

**YOUNG
CANADIANS
IN A WIRED WORLD**

Experts or Amateurs? Gauging Young Canadians' Digital Literacy Skills

Young Canadians in a Wired World, Phase III
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Written for MediaSmarts by Valerie Steeves, Ph.D.

Research Firm: Directions Evidence & Policy Research Group



950 Gladstone Avenue, Suite 120
Ottawa, ON Canada K1Y 3E6
info@mediasmarts.ca
mediasmarts.ca
[@mediasmarts](https://www.instagram.com/mediasmarts)

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Young Canadians in a Wired World, Phase III: EXPERTS OR AMATEURS? GAUGING YOUNG CANADIANS' DIGITAL LITERACY SKILLS

Introduction

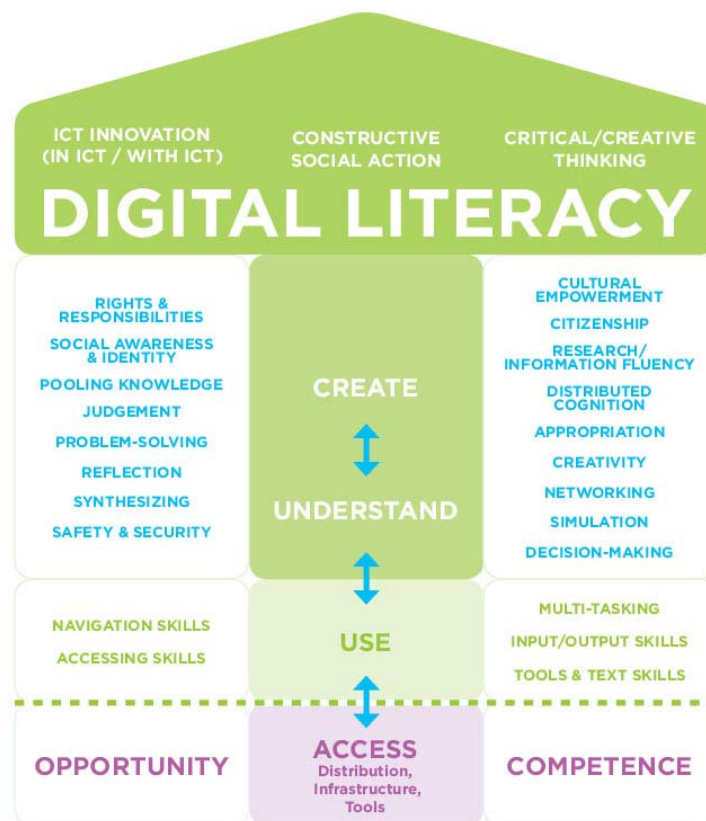
Pundits often suggest that young people who have grown up with networked devices – the “digital natives” who were born after 2000 – have a natural facility with digital media that positions them as technology experts and innovators. Even toddlers who effortlessly learn how to navigate smart phones and tablets are assumed to be more technologically savvy in ways that their parents will never be. Certainly, young people as a whole have enthusiastically integrated a variety of networked media into their daily lives, and can text, upload photos and blog with relative ease. However, using media effortlessly isn’t necessarily the same thing as using it well. In order for children to grow into thoughtful and informed digital citizens, it is crucial that they acquire the skills they need to critically evaluate the digital media in which they are immersed.

Digital literacy refers to the wide range of skills that enable young people to use digital technologies to better understand the world around them and to participate effectively in educational, cultural, civic and economic life. Although an ability to use technology is a foundational component, digital literacy requires more than just a comfort with software and apps and digital platforms and devices. It is built on strong critical thinking skills and an understanding of online rights and responsibilities.

MediaSmarts’ model of digital literacy¹ illustrates the many interrelated elements that fall under the digital literacy umbrella. These range from basic access, awareness and training to inform citizens and build consumer and user confidence, to highly sophisticated and more complex creative and critical literacies and outcomes. There is a logical progression from the more

¹ This figure is based on models from the Report of the Digital Britain Media Literacy Working Group. (March 2009), DigEuLit – a European Framework for Digital Literacy (2005), and Jenkins et al., (2006) *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*. <http://mediasmarts.ca/digital-media-literacy-fundamentals/digital-literacy-fundamentals>

fundamental skills towards the higher, more transformative levels, but doing so is not necessarily a sequential process: much depends on the needs of individual users.



For the purpose of this report we have grouped the digital literacy competencies identified by the students in the survey around the broad categories of “use”, “understand” and “create”, recognizing that “access” to broadband Internet and digital platforms and devices is the foundation and that the competencies build on one another and are interrelated and overlapping.

This report examines the results of a 2013 survey of 5,436 students in grades 4-11 living in all provinces and territories across Canada, which provides a snapshot of how digitally literate young Canadians are, the kinds of devices that are available to students in the classroom and the digital issues they would like to learn more about in school.

Experts or Amateurs? Gauging Young Canadians’ Digital Literacy Skills is the fourth in a series of reports that draw on the rich data collected and is part of MediaSmarts’ ongoing research project, *Young Canadians in a Wired World*.

Executive Summary

The public perception of children and teens as technologically savvy “digital natives” persists among adults, particularly parents, who are seen (often by themselves) as hopelessly out of their depth. How close this image is to reality is the question that MediaSmarts has tried to answer in this report, which examines students’ skills based on MediaSmarts’ model for digital literacy. The model illustrates the many interrelated elements that fall under the digital literacy umbrella. [<http://mediasmarts.ca/digital-media-literacy-fundamentals/digital-literacy-fundamentals>]

► Use as a Component of Digital Literacy

Use represents the technical fluency that’s needed to engage with computers and the Internet. Skills and competencies that fall under **Use** range from basic technical know-how – using computer programs such as word processors, web browsers, email and other communication tools – to the more sophisticated abilities for accessing and using knowledge resources, such as search engines and online databases, and emerging technologies such as cloud computing.

Access to the Internet and digital platforms and devices is fundamental to acquiring digital literacy skills.

- Canadian students are highly connected: access to the Internet from outside of school is universal at 99%.
- Access, however, is not evenly distributed:
 - Older students are more likely than younger students to access the Internet from home over portable devices such as laptops and cell phones, have networked devices in their classrooms or use technology to do their school work.
 - High affluence students are more likely than medium affluence students to have their own cell phone and to access the Internet outside of school over a variety of portable devices, including portable computers, MP3 players, cell/smart phones and game consoles.
- Most Canadian youth have at least a basic level of digital literacy with respect to the **Use** competencies:
 - Nearly all students use digital technology outside of school to engage in a wide range of activities using digital platforms such as social networks, video streaming sites and online games.
- A significant number of students have some level of advanced proficiency with respect to some activities, including:
 - tagging photos;
 - blocking unwanted people;
 - using privacy settings on social media sites; and

- bypassing school filters that block access to websites they want to visit.

The activities suggest that students may be more motivated to acquire advanced technical skills when doing so provides them with a direct benefit that affects them personally or socially.

- Students show a moderate ability to find information online:
 - 61% use more than one search engine.
 - 61% start a search over if they're not happy with the results.
 - Just over a third (35%) of students in grades 7-11 use advanced search engine tools.
 - 50% scan the full first page of search engine results before clicking on a link.

► Understanding Contexts, Evaluating Content

Understand refers to the set of skills that help us comprehend, contextualize, and critically evaluate digital media so that we can make informed decisions about what we do and encounter online. Overall, the survey findings give a mixed assessment of Canadian students' skills relating to the **Understand** aspect of digital literacy.

- The good news is that a large percentage of students of all ages attempt to verify online information:
 - 89% verify online information for school work.
 - 71% verify information that they are providing to a friend or family member.
 - 66% verify information that they are seeking for their own personal interest.
 - 60% verify information from an online news story, blog, etc.

The varying rates of verification suggest that young people are more likely to apply digital literacy skills when they see a likelihood of immediate consequences – when they will be graded, for example, or when friends or family members are relying on them.

- Interestingly, the number of students that verify online information for school work remains relatively stable across grades:
 - The rate rises from 82 percent in Grade 4 to 90 percent in Grade 5.
 - Between grades 6-11 the rate fluctuates between 87 percent and 93 percent.
- Students use a variety of methods to verify information they find online:
 - The most common verification strategies are to search inside a site that the student thinks is reliable and to look at other sources to see if they say the same thing (“triangulation”).
 - The next most popular method is to see if the source of the information is an expert in the field.
 - Half of the students check to see if the opinions on the site are backed up with facts that can be checked.

- Less than half of students conduct further research to see if others consider the source to be reliable and/or to confirm whether or not the site only shows one side of an issue.
- Teachers play an important role in recommending or confirming reliable sites for around one half of students:
 - Over half of students ask teachers which sites to use when looking for information or for advice on whether a site is a good one.
 - Grade 4 students are most likely to turn to a teacher for guidance (67%).

Other important aspects of the **Understand** competencies include the ability to make informed decisions and an awareness of the ethical implications of one's actions.

- Students express a limited amount of knowledge about the commercial aspects of the sites and platforms they use online:
 - 39% of students incorrectly think that companies are not interested in what they say and do online.
 - 68% incorrectly think that the presence of a privacy policy on a website means that the site will not share their personal information with others.
- Digital ethics are another area of concern:
 - 14% of Grade 11 students report that they use cell phones to cheat on tests at school.
 - 46% of students agree with the statement, "Downloading music, TV shows or movies illegally is not a big deal". Agreement rises from a low of 26 percent in Grade 6 to a high of 72 percent in Grade 11.

► **Creating Content and Contributing to Digital Society**

Create is the ability to produce content and effectively communicate through a variety of digital media tools. The ability to create using digital media ensures that Canadians are active contributors to digital society. Creation – whether through blogs, tweets, wikis or any of the hundreds of avenues for expression and sharing online – is at the heart of citizenship and innovation.

Unlike the study's appraisal of students' abilities to use and understand digital media, it didn't try to measure how skilled students are at creating digital content but *whether* and *how often* they do.

- A majority of students create some digital content fairly frequently. However, their content creation skills seem to focus mainly on their social lives:
 - Almost three quarters of students post comments or pictures on their own social network sites. One in six does this once a day or more.
- There is a small number of students who post creative content frequently, but the vast majority of students do so infrequently or not at all:

- 38% have posted a story or a piece of artwork that they have created themselves -- but of these only one in five does so at least once a year.
- Surprisingly, while YouTube is the number one most popular site among the students in our survey, only one third of students post video or audio files of themselves.
- 9% of boys post a video at least once a month compared to six percent of girls.
- A small percentage of students participate in public debate and activism online:
 - Although 29 percent of students in grades 7-11 have posted comments on a news site, only a small percentage do so on a regular basis.

