

# Technology Enabled Learning (Bright Bytes) Survey Results

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# Executive Summary

This report details findings and insights gathered from a survey administered to teachers, school leaders and students in grades 6 to 12 from the Avon Maitland District school board, completed in the Spring of 2018. The purpose of the survey and this report is to summarize and inform the future direction of technology use for learning in Avon Maitland District School Board. Our children are entering a world vastly different from that of their parents. Avon Maitland Schools are preparing students for this world through engagement, inspiration and innovation. The AMDSB Strategic Plan focuses on ensuring that students gain competency in the following transferable skills: collaboration, communication, creativity, critical thinking, and problem solving.

Integral to student learning is the intersection of teacher knowledge and pedagogy with the meaningful use of technology. The Next Generation Learning project provides portable, personalizable technology to all students and staff from Grade 7 to 10. The intention of this deployment is to enable the effective use of technology to promote inclusive practices, to support the development of transferable skills (collaboration, creativity, communication, critical thinking and problem solving), and to ultimately maximize outcomes for learners in AMDSB. The NGL project is a key driver of the Avon Maitland DSB Strategic Plan and annual Board Improvement Plan for Student Achievement and Well-Being (BIPSAW).

In the fall of 2013, the AMDSB district began the process of providing an iPad to students in grade 7. Currently, all AMDSB students in grades 7 through 10 have a access to a personalized, board-owned device that they are able to take home. Our goal is to integrate technology seamlessly into our classrooms to support student learning and teach our students the skills that are needed to learn effectively in our modern world.

The key aims of the survey were to collect information that will help identify our district's strengths and areas for improvement pertaining to the use of technology for learning in schools, to assist in targeting services and professional development accordingly, and to support strategic decisions to support student learning and well-being.

## Research Summary Key Findings

The evidence addresses questions about infrastructure, the use of technology for learning and competency development, as well as the capacity building required to support the realization of the AMDSB Strategic plan. Findings in these key areas include the following:

- Both students and teachers believe that technology improves engagement and enhances learning to develop the skills and competencies necessary for a successful life.
- Our teachers believe that our district encourages the use of technology to support teaching and learning.
- Teachers have identified a need for professional development to improve their multi-media and online skills and to support the development of critical thinking in students.
- Excitement and engagement about the use of technology declines as students progress through secondary grades. Use of technology for learning decreases as students enter grade 9, secondary school. Additional training is needed for secondary teachers around the use of technology for authentic learning opportunities.
- To realize the benefits of the use of technology for learning, the connection between the use of technology, and instruction and assessment practices needs to be made explicit for educators and students.
- The majority of teachers report knowledge of digital citizenship and online safety, however, almost half spend less than an hour a year on teaching and discussing digital citizenship with their students.
- The most common barriers identified by both teachers and students to the use of technology in schools relates to age of the device and wifi connectivity.

# Next Generation Learning

## Historical Research

Title of report	Link to documents	Scope of the report	Date
<b>NGL: Initial Impact presentation</b>	<a href="#">NGL Initial Impact report</a>	* five elementary schools (Intermediate students and teachers)	May 27, 2014 (Open) June 10, 2014 (Regular)
<b>Impact Research : Interim Report/ Presentation</b>	<a href="#">Impact Research: Interim Report</a> <a href="#">Impact Presentation</a> <a href="#">Executive Summary</a>	*all Intermediate students, teachers, administrators and parents	November 24, 2015
<b>Impact Research : Final Report, presentation and Appendices</b>	<a href="#">Impact Research: Final Report</a> <a href="#">Executive Summary</a> <a href="#">Trustee Presentation Oct 5</a> <a href="#">Quantitative Study</a>	* assessment and equity case studies * examination of Intermediate student achievement data	October 11, 2016
<b>Honouring Multiple Voices report and presentation</b>	<a href="#">Honouring Multiple Voices Presentation</a> <a href="#">Multiple Voices Report</a>	*consultation with staff, parents and students in Grade 11 at MDHS and CHSS	Spring, 2016 / Fall, 2017

# Bright Bytes Survey Highlights

Our district partnered with BrightBytes, an educational research and analytics organization, **to learn more about our schools' use of technology for student learning.** In order to further understand the impact of technology on learning outcomes for students, the district gathered metrics on technology access and skills. This data was reviewed through a comprehensive framework lens. The **CASE** framework reviews: **C**lassroom factors, **A**ccess to technology, teacher and student **S**kills and **E**nvironmental factors.

## The Technology & Learning Framework

CASE™ is a flexible, research-based framework that informs the data analytics used to measure the impact of technology on learning outcomes. The four domains enable BrightBytes' statisticians and practitioners to prioritize and target the most beneficial opportunities for student achievement.



### **CLASSROOM**

Explore how teachers and students use technology for learning

### **ACCESS**

Understand the availability of devices and Internet access in school and at home

### **SKILLS**

Measure the levels of teacher and student foundational, online, and multimedia skills

### **ENVIRONMENT**

Support policies, procedures, culture, and professional development and technology needs across the organization

<http://www.brightbytes.net/>

## Who completed the survey?

The survey was completed by AMDSB gr. 6-12 students and teachers and administrators in both elementary and secondary schools.



A look at participants by the numbers:

