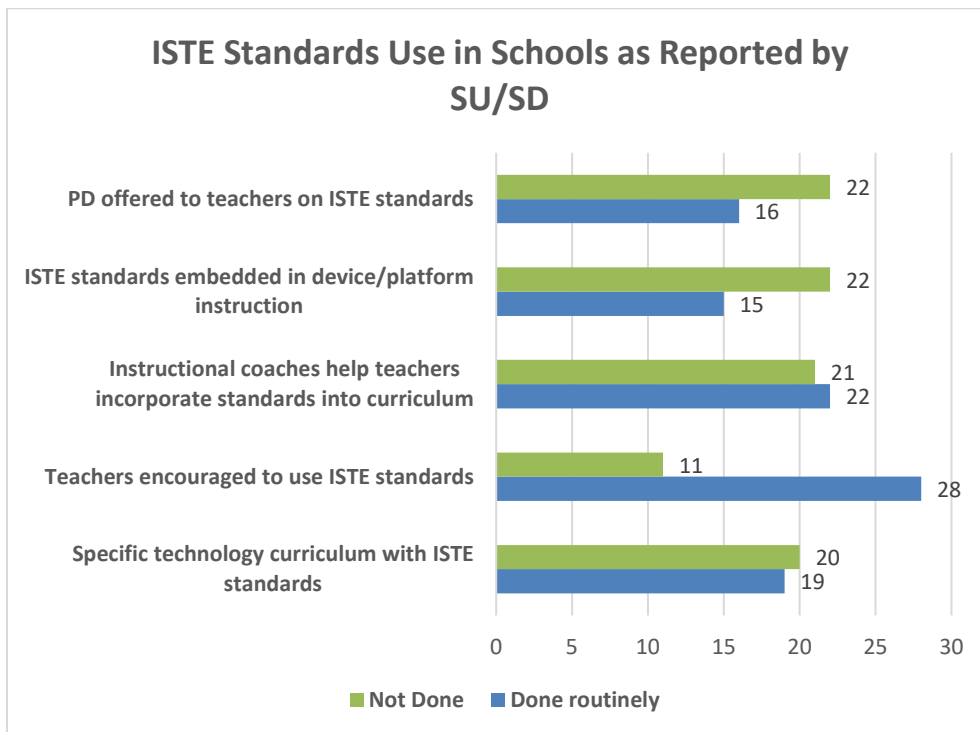
Who in your schools has training to provide assistive technology?

Personnel cited most frequently as receiving training were teachers (28 SU/SDs); paraprofessionals (25 SU/SDs); and external providers (21 SU/SDs). Districts reported a split regarding training for IT personnel with 24 SU/SDs reporting no training and 19 districts providing training. Training in assistive technology was only offered for administrators in eight districts.

Technology Standards

In 2017, the Vermont State Board of Education adopted the International Society for Technology in Education (ISTE) Standards for Student Learning. These standards focus on student-driven processes that empower a student to take an active role in using technology and become a knowledgeable digital citizen, computational thinker and innovative designer, and a creative global communicator and collaborator. The questions in this section examine how schools continue work to embed ISTE standards into curriculum and solicits experiential comments illustrating technology use. ISTE standards may be viewed at [ISTE Standards for Students | Agency of Education \(vermont.gov\)](https://www.vermont.gov/education/iste-standards).

How are schools in your SU/SD integrating ISTE standards into the curriculum?



How has technology education been leveraged in your SU/SD to teach students how to use technology in meaningful ways? (open answer)

This question expands on the previous question to collect examples of how technology is embedded within a school's curriculum. Below is a summary of the responses. Like responses were grouped within a single bulleted response.

- We utilize ISTE standards in our annual curricular work focus on Digital Citizenship. Our Library Media team works to address individual ISTE standards in their integration work and support.
- We offer resources for the use of technology--Google Classroom, robotics, Seesaw for LMS, class streaming, email, and Library Tech Time.
- There is no scope and sequence for these skills. There are pockets of instruction but no organization for this work. We were in the process of working on this prior to the pandemic but we have not been able to pick it back up again.
- The pandemic has positively impacted the effective use of technology in our schools. From the acquisition of basic skills to communications and collaboration, all students and teachers have learned how to better use technology.
- Students have been able to learn on new web-based platforms. They have been taught how to leverage the internet for research and navigate online learning platforms.
- Library Media Specialists present Digital Citizenship Standards and assist classroom teachers with embedding technology into lessons. Additionally, we have two Education Technology Specialists that provide assistance, training, and support to classroom teachers.