► Filling the Gap – Where and How Students Learn Digital Literacy Skills

As well as appraising students' levels of digital literacy, the study examines the equally important questions of *how* they are learning digital literacy skills. Not surprisingly, parents and teachers are the most frequently reported sources of information about digital literacy skills, but it's interesting to see how students tend to learn *different* skills from each.

- Nearly all students (92%) say that they have learned how to search for information online:
 - Parents (47%) and teachers (45%) are the main sources for learning this.
 - Girls are much more likely to have learned from teachers (53% compared to 38% of boys). This is consistent with our finding that girls are more likely to ask their teachers for help with both finding and evaluating online information. But this is also concerning as it suggests that teaching information searching is not curriculum-based, but rather is only available to students with the interest and agency to ask for help.
- A large majority of students (80%) have also received instruction in evaluating and authenticating online information:
 - Half of these students have learned this from teachers (45%) but significantly fewer have learned from parents (37%).
- Students are more likely to say that their parents had taught them how to use privacy settings on social networks – a practical skill that might be seen as a safety concern – while teachers are a more common source for learning about how corporations collect and use personal data, a more abstract issue.
- Students are also most likely to turn to parents to learn about what is legal and illegal to do online.
 - Parents have an important role in helping students make ethical choices in this regard: for example, there is a direct correlation between families with household rules about downloading music, videos, TV shows, movies or software and the likelihood and frequency of students doing so illegally.
- When asked what they would like to learn more about in school, students were most interested in verifying online information:
 - 51% of students want to learn how to tell if online information is true.
 - 45% want to know what is legal and illegal to do online.

A third of students want to know how companies collect and use personal information, how to search for information online and how to use privacy settings.

The number of students who had learned digital literacy skills at school was nearly constant across grades, suggesting that these skills have not yet found a place in the curriculum and, when they are taught, occurs as a one-off rather than part of a larger digital literacy framework.

► Technology in the Classroom and School Filters

Another issue affecting students' education in digital literacy skills may be the role of technology in the classroom. Overall, relatively few students are able to use the portable digital devices that are ubiquitous in their lives, such as smart phones and MP3 players, in school. Even when these devices and platforms are available, they are mainly used for activities that are essentially the same as traditional classroom exercises. This means that there is less exposure to collaborative work and communication with others in the community, both of which are central features of the **Understand** competencies of digital literacy.

- A large number of students report that their schools have teacher-focused digital technologies, including class websites (72%), digital whiteboards (68%), computer labs (74%) and computers in the classroom (66%).
- A much smaller number are able to use their own digital devices such as laptops or netbooks (53%), tablets (31%), e-readers (27%) or cell/smart phones (25%). And only 29 percent say their teachers have ever used social media to help them learn.
- Those students who are allowed to use their own digital devices in class most often use them for traditional educational activities such as:
 - research (83%);
 - reading class material (51%);
 - using educational games and programs (42%); and
 - watching videos, listening to podcasts or reading websites for class work (40%).
- A much smaller number of students use their devices to communicate with other students inside the classroom (24%), with people outside of the classroom (16%) or to contribute to a class blog or wiki (19%).
- The survey explored if school filters are an obstacle to learning and if students can circumvent filters:
 - More than a third of students (36%) said that they have had trouble finding something they needed for their school work when using a school computer due to blocking or filtering software. (Older students are more likely to say this than younger ones).
 - One quarter of students say they are able to bypass school filters. Boys are more likely to report this than girls as are older students.

Use as a Component of Digital Literacy

According to MediaSmarts' model of digital literacy:

Use represents the technical fluency that's needed to engage with computers and the Internet. Skills and competencies that fall under **Use** range from basic technical know-how – using computer programs such as word processors, web browsers, email and other communication tools – to the more sophisticated abilities for accessing and using knowledge resources, such as search engines and online databases, and emerging technologies such as cloud computing.²

There is no question that most Canadian young people have at least a basic level of digital literacy with respect to the Use competencies.

Access to the Internet from outside of school is universal (99%) (Table 1), with few differences reported by boys and girls (Figure 1) or across grades (Figure 2). And a large percentage of students participate in a wide variety of activities across a variety of networked platforms (Table 2).

Table 1: Connecting to the Internet outside of school

How do you connect to the Internet when you are NOT at school?	Percentage
A desktop computer I share with my family (for example, in the kitchen or family room) ^{Grade}	50%
My own desktop computer ♂♀	22%
A portable computer (for example, laptop, Netbook, iPad) ♂♀ ^{Grade}	68%
A computer at the library or a community centre (for example, Boys and Girls Club)	6%
MP3 player (for example, iPod Touch) ^{Grade}	47%
Cell phone / smart phone ^{Grade}	45%
Game console (for example, Wii, Xbox, PlayStation) ♂♀ ^{Grade}	42%
I only go on the Internet when I'm at school	1%

² <http://mediasmarts.ca/digital-media-literacy-fundamentals/digital-literacy-fundamentals>

Figure 1: Connecting to the Internet outside of school: Gender

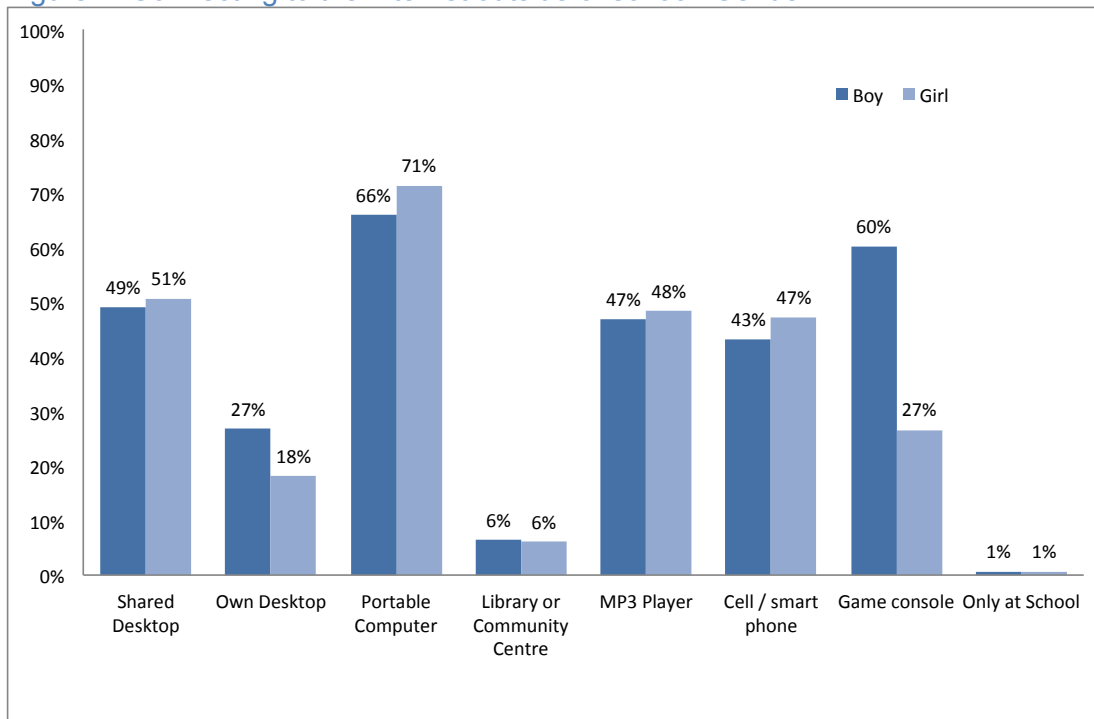


Figure 2: Connecting to the Internet outside of school: Grade

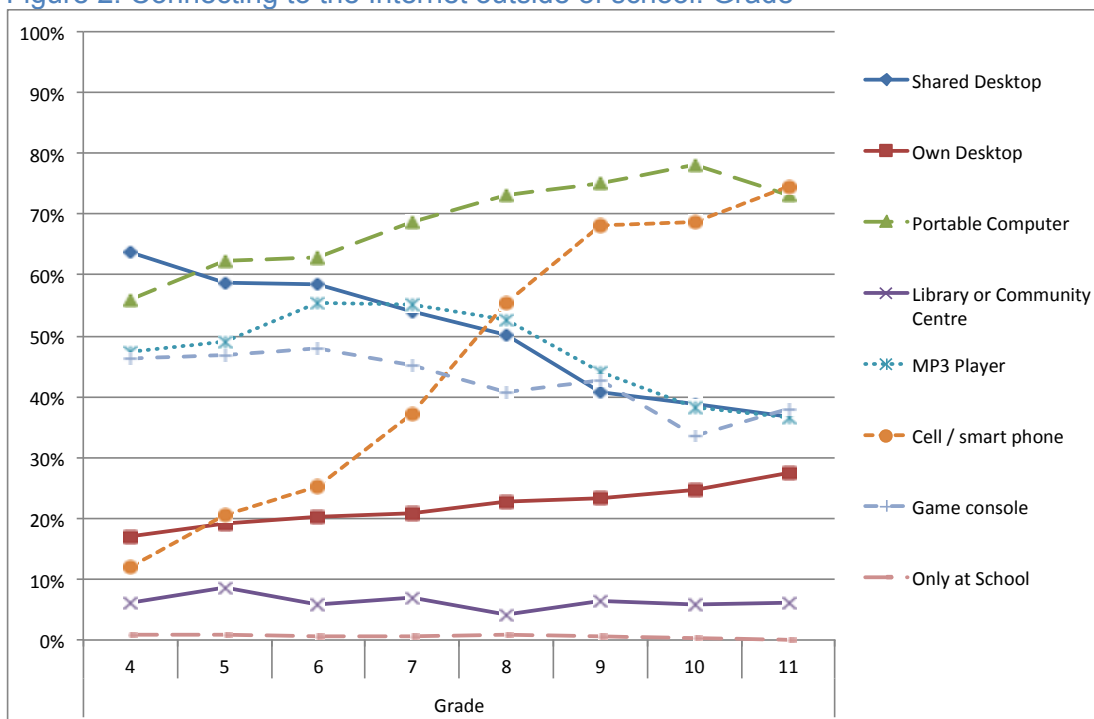


Table 2: What are students doing online?