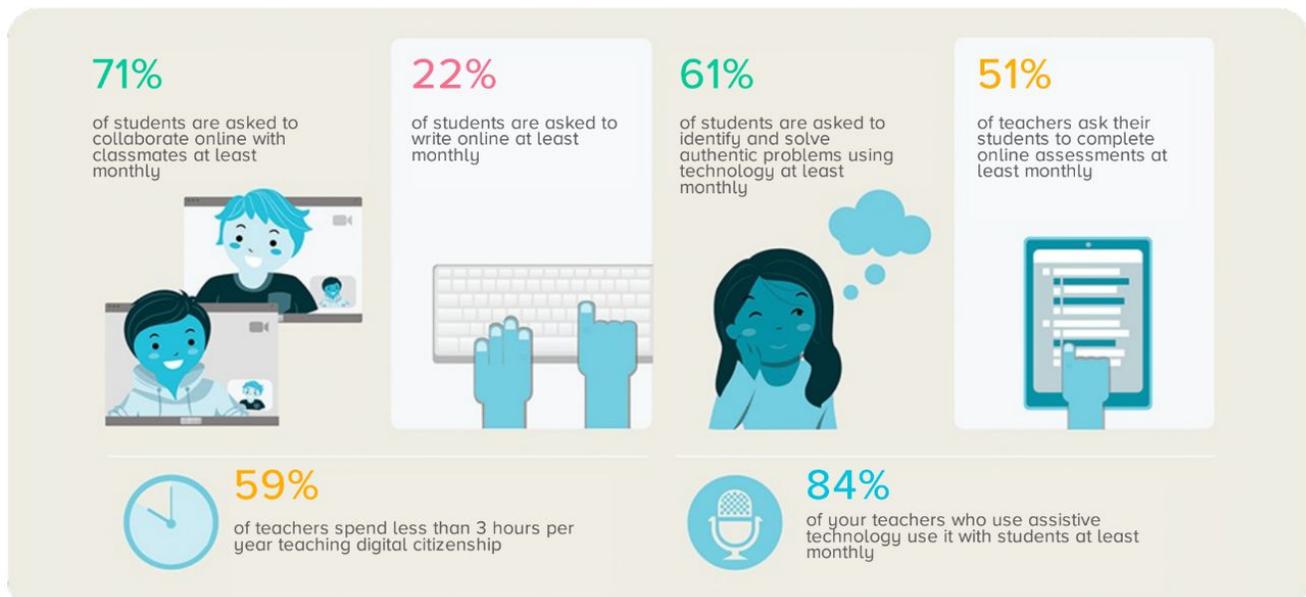
<b>Participant</b>	<b>Number of completed surveys</b>
Grade 5	24
Grade 6	688
Grade 7	859
Grade 8	780
Grade 9	684
Grade 10	664
Grade 11	581
Grade 12	411
Teachers	330
Other	26
Blank	440
<b>Total</b>	<b>5487</b>

# Highlights of Thematic Reports

## 21st Century Learning Report

Modern learning requires organizations to meet the current requirements of curriculum while also striving to help their students develop transferable skills such as: communication, collaboration, creativity, and critical thinking. Students must be exposed to unfamiliar problems and encouraged to design meaningful solutions. Technology is a tool for such problem solving. The skills needed for success in post-secondary education and careers are becoming increasingly complex, and schools must work to meet new demands.

In addition to meeting traditional academic standards, students must also be prepared to tackle the demands of a modern world and modern workforce. *“Many of the fastest-growing jobs and emerging industries rely on workers’ creative capacity - the ability to think unconventionally, question the herd, imagine new scenarios, and produce astonishing work.”* (Partnership for 21st Century Skills). Technology assists with this type of capability.



(Data from AMDSB 2018 survey)

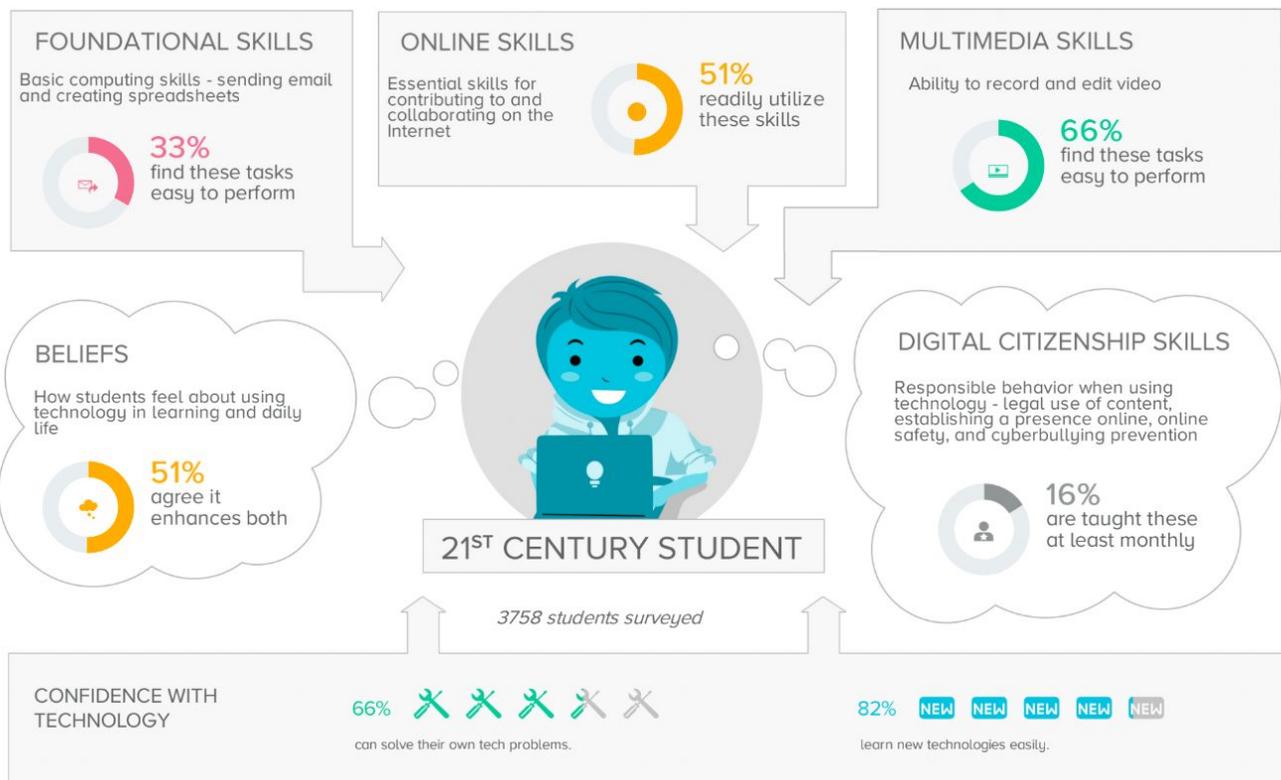
In order to develop these skills, students must have regular opportunities to engage in learning about collaboration, communication, creativity and critical thinking. Students must be exposed to unfamiliar problem and encouraged to design meaningful solutions. Technology is a tool for such problem solving. In addition, they must have access to the instant feedback enabled by digital assessment and customized assistive technology.