- Our STEAM team of teachers and staff work with a group of fifth and sixth graders in a program called "Technology Ambassadors." To become a technology ambassador, students must demonstrate a willingness be a leader in our school community by completing an application and interview process that includes creating a project to showcase their determination. Once accepted into the program, student technology ambassadors work with adults to grow their technology literacy skills and become leaders in the school. Students use these skills to assist other students and also school staff wherever they may need tech help.

What resources do you need to support your education technology program(s)? (open answer)

- We need more technology/instructional coaches. Our one technology integrationist has been repurposed by the previous district administration as more of a STEAM coach. Much of our principal population does not seem to support technology and prioritizes every PD opportunity to ever-changing new initiatives such as Responsive Classroom, Fountas & Pinnell, and so forth.
- We need examples that support deep integrated learning. We need fewer vendors and more focus on the learning.
- While funding is great for a new initiative, we are severely lacking in time to be able to fully explore and use the resources we already have available.
- Post-Covid funding to sustain 1-to-1 device levels, state-level support for cybersecurity, support on crafting district-wide digital learning plans, equal access to high-leverage learning management systems (Canvas), and funding to offer computer science/coding courses/maker spaces in our high poverty/rural district.
- Professional development and funding for additional staffing.
- Micro-credentials for various tech PD in asynchronous modules that earn licensure hours (or better yet, shift licensure to be proficiency based).
- Funding for coaches, maker spaces, software programs, and stipends for teachers to provide additional hours for after school activities such as E-sports coaches or after school programs.
- Administrators and faculty buy-in to make it a priority.
- Additional administrative certification for digital learning leaders.

Computer Science

Computer science is the science that deals with the theory and methods of processing information in digital computers, the design of computer hardware and computing applications. AOE will use the following information to better understand the work and needs of schools to further instruction in this area.

Regarding Computer Science and STEM activities, please indicate what activities the schools in your SU/SD provide?

School Activities in Computer Science & STEM as Reported by SU/SD	Offer	Do Not Offer
After school computer club or related “club”	28	16
Computer club during school	14	28
Extended learning opportunities	33	9
FIRST Lego League Challenge	12	19
Hour of Code activities	46	3
Other coding activities during the course of the year	40	6
Makerspace (in school or community)	42	8
Robotics	42	7
Summer offerings-camps	29	12

All but one SU/SD responded to this question. All other SU/SD indicated the schools in their districts offered at least one computer science and STEM activity to students. Similar to last year’s survey, the most popular activities offered within schools were Hour of Code, robotics programs and makerspaces. [Hour of Code](#) is promoted annually in December by AOE as part of the nationally observed Computer Science Education Week. Hour of Code is sponsored by the non-profit Code.org organization, whereby educators are encouraged to hold a one-hour coding activity to introduce students to computer science. A makerspace is a collaborative workspace inside a school, library or separate public/private facility for making, learning, exploring and sharing that uses a wide range of technical and non-technical materials for creative projects.

Does your SU/SD offer computer science courses? (yes or no) What grade ranges are computer science courses available?

A majority of SU/SDs indicated schools in their districts offered computer science courses. Fifty-seven percent of SU/SDs reported offering courses and 43 percent indicated their districts did not offer such courses. The most common grade level where students were offered computer science courses was at the high school level. Seventeen districts indicated such courses were available at the secondary level. Two districts indicated computer science courses were only offered at the middle school level and 12 districts reported courses were offered at both the middle and secondary levels. Only one SU/SD indicated they offered computer science courses at the elementary level and that same district indicated such courses were available to students at all grade levels. There were 22 no responses to this question.

As part of this year’s technology survey, AOE asked for primary contacts at each SU/SD for computer science curriculum questions. AOE will consider creating a separate survey in the coming year directed at these contacts to better determine the breadth of computer science offerings in Vermont schools and related student participation.

Appendix

AOE utilizes a survey platform called Cognito. Cognito enables the online survey to be coordinated at the SU/SD level. The format of the survey does not lend itself to a simple numerical progression of questions. Rather, depending on the response to certain questions, a respondent would be directed to a different screen to continue the survey. Below are the questions represented within the survey. Not all drop-down options are listed. Where applicable, drop-down options are represented in the main body of this report as the results are reported.

AOE Tech Survey 2021

Please complete by September 30, 2021. This survey gathers information about education technology in supervisory unions/districts and schools for the 2020-2021 school year. The information is a tool AOE uses to determine how technology is supporting student-centered learning. The survey is in five main parts: school specific data; district-wide connectivity information; tech platform functions; tech administration; and survey conclusion. For the school specific data, please add as many schools per supervisory union as you are speaking to.