Do you do the following things online?	At least once a day	At least once a week	At least once a month	At least once a year	Less than once a year	Never
Post comments or pictures on your own social network site (for example, your Facebook profile) ♂♀ ^{Grade}	17%	24%	20%	7%	4%	28%
Read or post on other people's social network sites (for example, Facebook) ♂♀ ^{Grade}	30%	22%	12%	4%	3%	28%
Post your own tweets on Twitter ♂♀ ^{Grade}	12%	9%	7%	3%	4%	66%
Follow friends or family on Twitter ♂♀ ^{Grade}	12%	9%	7%	4%	3%	65%
Follow celebrities on Twitter ♂♀ ^{Grade}	12%	8%	8%	4%	3%	64%
Download or stream music, TV shows or movies (grade 7-11 only) ♂♀ ^{Grade}	24%	27%	21%	8%	5%	15%
Post a story or artwork you created yourself ^{Grade}	3%	6%	9%	9%	11%	62%
Post a video or audio file of you doing something (for example, singing, dancing, how-to video) ♂♀ ^{Grade}	2%	3%	8%	9%	11%	67%
Post a video you made using music or clips you found online (for example, fan tribute, mash-up video) ♂♀ ^{Grade}	2%	2%	5%	6%	8%	78%
Post your contact information (for example, your home address, email) ^{Grade}	2%	3%	6%	7%	12%	71%
Post comments on news sites (grade 7-11 only)	3%	4%	6%	6%	9%	71%
Send people links to news stories or information about current events (grade 7-11 only) ^{Grade}	4%	10%	14%	11%	12%	50%
Join or support an activist group (for example, Greenpeace, Students Against Bullying, Free the Children) ^{Grade}	3%	4%	7%	10%	11%	65%

There are some differences, though, across grades, gender, language of instruction and level of affluence. For example:

- Although cell and smart phones are common, older students are more likely than younger students to have them (Figure 3).
- Boys (60%) are significantly more likely than girls (27%) to access the Internet through a gaming console (Figure 1).
- Older students are also more likely than younger students to access the Internet from home over portable devices such as laptops and cell phones (Figure 2), have networked devices in their classrooms (Figure 4) or use technology to do their school work (Figure 5).

The lower percentages of younger students who are accessing the Internet outside the classroom suggests that there may be a window to provide digital literacy education to them when they are not yet using networked devices with a high degree of independence.

The language differences are small:

- French language students in Quebec are more likely than English language students in the rest of Canada to use the Internet to find out about news and current events (58% compared to 49% of English language students).

Figure 3: Cell/Smart phone access: Grade

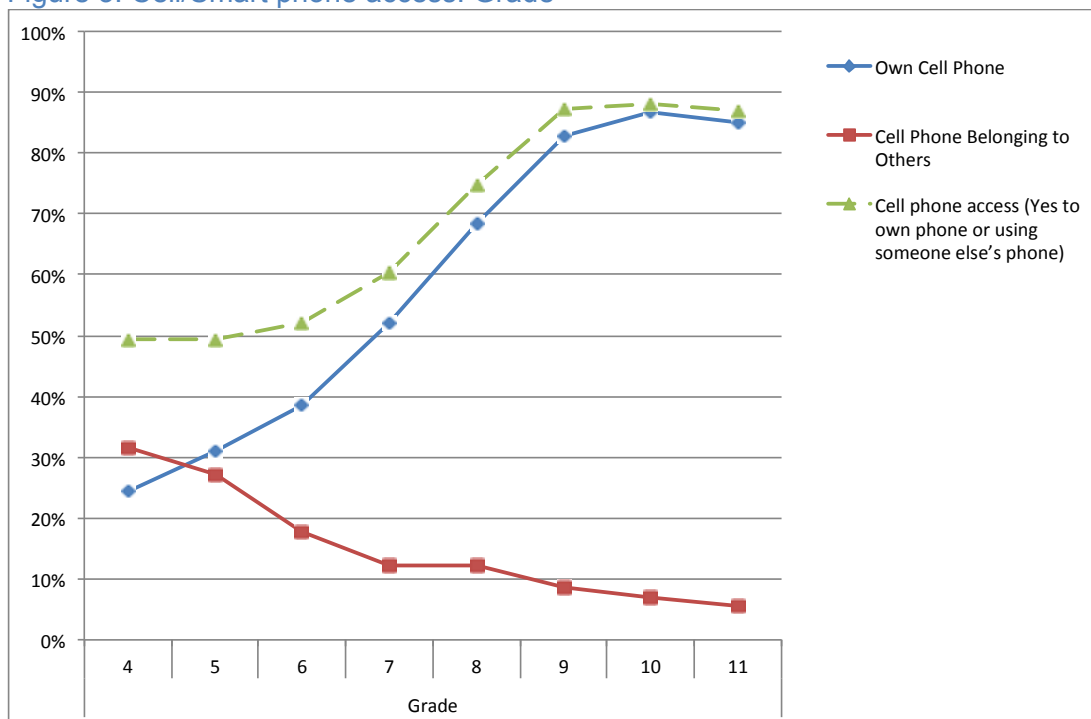


Figure 4: Devices allowed for use in the classroom: Grade

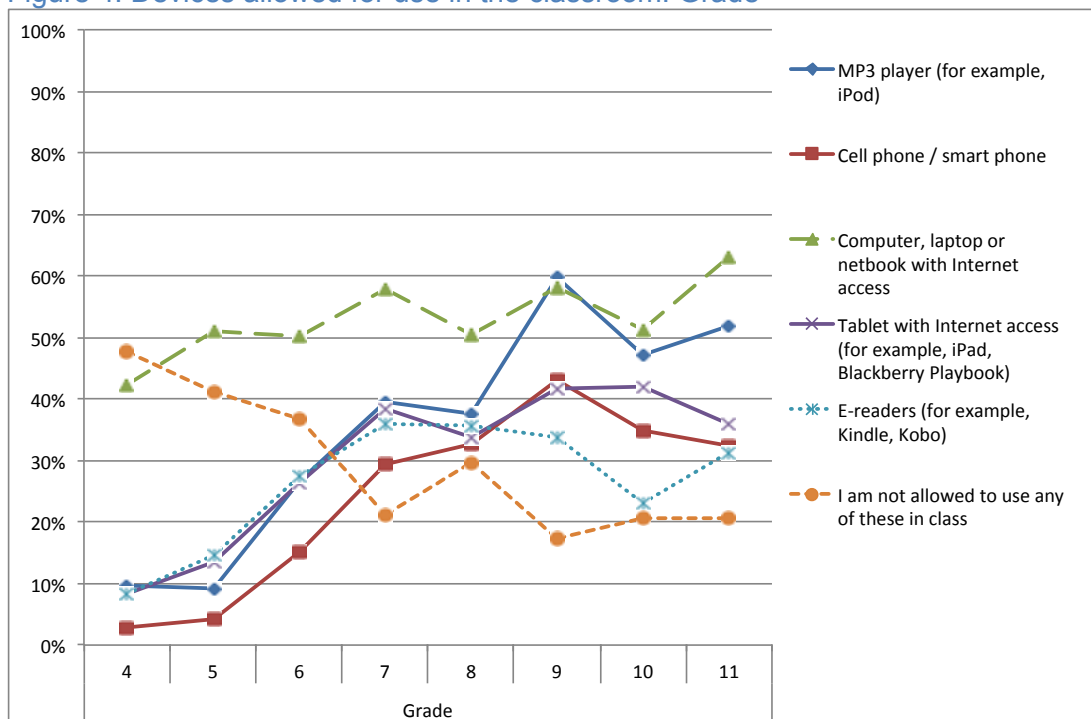
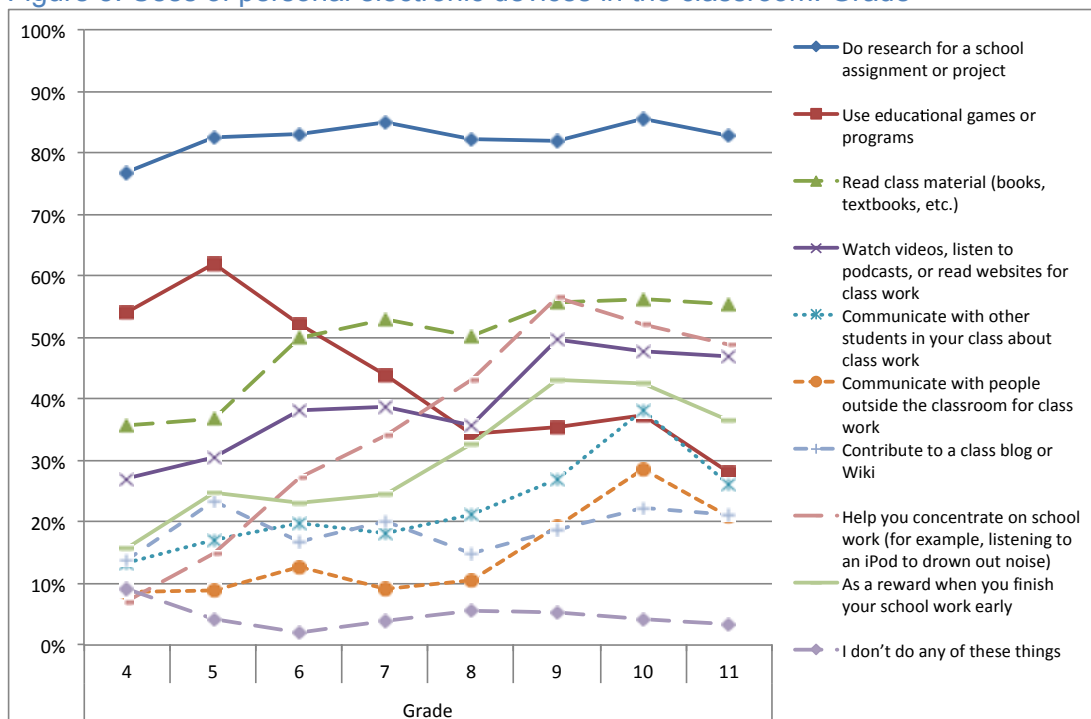