# Curriculum Report

Classrooms that prepare students for a career seamlessly integrate technology into daily instruction in a way that intentionally scaffolds students' technology skills. In order to meet students "where they are", technology instruction must be infused in every subject area.

Given this, a modern curriculum must purposefully include incremental technology-infused skill acquisition. However, the design of every curriculum begins by considering the unique needs of the learners.

Being aware of students' skill profiles with technology can greatly inform the development of a cohesive, integrated curriculum that allows students to build the technology skills sets necessary for college and career.

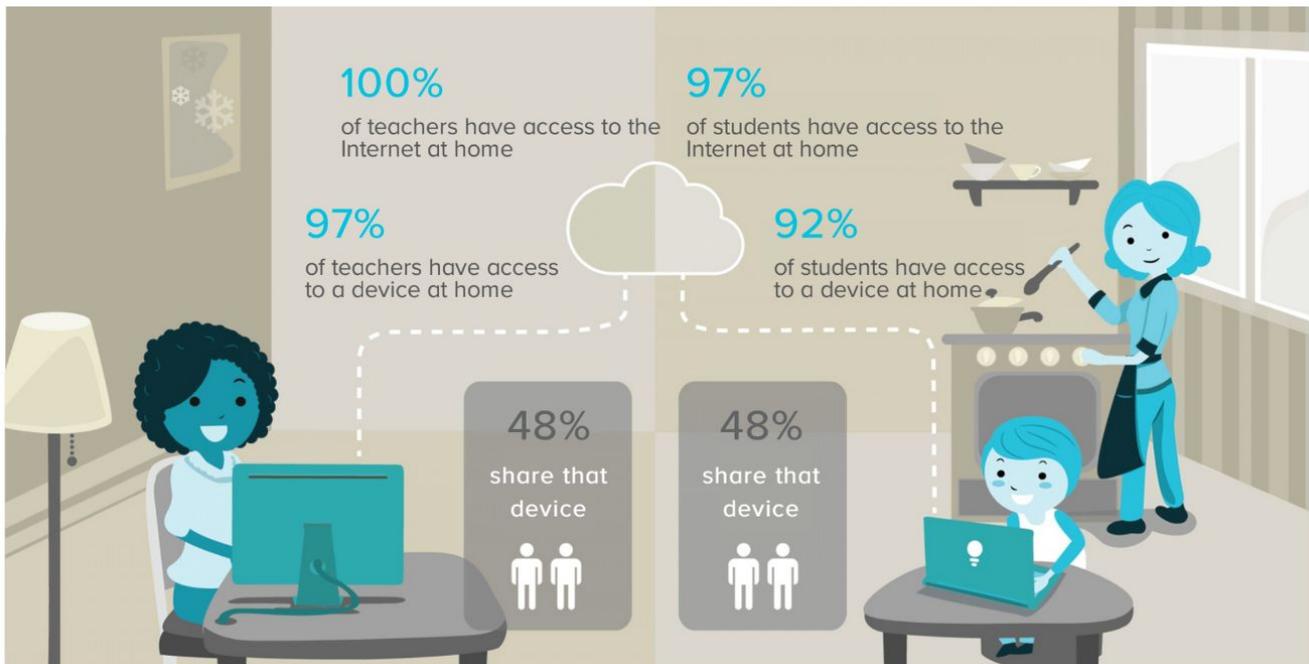


(Data from AMDSB 2018 survey)

## Infrastructure at Home

Students who are able to access technology at home can engage in anytime, anywhere learning. While almost all teens have access to a digital device at home, the number of people with whom the device is shared is important. Devices shared between multiple people may not always be available for learning.

Teachers who are able to access technology at home can better plan transformative instruction. Teachers who have access to computers at home are more likely to use technology frequently and thus have better technology skills. These skills are a prerequisite to the use of digital creativity, digital collaboration, digital communication and critical thinking in the classroom.



(Data from AMDSB 2018 survey)

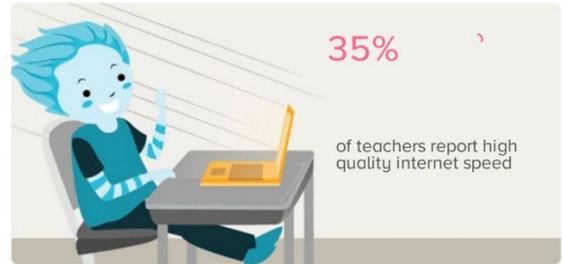
Anytime, anywhere access to technology fosters anytime, anywhere access to connected learning.

All of our teachers report having access to the internet at home and 97% of students have access to the internet at home.