- Name
- Email
- Phone
- What is your Supervisory Union or District?
- What is your title?
- Are you the primary contact for technology related matters at your SU/SD?

School specific data (Complete this section for All Schools in your SU by clicking “Add School”)

- What is the name of your school?
- Which option most accurately describes the one-to-one status in your school?
- Does your one-to-one program allow students to take a device home?
- Does your school have the technology to support your academic programming?
- If you answered no, your school does not have the technology to support your academic programming, please indicate what technology is needed.
- How many total devices are currently available for school use?
- Please provide an estimate percentage (%) by type of devices your school has for student use. (Please note that this question asks for percentages as opposed to whole numbers and the percentages need to add to 100%)
- Does your school currently have a Bring Your Own Device (BYOD) policy?
- If you do not have a BYOD policy, why? Select the answer below that best describes your primary reason for not having one.
- If you do have a BYOD policy, why? Select the answer below that best describes your primary reason for not having one.
- What capabilities are there in your school for in-classroom video/audio?
- In response to COVID-19, what actions did your school take to address home

connectivity issues for students? Listed below are options your school may have utilized. Please indicate by each option whether your school implemented that action. (Provided Wi-Fi hotspots. Provided Wi-Fi hotspots in school buses. Provided financial subsidy for home internet service. Extended Wi-Fi access at the school building.)

- If your school implemented an action not previously listed, please list that action.
- In response to COVID-19, schools implemented new technology and practices to deliver educational services to students. Below is a list of technology options. Please indicate by each option the status of use by your school in the UPCOMING school year. (Wi-Fi hotspots. Free Wi-Fi signal to school parking lot. 1-to-1 student Chromebook/devices for home use. IT help support for home use. School-wide online LMS for remote learning.)
- If your school will continue with a new technology or practice not previously listed, please describe.

District Wide Information: Internet Service Provider, Wi-Fi, Connectivity Information

The remaining questions speak to district wide information.

- Who is the primary Internet Service Provider for this school?
- What is the primary connection type for schools in your SU/SD to connect to the Internet?
- What is the current upload speed for schools in your SU/SD (as advertised by your provider)?
- What is the current download speed for schools in your SU/SD (as advertised by your provider)?
- Is your connection shared?
- How many schools share the connection?
- If your schools share a connection, which response below describes the quality of the shared connection?
- Do the schools in your SU/SD provide "guest" or "public" Wi-Fi access?
- If schools in your SU/SD provide "guest" or "public" Wi-Fi, please select the option below that best describes the area served by the Wi-Fi.
- Is there another location in the community to access free Wi-Fi?
- What is the typical cell phone coverage at the schools in your SU/SD?
- Does your SU/SD or individual schools survey students to determine their home broadband access?
- If yes that you do survey, select the option that best describes how students are surveyed or how you learn about it.
- Do you maintain a list of student home addresses that have no/low broadband?
- If yes that you do survey, what percentage of students in the schools of your SU/SD do not have broadband access at home?

Technology Platforms & Functions

- Approximately what percent (%) of your IT services are currently situated in the cloud?
- What technology platform(s) do the schools in your SU/SD use for an SIS? A Student Information System is a software platform used to manage student data. Listed below

are online platforms previously reported to the AOE as in use within Vermont schools. Please indicate by each platform whether your school is using it as an SIS. If you are not using an SIS indicate that in the next question. (Alpine Achievement, Alma, Canvas, Empower, Infinite Campus, MMS, PowerSchool, Rediker, TylerSIS, Web2School)