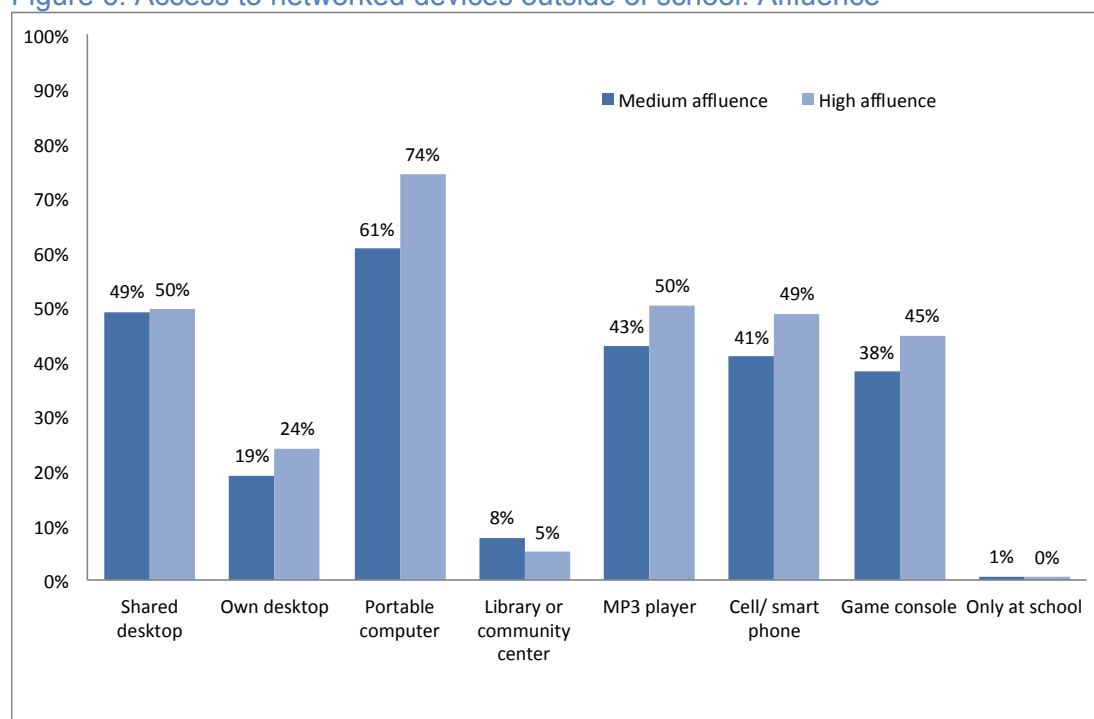
Figure 5: Uses of personal electronic devices in the classroom: Grade



The socio-economic gap is more worrying as it suggests that we may continue to have a digital divide issue in Canada.

- High affluence students are more likely than medium affluence students to access the Internet outside of school over a variety of portable devices, including portable computers, MP3 players, cell/smart phones and game consoles (Figure 6)³.
- They are also more likely to have their own cell phone (Figure 7) and have access to both the Internet and a variety of networked devices in school (Table 3).
- However, even though high affluence students are more likely to have phones in class, high affluence and medium affluence students tend to use them for the same kind of classroom activities.
- In addition, high affluence students are more likely to download or stream music, TV shows or movies at least weekly (53% compared to 48% of medium affluence students) or use the Internet to find out about sports (49% compared to 40% of medium affluence students).

Figure 6: Access to networked devices outside of school: Affluence



³ Note: Only two percent of the sample fell into the low affluence category. Because the numbers of students (65) in this category was so low, statistical comparison between the low affluence group and the medium and high affluence groups was not possible. Accordingly, students on the low affluence category were not included in the analysis of socioeconomic status, and the results reported in this report are based on a comparison of the medium and high affluence groups only.

Figure 7: Access to cell phones: Affluence

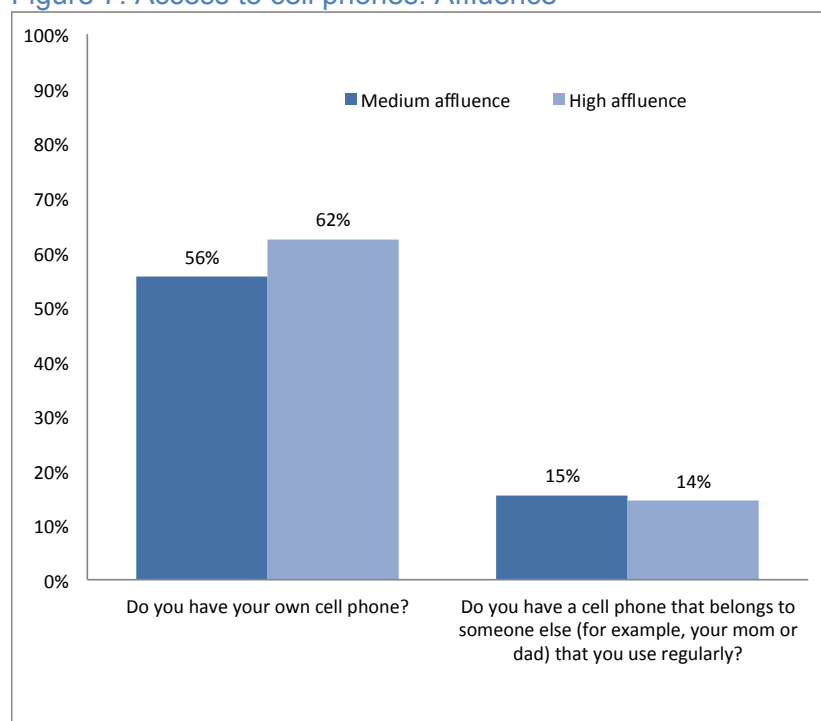


Table 3: Devices allowed in the classroom: Affluence

Are you allowed to use these in your classroom?	Medium affluence	High affluence
MP3 player (for example, iPod)	32%	39%
Cell phone / smart phone	20%	28%
Computer, laptop or netbook with Internet access	49%	56%
Tablet with Internet access (for example, iPad, Blackberry Playbook)	24%	35%
E-readers (for example, Kindle, Kobo)	22%	30%
I am not allowed to use any of these in class	33%	25%

Generally, the wide range of activities that students participate in supports the conclusion that most students have a basic technical fluency with digital media.

In addition, a significant number of students have some level of advanced proficiency with respect to tagging photos (Table 4), blocking unwanted people and using privacy settings (Table 5) on social media sites. It is significant, however, that these abilities relate to controlling or managing what information about them is seen by their friends, family and peers – something of obvious relevance to young people.

Accordingly, students may be more motivated to acquire advanced technical skills when doing so provides them with a direct benefit that affects them personally or socially.

Table 4: Responding to unwanted photos posted online

What would you do if someone posted a photo of you online that you did not want other people to see?	Percentage
I would untag the photo myself ♂♀ ^{Grade}	49%

Table 5: Using privacy settings to block someone from seeing your posts

Have you ever used the privacy settings on a social networking site (for example, Facebook) to block someone from seeing something you have posted online?	Percentage
Yes, I have blocked a friend ^{Grade}	31%
Yes, I have blocked my parent(s) or people in my family ^{Grade}	21%
Yes, I have blocked my teacher or principal ^{Grade}	4%
Yes, I have blocked strangers ♂♀ ^{Grade}	50%
Yes, I have blocked someone I stopped being friends with	20%
Yes, I have blocked my ex-boyfriend/girlfriend (grade 7-11 only) ^{Grade}	10%
Yes, I have blocked someone I know but I'm not friends with ^{Grade}	20%
I have a social networking page but I've never used the privacy settings	9%
Yes, I have blocked someone not listed here	14%
I do not have a social networking page ^{Grade}	23%

Students are less proficient when applying the **Use** skills that are required to finding information. Although a majority of students start a search over if they are not happy with the results (61%) or use more than one search engine (61%), only half scan the full first page of search engine results before clicking on an entry and only 35 percent use advanced search engine tools (Table 6). Girls are more likely to use more than one search engine (65% compared to 56% of boys) and to abandon a search and start over if the results are unsatisfactory (65% compared to 58% of boys), but boys are more likely than girls to use advanced search tools (39% compared to 32% of girls) (Figure 8).

The relatively high number of both boys and girls who use more than one search engine is surprising considering the dominant position of Google among students' favourite sites (number 3 overall) (Table 7) and the fact that no other search engine was listed among the top ten. (This could be explained by students using Google's many other products and services beyond its search engine.)

Students also appear to rely on Wikipedia as a source of information, particularly older boys (Table 8). While the popularity of Wikipedia among students is not necessarily cause for alarm⁴ (and may be in part due to the high ranking of Wikipedia articles in Google search results), the fact that several students in our 2012 focus groups described it as their primary source of information suggests that Canadian youth take a “satisficing” approach to many digital tasks: learning and applying only the minimal skills they consider essential to complete the task at hand.

Table 6: Strategies for searching for information online

When you are looking for information online, do you	Percentage Yes
Ask your teacher for sites you should use ♂♀ Grade	54%
Use more than one search engine to research the same topic ♂♀ Grade	61%
Use advanced search engine tools (for example, limiting a search to a particular time, particular site, filtering out adult content) (grade 7-11 only) Grade	35%
Search inside a site that you think is reliable Grade	75%
Scan the whole page of search results before clicking on anything Grade	50%
Start over with different search terms or a different source or search engine if you're not happy with the results of your search ♂♀ Grade	61%

⁴ Despite students often being told by teachers to not use Wikipedia, its open editing process actually provides an excellent opportunity for students to learn how information is verified by all publishers. In addition, Wikipedia’s policy of requiring citations to support claims and posting warnings when information has not been verified makes it a case study in verification. It is also an excellent model of collaborative knowledge creation and dissemination.