## Infrastructure at School

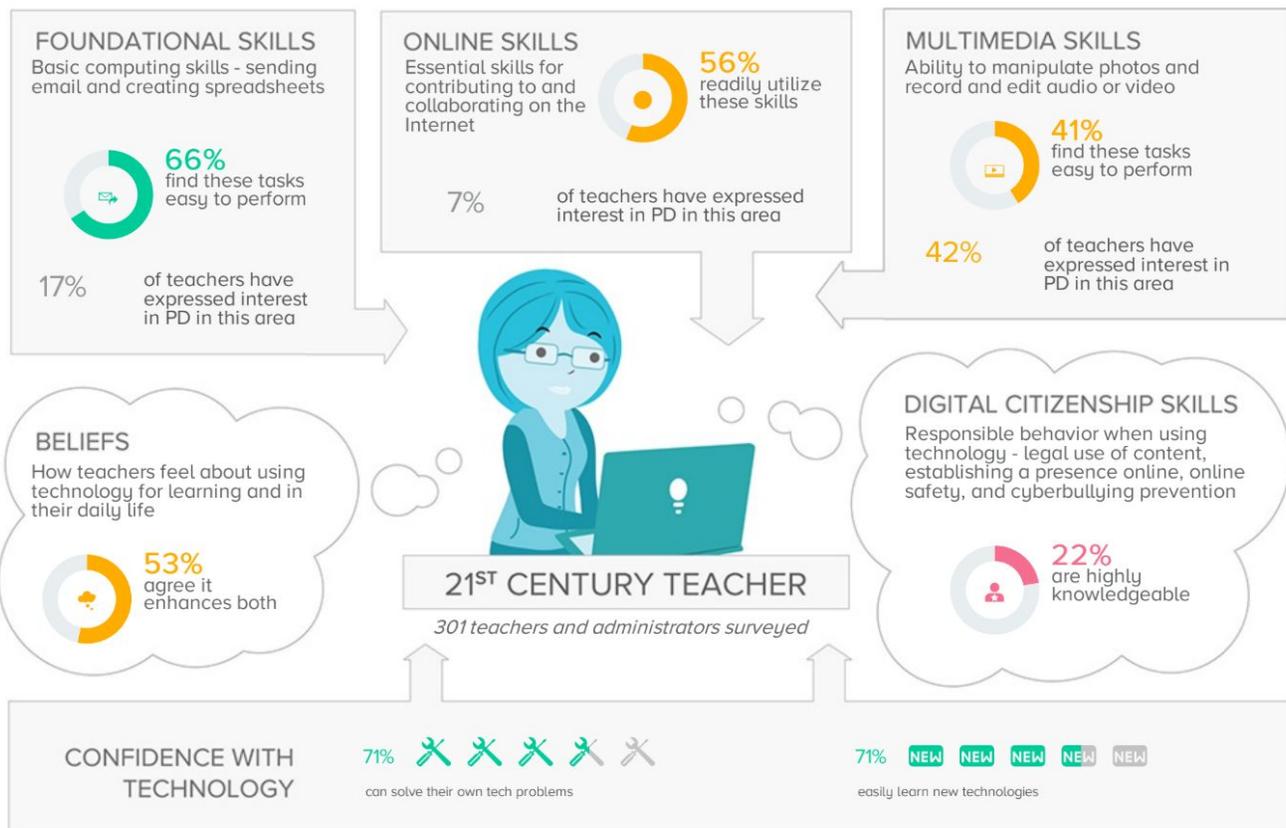
Teachers who have difficulty getting access to high quality computers for students when needed are much less likely to plan and implement classroom activities that include digital communication, digital collaboration, digital creativity, and critical thinking.

(Data from AMDSB 2018 survey)



## Professional Development

Professional development experiences for teachers must be sustained and of high quality for improved learning outcomes to be realized. The *Center for American Progress* reports that 14 hours of high quality professional development on a single topic is needed before the classroom is impacted to a statistically significant degree.



(Data from AMDSB 2018 survey)

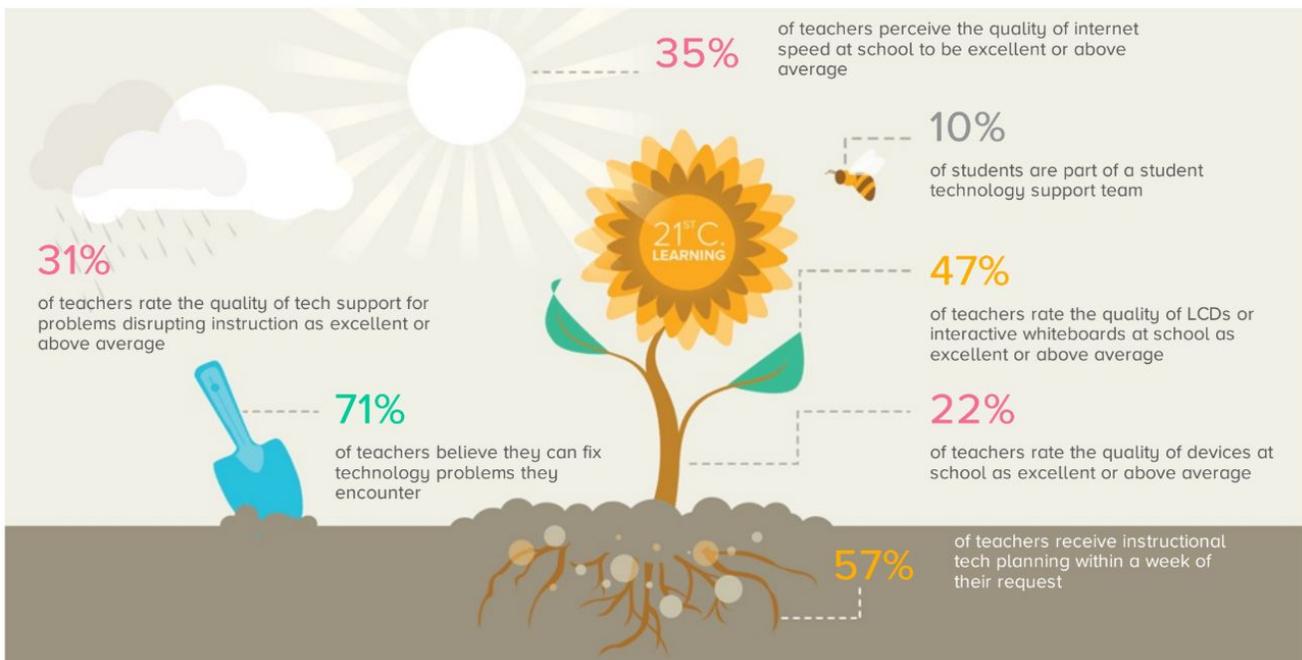
High quality professional development needs to be job-embedded, personalized, and designed to promote skill transfer. Professional learning experiences must respond to teachers' interests, needs and classroom settings. In many cases, these types of learning experiences can extend beyond the traditional school in-service setting to include webinars, Twitter chats, and other virtual experiences.

Being aware of teachers' skill profiles and interests with technology can greatly inform the development of a cohesive, integrated professional development plan that will enhance student learning outcomes.

## Technology Support Report

High quality, speedy, educative technology support is the catalyst for teachers trying new instructional techniques that employ technology. These environmental factors can overcome the lack of confidence that teachers have with technology.

Teachers who perceive that the quality of technology support is high are more likely to try new lessons or learning activities with technology. This is because they feel confidence that someone will be able to help them if a problem or disruption occurs.