- If the schools in your SU/SD use an SIS platform not listed in the previous question, please enter the platform name.
- Would you favor AOE adopting a statewide SIS platform?
- Does your grade book tool platform (SIS) track proficiency graduation requirements?
- What technology platform(s) do the schools in your SU/SD use for an LMS? A Learning Management System is a software application for the delivery of educational courses or learning and development programs. Listed below are online platforms previously reported to the AOE as in use within Vermont schools. Indicate by each platform whether your school is using it as an LMS. (Please note - Google Workspace for Education is NOT an LMS, see upcoming question.) (Alma, Canvas-used by VTVLC, JumpRope, ManageBac, Otus, PowerSchool, Schoology, Seesaw, Toddle, Unified Classroom, Web2School)
- If schools in your SU/SD use a LMS platform not listed in the previous question, please enter the platform name below.
- Google Workspace for Education is a popular application used by many Vermont schools. In last year's survey, schools listed this suite of programs as their primary Learning Management System (LMS). Google describes its applications as tools to be used with a school's LMS and not as an LMS. Please indicate for each application the PRIMARY use of the program by schools in your SU/SD. (In Classroom Only, Student Tool Only, Teacher Tool Only, Schoolwide Use, Other, Don't Know)
- Please share any additional information you would like about your SU/SD use of Google Workspace for Education.
- Have schools in your SU/SD invested in Online Teaching Specialist certification for teachers?
- What technology platform(s) are students in your SU/SD using to develop their Personalized Learning Plans (PLPs)? Listed below are online platforms previously reported to the AOE as in use within Vermont schools. Please indicate by each platform whether your school is using it to manage PLPs. (Alpine Achievement, bulb, Canvas, Dreambox Learning, Google Workspace for Education, Naviance, PowerSchool, SchoolHack/Lift)
- If schools in your SU/SD use a platform for PLPs not listed in the previous question, please enter the platform name below.
- What professional learning or other resources would assist your SU/SD in the area of technology?
- What online learning provider(s) do you use? Listed below are providers previously reported to the AOE as in use by Vermont schools. Please indicate by each option whether schools in your SU/SD utilize that provider. (Brigham Young University Online, Edgenuity, Khan, Oak Meadow, Virtual High School, Vermont Virtual Learning Cooperative (VTVLC), SU/SD created virtual academy)
- If you use an online provider not listed in the previous question, please list it here.
- As a result of COVID-19 and the increased experience schools had with online learning,

will schools in your SU/SD be more likely or less likely to utilize online learning providers such as VTVLC?

- As you have indicated schools in your SU/SD are more likely to utilize online learning platforms, please explain why.
- As you have indicated schools in your SU/SD are less likely to utilize online learning platforms, please explain why.

Technology Administration

Cybersecurity

- Schools are increasingly the focus for attacks by cyber criminals. Listed below are measures SU/SD can take to improve their cybersecurity posture. Please indicate your SU/SD actions for the following measures. (Network monitoring to detect malicious activity. Network vulnerability scanning. Timely patching of security holes. Application firewall in place. URL filtering. Email security. Anti-virus software in use. Regular employee training. Multi-factor password authentication.)
- What is the greatest need your SU/SD has in the area of cybersecurity?

Data Privacy

- Federal laws mandate the protection of student data. In Vermont, AOE supports the Vermont Student Privacy Alliance (VSPA), a collaborative group of SU/SD representatives sharing common concerns around student privacy. Is your SU/SD a member of the VSPA?
- Does your SU/SD request online application vendors to sign a student data privacy agreement?

Digital Learning Plans

- A digital learning plan is a guide for how your SU/SD will support digital learning. Digital learning is any instructional practice that effectively uses technology to strengthen a student's learning experience. Does your SU/SD have a digital learning plan in place?
- If you have a digital learning plan, how often is the plan updated?
- If your SU/SD does not have a plan, please select the reason that BEST represents why you do not have one.
- How can AOE best support your SU/SD in creating and maintaining a digital learning plan?

Assistive Technology

- Does the SU/SD invest in or provide assistive technology to students?
- If yes, how many students in your SU/SD are using assistive technology?
- Are those students on IEP, 504, EST Plans?
- Is assistive technology funded through IDEA initiatives? (Individuals with Disabilities Education Act)
- Who in your schools have training to provide assistive technology? (Administrators, IT Personnel, Paraprofessionals, Teachers, External providers--e.g. DAIL)

Technology Standards & Computer Science

In 2017, the Vermont State Board of Education adopted the International Standards for Technology Education. These standards outline what Vermont students should know and be able to do with respect to information technology and will guide and inform the work of schools as they prepare students for college and careers that have been dramatically transformed by information technology.

- How are the schools in your SU/SD integrating ISTE standards into the curriculum? Below are options. Please indicate for each option whether it is something your schools are commonly doing. (Schools have a specific technology curriculum with ISTE standards. Teachers encouraged to incorporate ISTE standards into class curriculum. Instructional coaches help teachers incorporate ISTE standards into their lessons. ISTE standards are embedded in the instruction on new devices & platform uses. Schools offer teachers professional development on ISTE standards.)
- How has technology education been leveraged in your SU/SD to teach students how to use technology in meaningful ways?
- What resources do you need to support your education technology program?
- Regarding Computer Science and STEM activities, please indicate what activities the schools in your SU/SD provide. (After school computer club or related "club." Computer club during school. Extended learning opportunities. FIRST Lego League Challenge. Hour of Code activities. Other coding activities during the course of the year. Makerspace-in school or community. Robotics. Summer offerings-camp.)
- Does your SU/SD offer computer science courses?
- What grade ranges are computer science courses available?
- Who is the primary contact for computer science curriculum in your SU/SD?