Figure 8: Strategies for searching for information online: Gender

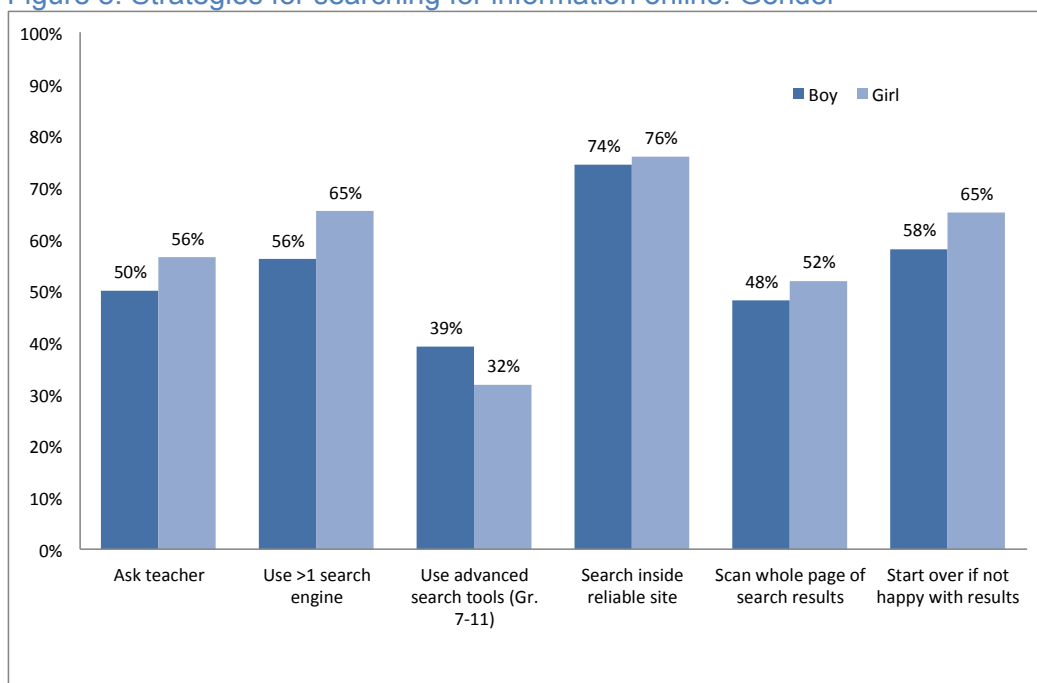


Table 7: Top 10 favourite websites: All respondents⁵

What are your five favourite websites?		
Site	Content	Percent of respondents
Youtube.com	Video sharing	75%
Facebook.com	Social networking	57%
Google.com	Search engine	31%
Twitter.com	Microblogging / Social networking	24%
Tumblr.com	Blogging / Social networking	12%
Instagram.com	Media sharing / Social networking	10%
Minecraft.net	Gaming	8%
Miniclip.com	Gaming	7%
Hotmail.com	Email	6%
Wikipedia.org	Reference	5%

⁵ Note: Because the question “What are your five favourite websites?” was open-ended, numbers in Tables 10, 11 and 12 will add up to more than 100 percent.

Table 8: Top 10 favourite websites grades 7-11: Gender

What are your five favourite websites: grades 7-11					
Boys (grades 7-11)			Girls (grades 7-11)		
Site	Content	Percent of respondents	Site	Content	Percent of respondents
Youtube.com	Video sharing	83%	Facebook.com	Social networking	77%
Facebook.com	Social networking	72%	Youtube.com	Video sharing	77%
Google.com	Search engine	40%	Twitter.com	Microblogging / Social networking	43%
Twitter.com	Microblogging / Social networking	24%	Google.com	Search engine	36%
Wikipedia.org	Reference	9%	Tumblr.com	Bloggng / Social networking	31%
Miniclip.com	Gaming	7%	Instagram.com	Photo / Video sharing / Social networking	21%
Tumblr.com	Bloggng / Social networking	7%	Pinterest.com	Photo-oriented discovery and collection	10%
Reddit.com	Social news and entertainment	6%	Hotmail.com	Email	8%
Minecraft.net	Gaming	5%	Netflix.com	Media streaming	5%
Hotmail.com	Email	5%	Wikipedia.org	Reference	5%

Understanding Contexts, Evaluating Content

The second component of MediaSmarts' model of digital literacy is *Understand*.

Understand is that critical piece – it's the set of skills that help us comprehend, contextualize and critically evaluate digital media so that we can make informed decisions about what we do and encounter online. These are the essential skills that we need to start teaching our kids as soon as they go online.

Understand includes recognizing how networked technology affects our behaviour and our perceptions, beliefs and feelings about the world around us.

Understand also prepares us for a knowledge economy as we develop – individually and collectively – information management skills for evaluating and effectively using information to communicate, collaborate and solve problems.

One essential element of the *Understand* competencies is the ability to verify online information.

The good news is that a large percentage of students of all ages attempt to verify online information when it is needed for school work.

Eighty-nine percent of students do this, compared to 71 percent who verify information that they are providing to a friend or family member and 66 percent who verify information that they are seeking for their own personal interest (Table 9). Students are least likely to try to verify something that they read in an online news story or blog (60%), or on a social media site such as Facebook or Twitter (56%).

Table 9: Verifying if online information is correct

Do you try to make sure that what you find online is correct when	Percentage Yes
You are looking for information for school work ^{Grade}	89%
You are looking for information for your own personal interest ^{Grade}	66%
You are looking for information for a friend or family member ♂♀, ^{Grade}	71%
You learn something through social media (for example, Facebook, Twitter) ^{Grade}	56%
You read an online news story, blog, etc. ^{Grade}	60%

The varying rates of verification suggest that young people are more likely to apply digital literacy skills when they see a likelihood of immediate consequences – when they will be graded, for example, or when friends or family members are relying on them – than when they are searching out online information for their own interests, or come across a story in the news or on social media.

Boys and girls verify information at similar rates in all contexts. The only exception is that girls are slightly more likely than boys to verify information that they find on behalf of a friend or family member (74% compared to 68% of boys) (Figure 9).

The number of students that verify online information for school work remains relatively stable across grades. It rises from 82 percent in Grade 4 to 90 percent in Grade 5, and fluctuates between 87 and 93 percent throughout grades 6-11. This contrasts with the number of students who verify information for other purposes, which starts lower and then rises across the grades. In Grade 11, verification for personal interest (79%) hits second place after school work (87%), with information for friends and family (77%) and social media (74%) close behind. Online news and blogs remain in last place (68%) (Figure 10). This suggests that, even though the youngest students in our survey are *aware* of the need to verify online information, older students are much more likely to use their verification skills in non-school contexts. It is possible that this is simply a reflection of the fact that older students are more likely to use the Internet to seek out information for non-school purposes (Figure 11) or it may be that older students are more likely to be accessing information that they consider important enough to verify.