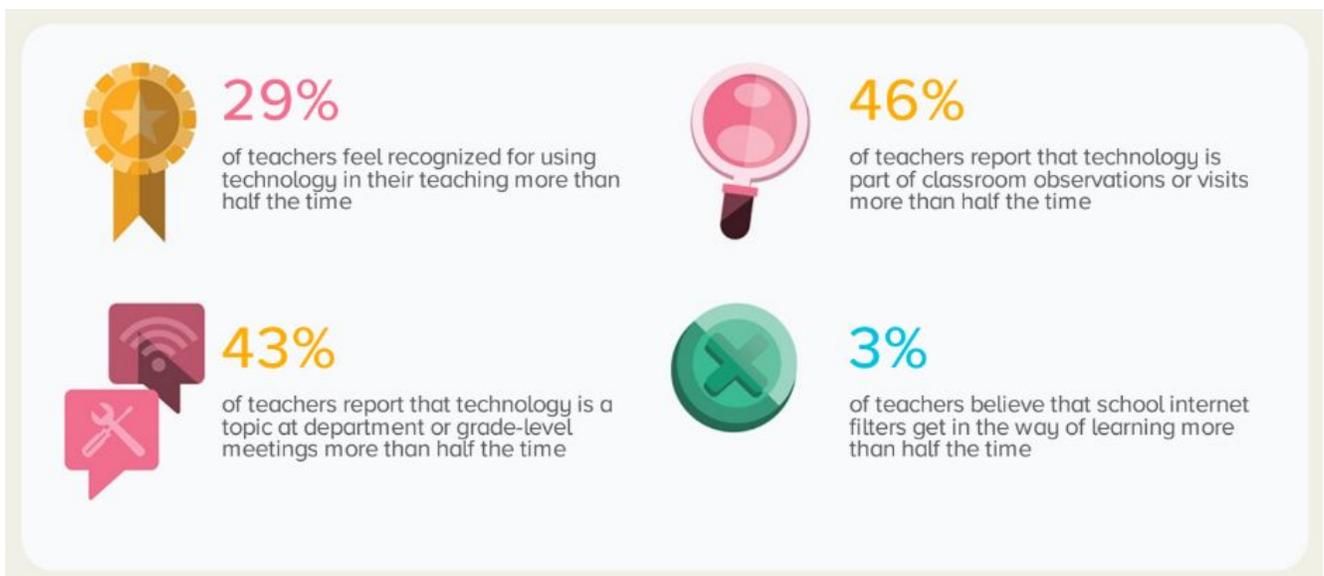
(Data from AMDSB 2018 survey)

High quality, speedy technology support is a prerequisite environmental factor needed to cultivate classrooms that support 21st Century Learning.

## Supervisory Report

Effective leadership and supportive policies can greatly impact the learning environment. In schools that support modernized learning, leaders regularly engage teachers in observations, class visits, and discussions about best practices for teaching with technology.

Rewarding and acknowledging teachers' use of new technologies is a critical piece of the puzzle. Approximately a third of teachers feel recognized for using technology in their teaching more than half the time.



(Data from AMDSB 2018 survey)

Creating an environment that supports and acknowledges teachers for their efforts with new technologies is necessary for transformational learning to happen system-wide.

# Highlights of Domain Reports



Classroom

**Classroom:** Explore how teachers and students use technology for learning.

Why this matters...

*“One of the most potentially powerful tools is in-class formative assessments that provide real-time feedback on what students know and understand” (Bushweller, 2014).*

*Digital communication increases student engagement by connecting them with a broader “real world” audience and encouraging collaboration, (Purcell et al., 2013).*

*Students in one study agreed that the “diversity and creativity” offered by working in peer groups far outweighed that which is attainable when working alone, (Chao & Lo, 2011).*

*Collaboration and messaging on Google docs or other messaging technologies allow teachers to sustain shared synchronous teacher-student interactions that facilitate an in-depth understanding of student needs, (Velasquez et al., 2013).*

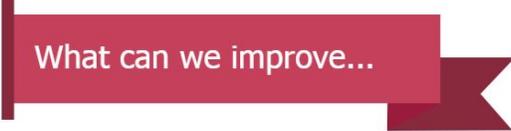
What we are doing well...

Teacher reported frequency of use of technology in the classroom:

- 47% ask students to conduct research at least weekly
- 71% report that they use assistive technology at least weekly
- 69% report that they use online video content weekly or at least monthly
- Most teachers post course materials online, with an increase from junior to intermediate grades (gr. 6 teachers = 47%, gr. 7 teachers = 67%, gr. 9 teachers = 81%)

Student reported frequency of the use of technology in the classroom:

- Frequency of almost daily, increases from 59% in gr. 6 to 92% in gr. 7
- Students report collaborating online with classmates at least weekly, increase from 24% in gr. 6 to 45% in gr. 7
- Use of an online space for documents at least weekly, increase from 47% in gr. 6 to 69% in gr. 7
- Conduct research at least weekly, increase from 41% in gr. 6 to 79% in gr. 7



What can we improve...

With respect to classroom practice, teachers report the following:

- 55% report that they do not ask students to receive feedback from peers and 82% report that they never ask students to get feedback online from someone other than them
- 87% say that never ask students to use chat or video chat applications
- 67% report that they never ask their students to write online (52% of teachers in gr 7 as compared to 75% of teachers in gr. 11 courses never ask students to write online)
- 68% of teachers report that they never ask students to create animations, models or simulations
- 59% report that they do not teach or spend less than one hour per year teaching their students about creating an online presence and/ or using social network platforms for learning
- 51% report that they do not teach or spend less than one hour per year teaching their students about legally using web content
- 80% report that they have a medium to very high knowledge of how to recognize and prevent cyberbullying, yet 49% of teachers report that they do not teach or spend less than one hour per year teaching about prevention of cyberbullying
- 91% say that they have a medium to very high knowledge of online safety, yet 45% of teachers report that they do not teach or spend less than one hour per year teaching about online safety

## Access: Understand the availability of devices and Internet access at home and at school.



Access

### Why this matters...

*“Over 70 percent of technology leaders report that if their school or district had adequate internet connectivity, the use of multimedia digital content including videos within instruction would increase” (Project Tomorrow, 2014).*

*“Access to high-quality computers enhances a teacher’s ability to design and execute 21st century learning” (Grunwald and Associates, 2010).*