Figure 9: Verifying if online information is correct: Gender

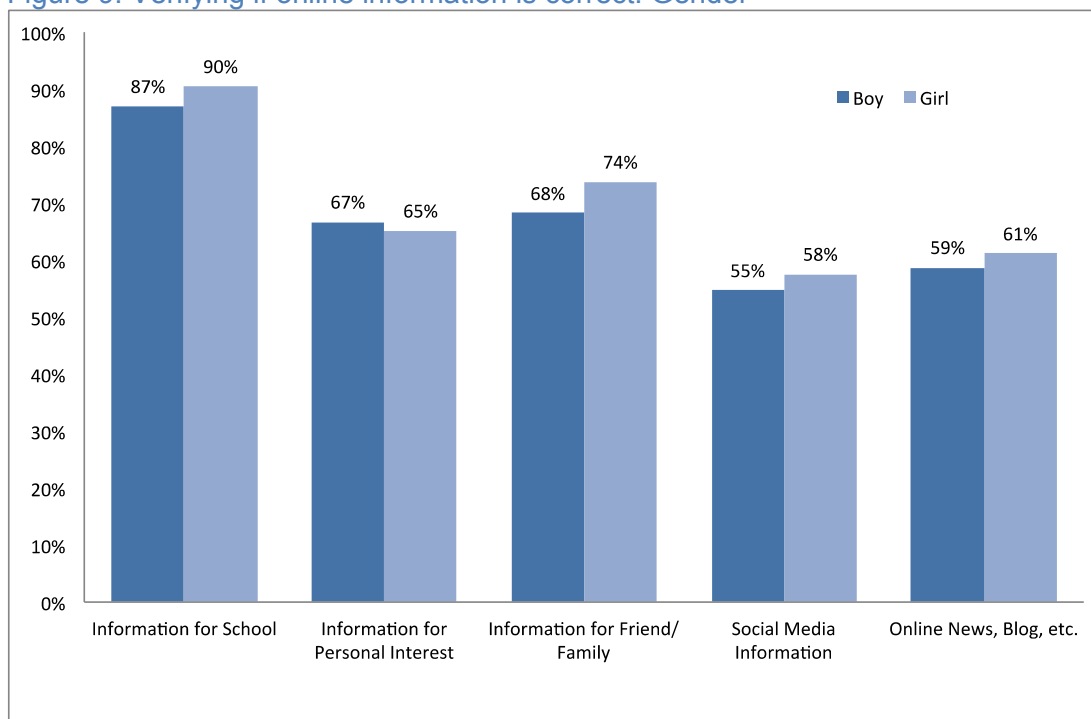


Figure 10: Verifying if online information is correct: Grade

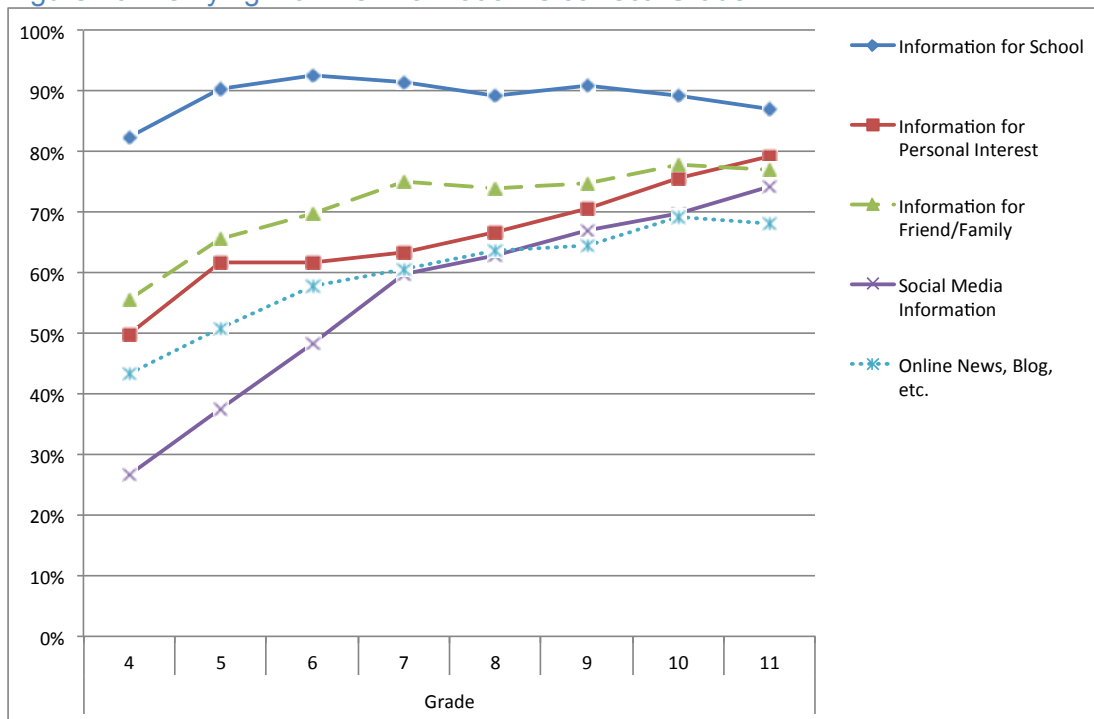
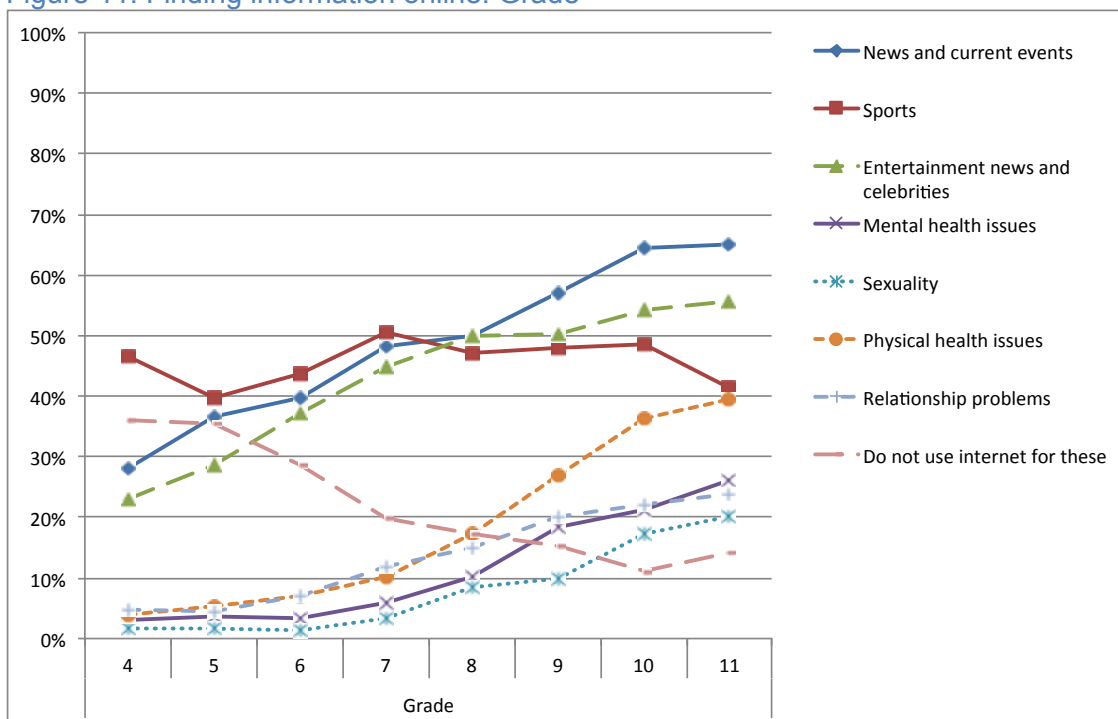


Figure 11: Finding information online: Grade



The most common verification strategies are to search inside a site that the student thinks is reliable (75%) and to look at other sources to see if they say the same thing (“triangulation”) (69%) (Tables 6 and 10).

Other common strategies include:

- Checking to see if the source of the information is an expert in the field (59%)
- Asking a teacher for sites to use when looking for information (54%) or for advice on whether a site the student found is a good one (54%)
- Checking to see if the opinions on the site are backed up with facts that can be checked (51%)
- Checking the date of publication or the date of the last update (50%)

A smaller number of students rely on other strategies, such as:

- Doing research to see if others consider the source to be reliable (44%)
- Checking to see whether or not the site only shows one side of an issue (44%)
- Finding out who pays for the site (18%)
- Checking to see if the site provides contact information (27%) (Table 10)

However, the gap between the number of students who search inside reliable sites or try to triangulate information and the number who use other strategies suggests that, similar to search strategies, many students rely on a minimalist or “satisficing” strategy when it comes to verification.

Table 10: Strategies for verifying if online information is correct

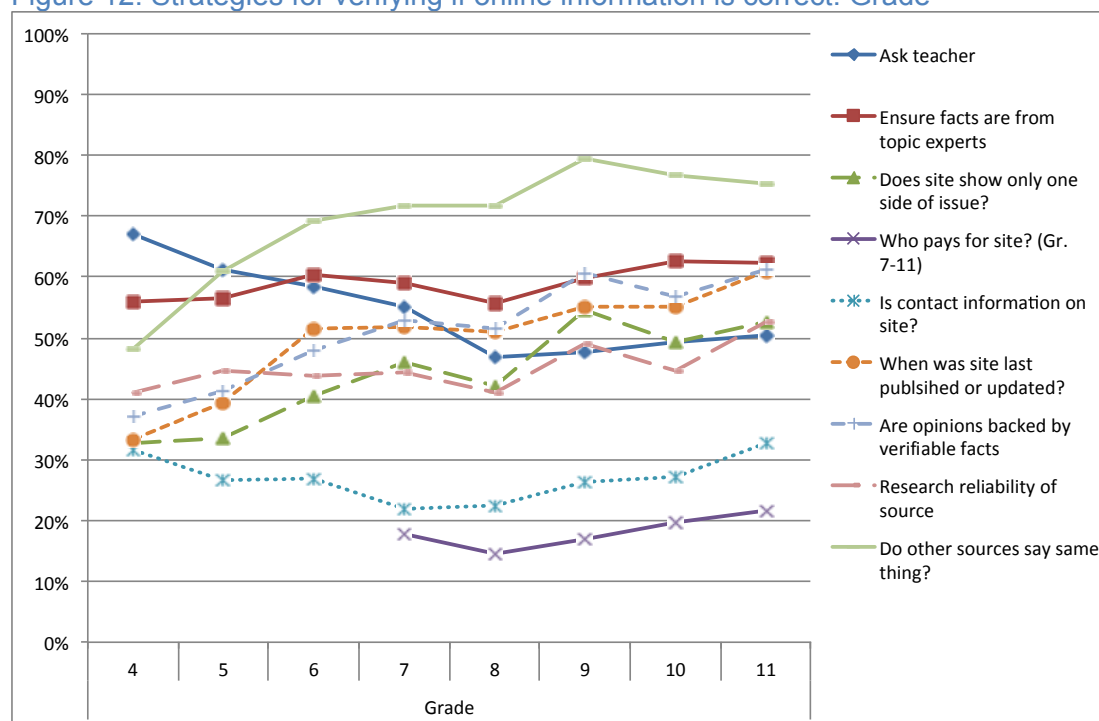
When you are deciding if online information is correct, do you do these?	Percentage Yes
I ask my teacher for advice on whether a site is a good site ^{Grade}	54%
I make sure that facts on the site are from experts on the topic ^{Grade}	59%
I look at whether the site only shows one side of an issue ^{Grade}	44%
I look at who pays for the site (for example, do a WHOIS search) (grade 7-11 only)	18%
I look to see if there is contact information on the site ^{Grade}	27%
I look to see when the site was published or last updated ^{Grade}	50%
I look at whether any opinions on the site are backed up with facts that I can check out ^{Grade}	51%
I do research to see if the source is considered reliable by other (example, googling the author) ^{Grade}	44%
I look at other sources to see if they say the same thing ♂♀, ^{Grade}	69%

Almost all verification strategies are more common among older students than among younger students. However, two strategies – checking to see if the source is an expert and looking for contact information on the site – tend to stay relatively stable across grades (Figure 12).

It is important to note that teachers play an important role in recommending or confirming reliable sites for around one half of students.

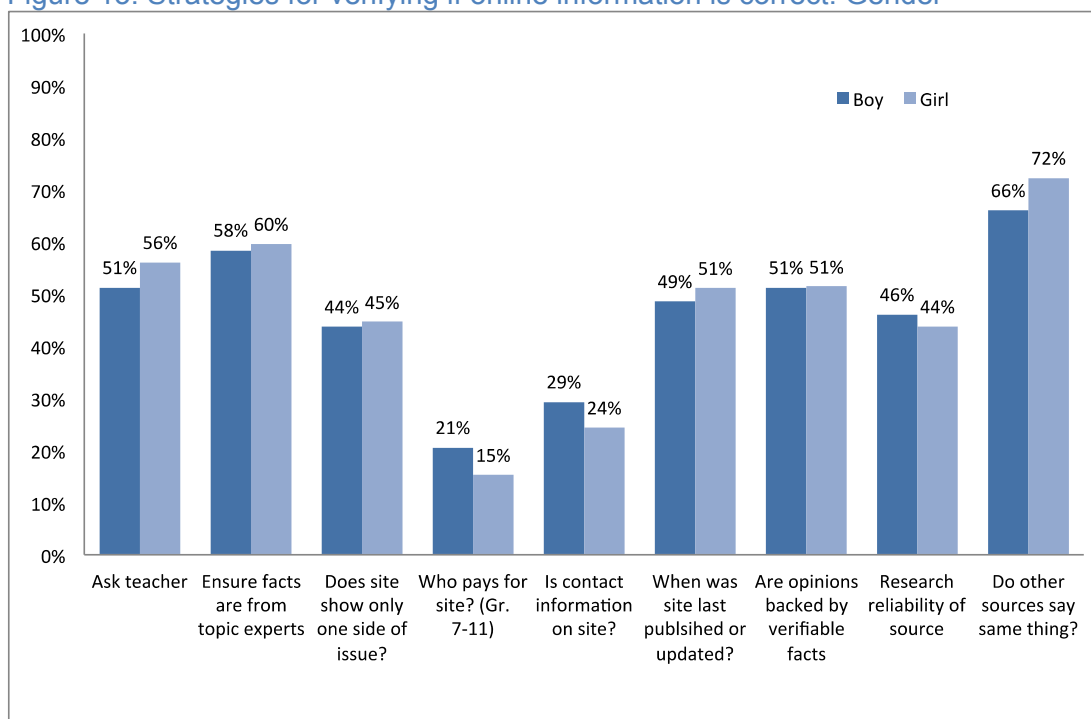
Grade 4 students are most likely to turn to a teacher for guidance, at 67 percent (Figure 12). The rate declines fairly steadily across the grades, although, in both cases (i.e. asking teachers to recommend sites and to confirm content on sites), the strategy reaches a trough (45% in Grade 9 for finding websites, 47% in Grade 8 for evaluating) before climbing again slightly. The overall drop may reflect greater independence and confidence on the part of older students, while the climb in the final grades may be attributable to greater academic rigor such as the requirement for proper bibliographies and footnotes.

Figure 12: Strategies for verifying if online information is correct: Grade



There are also interesting gender differences in verification strategies. Girls are more likely than boys to triangulate information (72% compared to 66% of boys) and to ask teachers either for recommended sites to use or for confirmation that a site they found is a good one (56% of girls for each of these compared to 50% and 51% of boys, respectively) (Figures 8 and 13). Boys are more likely to check for contact information on a site (29% compared to 24% of girls) and to find out who pays for the site (21% compared to 15% of girls, grades 7-11 only) (Figure 13). Interestingly, although girls are more likely to use the strategies that are preferred by the highest number of students overall, boys are more likely than girls to use the less common strategies.

Figure 13: Strategies for verifying if online information is correct: Gender



Other important aspects of **Understand** competencies include the ability to make informed decisions and an awareness of the ethical implications of one’s actions.

Given the vast amount of personal information that is collected from young people by social media companies, it is worrisome that 39 percent of students incorrectly think that companies are not interested in what they say and do online, and 68 percent incorrectly think that the presence of a privacy policy on a site means that the site will not share their personal information with others (Table 11). English language students in the rest of Canada are particularly likely to misunderstand the purpose of a privacy policy; 69 percent of them think that their information will not be shared compared to 45 percent of French language students in Quebec.

This strongly suggests that digital literacy education should provide students with a better understanding of the commercial uses of the content they post online and the limitations of privacy policies.

Table 11: Opinions: Privacy from companies

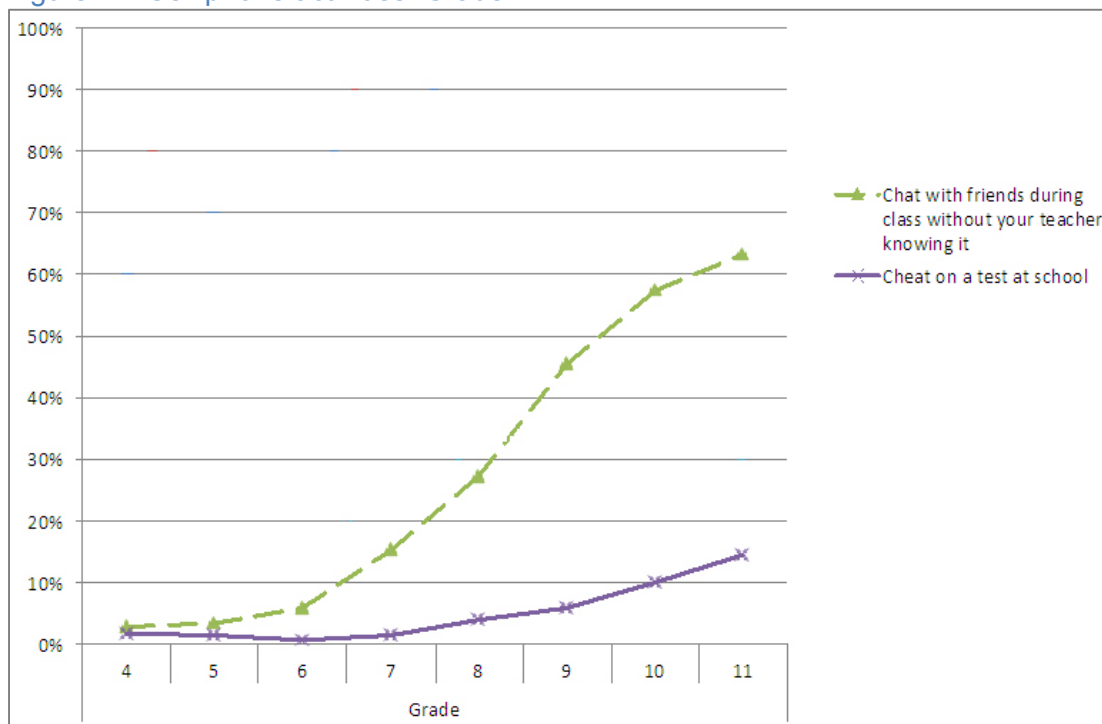
Do you agree or disagree with the following statements?	Agree Percentage
If a website has a privacy policy, that means it will not share my personal information with others. ^{Grade}	68%
Companies are not interested in what I say and do online. ^{Grade}	39%

Digital ethics are another area of potential concern. A small number of students (6%) report that they use cell phones to cheat on tests at school (Table 12). However, this behaviour rises across grades to a high of 14 percent in Grade 11 (Figure 14). Cell phones may also be disruptive in class, as 33 percent use them to chat with friends without the teacher knowing it. Again, this behaviour rises across the grades to a high of 63 percent in Grade 11.

Table 12: Cell phone activities

Do you use the cell phone to do any of these?	Percentage Yes
Chat with friends during class without your teacher knowing it ^{Grade}	33%
Cheat on a test at school ♂♀, ^{Grade}	6%

Figure 14: Cell phone activities: Grade



Perhaps the most difficult ethical questions revolve around the common practice of illegal downloading.

Forty-six percent of students agree with the statement, “Downloading music, TV shows or movies illegally is not a big deal” (Table 13).

Boys are slightly more likely than girls to agree with this statement (49% compared to 44% of girls) (Figure 15). However, older students are much more likely to take this position. Agreement rises from a low of 26 percent in Grade 6 to a high of 72 percent in Grade 11 (Figure 16). This may reflect a lack of awareness of the ethics around ownership of digital content. However, it

may also be that young people have developed different norms that favour open access and/or sharing over corporate control of entertainment content. Either way, discussion and debate about the ethics of this practice are called for.

Overall, these results give a mixed assessment of Canadian students' skills relating to the **Understand** aspect of digital literacy. Although the majority of students verify online information, they are less likely to do so outside of school and typically rely on a minimalist approach to doing so. Their ability to make informed decisions online may be hampered by a poor understanding of the commercial collection and use of the personal information they post there, and a significant number of students engage in practices that are typically considered unethical by adults.

Table 13: Opinions: Legality

Do you agree or disagree with the following statement?	Agree Percentage
Downloading music, TV shows or movies illegally is not a big deal. ^{Grade}	46%

Figure 15: Opinions: Privacy from companies and legality: Gender

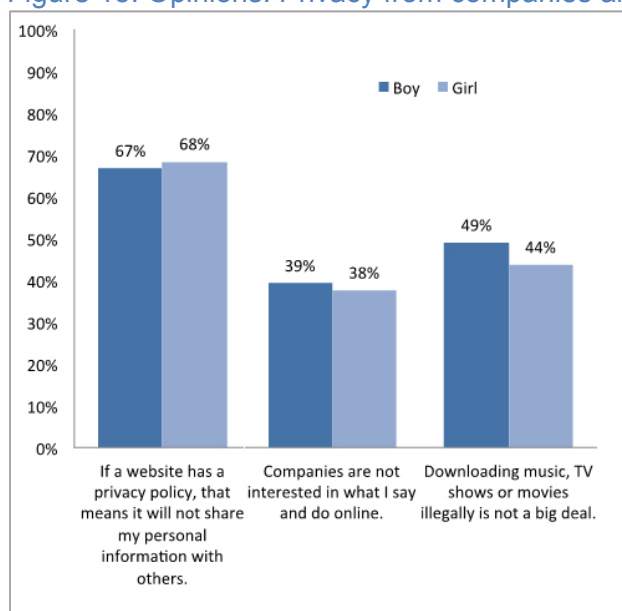
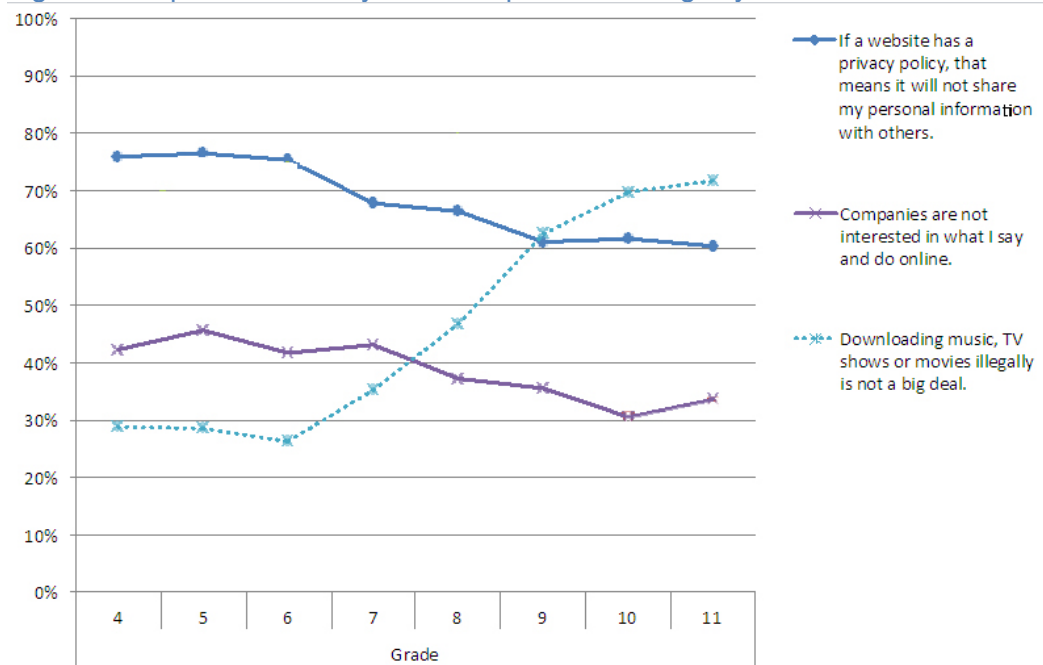


Figure 16: Opinions: Privacy from companies and legality: Grade



Creating Content and Contributing to Digital Society

The final component in MediaSmarts' model for digital literacy is *Create*.

Create is the ability to produce content and effectively communicate through a variety of digital media tools. Creation with digital media is more than knowing how to use a word processor or write an email: it includes being able to adapt what we produce for various contexts and audiences; to create and communicate using rich media such as images, video and sound; and to effectively and responsibly engage with Web 2.0 user-generated content such as blogs and discussion forums, video and photo sharing, social gaming and other forms of social media.

The ability to *create* using digital media ensures that Canadians are active contributors to digital society. Creation – whether through blogs, tweets, wikis or any of the hundreds of avenues for expression and sharing online – is at the heart of citizenship and innovation.

A majority of students do create some digital content fairly frequently. However, their content creation skills seem to focus mainly on their social lives.