*Low-quality technology prevents teachers from taking risks and experimenting with transformative learning” (Purcell et al., 2013).*

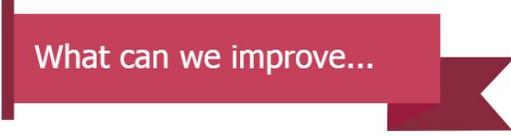
*Studies have shown that students in a classroom where the instructor uses interactive presentation methods perceived better comprehension of the presented concepts than in traditional lecture classes (Robles, 2014).*

*Studies show that increased levels of access to computers, namely in 1:1 programs, result in increased attendance rates and a decline in school-wide discipline problems (Holcomb, 2009).*

### What we are doing well...

Students and teachers report the following in terms of access to technology and internet:

- 97% of students and 100% of teachers have access to the internet at home
- 91% of students and 97% of teachers have access to a device at home
- 91% of teachers report that school provides an online site for classes
- 86% of teachers report that their school/district provides an online repository for files
- 100% of teachers report that their school or district provides a system for entering and viewing Individual Education Plans (IEPs)



## What can we improve...

Teachers reported the following with respect to internet speed and device quality:

- 35% report that the quality of internet speed at school is Excellent or Above Average
- 47% say the quality of devices at school is average and 26% of teachers say devices at school are below average

Skills



Skills: Measure the levels of teacher and student foundational, online and multimedia skills.

Why this matters...

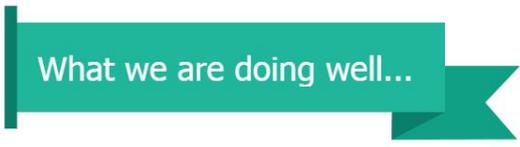
*“Frequent technology users place considerably more emphasis on developing students’ 21st century skills - specifically, skills in accountability, collaboration, communication, creativity, critical thinking, ethics, global awareness, problem solving, and self-direction. They also have more positive perceptions about technology’s effects on student learning of these skills - and on student behaviours associated with these skills” (Grunwald and Associates, 2010).*

*“Tools such as message boards and chat rooms allow teachers to shift from being transmitters of knowledge to facilitators of learning. These synchronous and asynchronous discussions allow students to take charge of their learning and its trajectory (Wardlow, n.d.).”*

*“To prepare for higher education, careers, and lifelong learning, students need instruction on how to collect information and rearrange facts, especially when research encompasses more than the skills needed to search an online database or Google “(Kovalik, 2012).*

*Establishing internal social networking platforms improves collaboration, peer-to-peer relationships, increased information sharing, and data storage (Miller-Merrell, 2012).*

*Shared online documents allow students to communicate more openly on a personal level, providing teachers with a rich source of data to help them know students and their non-academic needs (Velasquez et al., 2013).*



## What we are doing well...

### Teacher Foundational Skills:

- 100% report ease in sending an email
- 72% report ease in attaching a printer
- 67% report ease in creating a spreadsheet
- 70% can find a solution to a tech-related problem
- 70% report that they can learn technology easily
- 70% report ease in downloading and installing software
- 71% report ease in collaborating using online documents

### Student Foundational Skills:

- 80% report that they can learn technology easily
- Students increasingly send text messages and view photos/videos online at a higher frequency rate as they get older
- Students increasingly use the internet to research a topic and rarely go to a library
- 87% of students report that they can collaborate using online documents very easily or easily



## What can we improve...

### Teacher Foundational Skills:

- 66% of teachers report that they rarely or never ask questions in online networks to research a topic
- 50% of teachers report that they never write online
- 58% of teachers never participate in webinars

## Student Foundational Skills:

- More than half of our students report that it is moderately difficult, difficult or impossible to create a spreadsheet, this does lessen as students move through the grades)
- Students report that they rarely use online networks (gr. 6 = 41%, gr. 12 = 68%)
- 59% of students report their frequency of writing online as never

Environment: Support policies, procedures, culture, and professional development and technology needs.



### Why this matters...

*“Just in time’ tech support builds teachers’ confidence and can transform instruction because teachers worry less about loss of instructional time” (Burns, 2012).*

*“Teachers noted that the strongest barriers preventing other teachers from using technology were their existing attitudes and beliefs toward technology, as well as their current levels of knowledge and skills” (Ertmer et al., 2012).*

*“When teachers discuss technology use during faculty meetings, observations, and department meetings, they’re more likely to believe that it’s valued within the school culture” (Richardson & Mancabelli, 2011).*

*A key aspect to successful integration of technology in school is a “culture that promotes technology use and the adoption of new teaching practices” (Moeller & Reitzes, 2011).*

*Students are more interested in using technology when it is tied to the curriculum and when apps and access to the internet are integrated in meaningful ways (Crichton et al., 2012).*

### What we are doing well...

- 73% of teachers report that the quality of support for problems disrupting instruction is average, above average or excellent
- 65% of teachers report that the quality for instructional technology planning is average, above average or excellent
- 73% of teachers report that the quality of support for hardware repair is average, above average or excellent

- 74% of teachers report that the speed of support for answers to routine questions is within 24 hours
- 69% of teachers believe that technology use can enhance student learning
- 91% of teachers believe that their school encourages technology use for teaching and learning.
- 72% of teachers want to learn more about effective technology use for teaching and learning.

Teachers are interested in the following Professional Development topics:

- 51% would like online tools for developing critical thinking
- 44% would like to develop their multimedia skills
- 33% would like tools to develop online collaboration
- 32% would like support with Classroom Management with Technology
- 62% of all students strongly agree or agree that technology enhances their learning (gr. 6 = 41%, gr. 7 = 74%, gr. 8 = 66%, gr. 9 = 54%)
- 69% of all students strongly agree or agree that their school encourages the use of technology for teaching and learning (gr. 7 = 77%, gr. 8 = 76%, gr. 9 = 69%, gr. 10 = 64%, gr. 11 = 62%, gr. 12 = 62%)
- 53% of all students strongly agree or agree that learning is more engaging when using technology, (gr. 7 = 63%, gr. 8 = 60%, gr. 9 = 46%, gr. 10 = 44%, gr. 11 = 49%, gr. 12 = 56%)



What can we improve...

Teachers rarely feel rewarded for integrating technology into teaching. As students transition from grade to grade, the level of school technology decreases and the number of obstacles increase (e.g., School technology isn't good enough (28%) & School rules limit my technology use (25%)).

- 61% of teachers report that they discuss use of technology at grade-level or department meetings less than half the time, rarely or never
- 69% of teachers report that they are rewarded for integrating technology into teaching less than half of the time, rarely or never
- 42% of teachers report that the speed for support for instructional planning happens in one week, longer than one week or unobtainable

# Highlights of Responses to Open-Ended Questions

## Grade 6 Student Responses (n=688)

Currently do you use your own personalized device at school?

Response	Number of Students
No, I do not use a personalized device at school.	150
Yes, I do use a personalized device at school. (*data may suggest that many students have confused personal device with school provided iPads/Chromebooks)	137

What type of device do you use? What do you use it for?

Type		Number of students
iPad	<i>I use my iPad for:</i>	<b>125</b>
	School work/Learning	47
	Research/Projects	27
	Google Suites	16
<b>Computer (Laptop or Chromebook)</b>		<b>17</b>
<b>Phone</b>		<b>12</b>

How excited are you to receive an iPad in grade 7?

Of the grade 6 students who completed the survey 75% are excited, very excited or extremely excited to receive an iPad in grade 7.

Please explain why you are or are not excited about receiving an iPad?

<b>I am excited...</b>	
To be able to take the device home	58
Because I won't have to share a device	22
Because it helps with learning	69
Because I do not have another device at home	12
<b>I am not excited because...</b>	
I already have one	22
I would rather have another device	11
It is too much responsibility	9
Other	23

You will be receiving an iPad in grade 7. How do you think it will be used?

<b>Response</b>	<b>Frequency</b>
School Work/Learning	183
Appropriate Use/Good Digital Citizenship	38
Subject-based Responses (e.g., Language, Math)	7

How has technology been most useful for your learning in the past? How can technology be most useful for your learning in the future?

Response	Past	Future
Research/Projects	96	74
School work/Learning	67	88
Accessibility	59	25
Subject-based Responses (e.g., Language, Math)	7	20
Don't know	12	29

Are there challenges or barriers to your use of technology at school? Please explain.

Response	Frequency
No Issues	128
Access issues (Wifi connectivity)	21
Policy issues (Filters, cannot download, use apps, play games or listen to music)	20
Hardware issues (Device age)	13
Time (Can only use them for a certain amount of time)	12
Choice of device (Prefer a computer)	7
Not allowed to take it home	6
Not enough devices for everyone in my class	6

## Grades 7-10 Student Responses (n=2987)

How well do you believe technology furthers your development of competencies?

- 47% of students in gr. 7-10 believe that the use of technology for learning helps them to develop their communication skills extremely well or very well.
- 44% of students in gr. 7-10 believe that the use of technology for learning helps them to develop their problem solving skills extremely well or very well.
- 44% of students in gr. 7-10 believe that the use of technology for learning helps them to develop their creativity skills extremely well or very well.
- 36% of students in gr. 7-10 believe that the use of technology for learning helps them to develop their critical thinking skills extremely well or very well.
- 35% of students in gr. 7-10 believe that the use of technology for learning helps them to develop their collaboration skills extremely well or very well.

How do you most commonly use your iPad at school?

Response	Frequency
School work/Learning	232
Research/Projects	202
I don't use it	132
Google Suites	120
Subject-based Responses (e.g., Language, Math)	105
Learning Management System (Google Classroom/Showbie/organization)	102
Games/Social	25
Calculator/Knowledge Hook	24
Netflix/YouTube	20
I don't Have One	17
Creativity	13

Are there challenges or barriers to your use of the iPad at school?

Response	Frequency
No issues	504
Access and Hardware issues (Device age and Wifi speed)	276
Policy issues (Blocked Apps/Sites)	48
Choice of device (Would prefer a Computer)	31
Would like a keyboard	24
Not allowed to play games	20
Distractions	18
Teachers won't let us use them when someone does something wrong	17
Not allowed to take it home	11
Gives me headaches/makes my eyes hurt	10
Teachers don't understand how to use technology effectively	8
Teacher/EA won't let me use mine	7

Are there additional ways that you feel your iPad could be used to support your learning? If so, please explain.

Response	Frequency
Have everything I need/like it the way it is/positive experience	60
We overuse/don't like them/don't help me learn/should get rid of them	57
More apps and flexibility of how they are used	43
Newer version/model	36
Choice of device	24
Would like a keyboard	10
I don't use it/don't have one	10

## Grades 11-12 Student Responses (n=992)

How well do you believe technology furthers your development of competencies?

- 45% of students in gr. 11-12 believe that the use of technology for learning helps them to develop their communication skills extremely well or very well.
- 42% of students in gr. 11-12 believe that the use of technology for learning helps them to develop their problem solving skills extremely well or very well.
- 41% of students in gr. 11-12 believe that the use of technology for learning helps them to develop their creativity skills extremely well or very well.
- 37% of students in gr. 11-12 believe that the use of technology for learning helps them to develop their critical thinking skills extremely well or very well.
- 36% of students in gr. 11-12 believe that the use of technology for learning helps them to develop their collaboration skills extremely well or very well.

How has technology been most useful for your learning in the past?

Response	Frequency
Development of Skills (Communication, Collaboration)	95
Research/Projects	87
It has not been helpful	72
Subject-based Responses (e.g., Language, Math)	70
Learning Management System (Google Classroom/Showbie/organization)	68

How can technology be most useful for your learning in the future?

Response	Frequency
Research/Projects	98
School work/Learning	51
Work place	39
Better internet	38
Post-Secondary Education (College / University)	19
Development of skills (Communication, Collaboration)	17
Choice in device	15
Google Suites	8

Are there challenges or barriers to your use of technology at school? Please explain.

Response	Frequency
No barriers	210
Access issues (Wifi connectivity)	135
Hardware issues (Device age)	81
Teachers don't understand how to use technology effectively	34
Choice of Device (Students prefer to use own devices/phones, but are not allowed)	27
Policy issues (Some websites, apps are blocked)	14
Students prefer to use paper/avoid technology use	12
Distractions	12

Currently, do you use your own personalized device at school? What type of device do you use?

<b>Response</b>	<b>Number of Students</b>
No, I do not use a personalized device at school.	75
Cell phone	310
Computer (Macbook, Chromebook)	271
iPad	52
iPod	5

## Teacher Responses (n=330)

How well do you believe technology furthers development of competencies?

- 67% of teachers strongly agree or agree that use of technology supports students' development of collaboration.
- 61% of teachers strongly agree or agree that use of technology supports students' development of communication.
- 59% of teachers strongly agree or agree that use of technology supports students' development of creativity.
- 49% of teachers strongly agree or agree that use of technology supports students' development of problem-solving.
- 42% of teachers strongly agree or agree that use of technology supports students' development of critical thinking.

What are the challenges or barriers to use of technology at school?

Response	Frequency
Access and internet issues	57
Policy issues	31
Hardware issues	28
Choice of devices	18
Mental health concerns	12
Training	11
Distractions/Students not taking responsibility	9
Money	6
Time	5

## What top themes have emerged?

Considerable feedback about the following:

- Access to the devices within the school, as well as access to the internet in a reliable way for students at the school and also outside of the school
- Distractions - students having difficulty managing their access or choice of activity on the devices, especially during class time
- Hardware issues - difficulties with the devices being too slow, too old, or ill-suited for the types of classroom tasks that people want to do with their students, or inability for the devices to run software that people want to use

What other professional learning would be beneficial to support the use of technology in your classroom?

- Google suites
- Subject and content specific use of technology
- Using technology for accessibility
- Using technology for assessment
- Digital citizenship/appropriate use
- Support of another educator

# Recommendations of Next Steps for AMDSB

## Bridging the Belief-Practice divide:

How do we support teachers as they move from simply believing in the power of technology to leveraging it in the classroom? Though teachers believe in the benefits of the use of technology, many often also struggle to turn these beliefs into changes in the classroom.

- Have system and school leaders examine their technology habits.
- Have system and school leaders model technology use and learning of new technologies for teachers.
- Determine system expectations for technology use, the core skills school leaders and teachers will need to successfully use technology to support teaching and learning, and the resources available to help.
- Create long-term goals for system and school technology use.
- Leaders recognize best practices.

## Prioritizing Professional Learning Needs

How can we use our data to identify professional development needs? Teachers consistently name professional learning as a top reason why they struggle to integrate technology in their classrooms. However, adding more professional development is not the solution; the quality and relevance matter greatly.

- Drive professional learning based on areas of need as revealed in the survey and build capacity with teachers to use digital tools effectively and to develop the following skills within their students:
  - Critical Thinking
  - Communication
  - Collaboration
  - Creativity
  - Problem Solving
  - Literacy skills
  - Numeracy skills
- Support teacher learning in:
  - How to leverage technology in assessment for and as learning practices and to provide descriptive feedback to students
  - The use of assistive technology for students with special education needs

- Develop professional learning tools (videos, infographics) that support teacher acquisition of technology skills and pedagogical practices.
- Offer a summer boot camp or induction workshop for teachers.
- Gather ongoing data to identify areas in which teachers want and need professional development throughout the year.

## Enhancing Multi-Media and Online Skills

How can we enhance teachers' and students' online and multimedia skills? Data analysis shows that teachers are generally weaker in online and multimedia skills than their students. Because skill gaps can lead to reluctance to experiment, closing the void can have a huge impact on classroom technology use.

- Develop a continuum of skills related to the use of technology that we would like students to be able to do by the time they graduate.
- Share information gathered in this survey with teachers, system and school leaders to identify how skill gaps might affect how they use technology in the classroom.
- Generate a list of additional skills that teachers should develop confidence in to integrate technology at a larger scale.
- Select a few skills from the list to focus on, considering the potential impact on students, the size of the gap, and appeal to teachers.
- Create a differentiated plan to address each skill by arranging for formal professional learning sessions, online tutorials or identifying educators in every school willing to teach peers about these topics.
- After each session, provide teachers with a step-by-step reference guide related to the concept taught.
- As technology use evolves, revisit the list of skills and adjust training options accordingly.
- Support teacher learning to maximize use of technology to provide opportunities for students to solve authentic problems (e.g., animations, models, simulations).

## Embedding Digital Citizenship into Daily Learning

How can we incorporate digital citizenship into everyday classroom conversations? Increasingly, digital citizenship skills are as integral to college and career success as academic knowledge. Intertwining digital citizenship into everyday instruction makes learning stickier and more authentic.

- Highlight and make connections to citizenship and online safety in existing curriculum.
- Create and collate a variety of resources for teachers to use to develop citizenship with their students.

## Infrastructure

Teachers are significantly more likely to integrate technology into their classrooms if they know that they can count access to high-quality tools and support. To ensure that the infrastructure in our schools is sufficient, we need to:

- Involve Teachers and Students in Purchasing Decisions.
- Strategically augment capacity and performance of wireless access across the system.
- Review expectations around longevity of device-life.

## Committee Recommendations

The technology-enhanced innovations discussed here are meant not just to strengthen teaching and learning overall, but to help reduce the achievement gaps by ensuring that all students have access to powerful educational resources that can be customized to meet their learning needs. The following next steps have been identified during consultation with the cross-department committee that reviewed the survey data:

- Continue support for the one-to-one initiative in grades 7 to 10.
- Incorporate survey data into school and board improvement plans.
- Communicate progress and results of the survey to stakeholders.
- Review and connect results from the survey with other strategic initiatives in the district (e.g., OurSchool Survey, Student Engagement Conference) to develop coherence.
- Create a steering committee to develop an AMDSB Communication Plan that outlines system beliefs and expectations pertaining to the use of technology for learning.
- Establish interdepartmental meetings between departments to align supports for schools.

## Budget Considerations

Funding to implement the recommended next steps would be required as follows:

- Improved capacity and coverage by upgrading to 802.11ac Wave 2 standard access points (review data to determine need by school).
- Improved POE switches (review data to determine need by school).
- Additional human resource support (rethink and restructure current supports in Program and IT Departments).
- Device commitment for grade 7 students.
- Improvements to sustain longevity of devices.

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