Seventy-two percent of students post comments or pictures on their own social network sites: 20 percent do this at least once a month; 24 percent at least once a week; and 17 percent at least once a day (Table 14). A much smaller number (34%) post messages on Twitter (“tweet”) but, interestingly, the number that do so at least once a day (12%) is similar to those who post on their own social networks at least once a day. This suggests that, while students’ use of other social networks such as Facebook is more sporadic and may involve browsing more often than posting their own content, those students that do use Twitter are more likely to post their own content more frequently.

Table 14: What are students doing online?

Do you do the following things online?	At least once a day	At least once a week	At least once a month	At least once a year	Less than once a year	Never
Post comments or pictures on your own social network site (for example, your Facebook profile) ♂♀ Grade	17%	24%	20%	7%	4%	28%
Read or post on other people's social network sites (for example, Facebook) ♂♀ Grade	30%	22%	12%	4%	3%	28%
Post your own tweets on Twitter ♂♀ Grade	12%	9%	7%	3%	4%	66%
Post comments on news sites (grade 7-11 only)	3%	4%	6%	6%	9%	71%

While boys and girls read or post on other people's social network sites at similar rates (49% and 55%, respectively), girls are more likely than boys to post content on their own sites (45% compared to 36% of boys). Girls are also more likely to tweet (25% compared to 16% of boys⁶) (Figure 17). This, again, suggests that students are more likely to participate in social networks such as Facebook without often contributing their own content, while those who use Twitter are roughly as likely to contribute content as they are to read it. All of these activities were more common among older students (Figure 18), which is unsurprising given that older students are more likely to have accounts on these networks⁷.

Aside from Facebook and Twitter, two of students' other favourite websites involve content creation: Instagram (number 6 overall), which is devoted primarily to sharing photos, and Tumblr (number 5 overall), which is focused on sharing found content but which may be said to stimulate content creation by making it easier for creators to find an audience (Table 7).

⁶ This may reflect girls' overall higher use of Twitter. Twenty-six percent of girls follow friends or family compared to 16 percent of boys; and 26 percent follow celebrities compared to 14 percent of boys) (Figure 17).

⁷ Steeves, V. (2014). *Young Canadians in a Wired World, Phase III: Life Online*. Ottawa: MediaSmarts, p. 24. Available at: <http://mediasmarts.ca/ycww/life-online>

Figure 17: What are students doing online? Gender

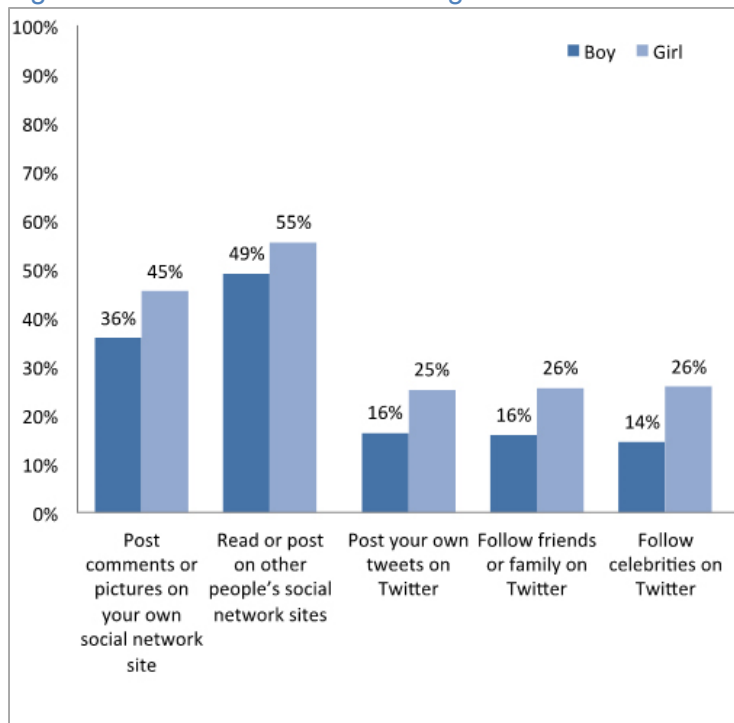
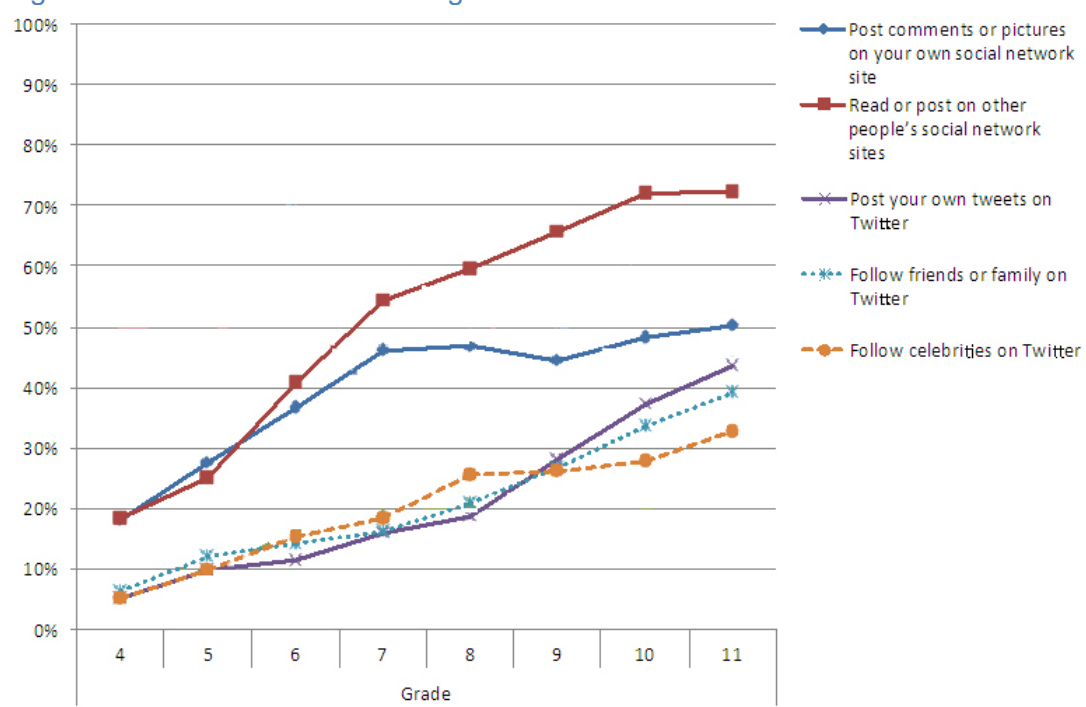


Figure 18: What are students doing online? Grade



Some students create digital content other than social networking posts and photos, but the numbers who do so are significantly lower than those who post photos or comments on social media.

Thirty-eight percent have posted a story or a piece of artwork that they created themselves. Of these, the largest number do so less than once a year (11%) but similar numbers of boys and girls do at least once a year (9%) and at least once a month (9%) (Table 20). Girls are more likely to have done so (41%) than boys (35%) but similar numbers do so at least once a week (6% of girls compared to 5% of boys) and at least once a day (3% of both boys and girls) (Table 15).

Table 15: Posting artwork or stories: gender/grade

		Grade									
		Boys	Girls	4	5	6	7	8	9	10	11
Post a story or artwork you created yourself	At least once a day	3%	3%	4%	3%	4%	2%	2%	2%	3%	6%
	At least once a week	5%	6%	8%	7%	6%	5%	3%	5%	5%	6%
	At least once a month	8%	11%	6%	11%	11%	9%	9%	8%	9%	13%
	At least once a year	8%	9%	6%	5%	9%	10%	8%	11%	10%	11%
	Less than once a year	11%	12%	8%	8%	11%	13%	14%	14%	11%	9%
	Never	65%	59%	69%	65%	60%	61%	64%	59%	62%	56%

A smaller number of students (33%) have posted video or audio files of themselves doing something (for example, singing, dancing or a how-to video) at some point (Table 20). The number of older students who post infrequently (at least once a month or less) doubles from grades 4 to 11, but the number of students who post frequently (at least once a day or once a week) only fluctuates a few percentage points across the grades (Table 16).

Accordingly, only a small percentage of students across all grades (4% or less) post their own videos on a regular basis (Table 16).

Moreover, the very high rank of YouTube among the most popular sites, with 75 percent of students listing it as a favourite site (Table 7), suggests that a large majority of students watch content on YouTube but rarely or never use it to distribute content they have created. Boys are slightly more likely than girls to post a video or audio file (36% compared to 30% of girls), and those who do so are likely to do so more often: nine percent of boys post a video at least once a month compared to six percent of girls; four percent post at least once a week compared to two percent of girls; and three percent post at least once a day compared to one percent of girls (Table 16).

Table 16: Posting videos or audio files: gender/grade

		Grade									
		Boys	Girls	4	5	6	7	8	9	10	11
Post a video or audio file of you doing something (for example, singing, dancing, how-to video)	At least once a day	3%	1%	3%	2%	4%	1%	1%	2%	2%	2%
	At least once a week	4%	2%	4%	2%	3%	2%	3%	3%	2%	3%
	At least once a month	9%	6%	5%	7%	7%	8%	8%	8%	6%	10%
	At least once a year	9%	9%	5%	7%	5%	9%	10%	14%	11%	11%
	Less than once a year	11%	12%	7%	9%	8%	11%	16%	13%	13%	12%
	Never	64%	70%	76%	73%	72%	68%	62%	61%	67%	62%

Posting a video made using music or clips found online (a “mashup” or “remix”) is the least common of the creative activities that students were asked about, with only 22 percent of students ever having done so (Table 20). While significantly fewer students post these videos once a month or less compared to original video or audio, similar numbers post at least once a week (2% compared to 3% who post original content this often) and at least once a day (2% for both) (Table 20).

Table 17: Posting mash-ups: gender/grade

		Grade									
		Boys	Girls	4	5	6	7	8	9	10	11
Post a video you made using music or clips you found online (for example, fan tribute, mash-up video)	At least once a day	2%	1%	2%	2%	3%	1%	1%	1%	2%	3%
	At least once a week	4%	1%	3%	4%	2%	2%	2%	2%	2%	3%
	At least once a month	5%	4%	4%	3%	7%	5%	5%	4%	4%	5%
	At least once a year	6%	5%	2%	4%	4%	6%	7%	6%	8%	7%
	Less than once a year	7%	8%	4%	7%	8%	10%	8%	10%	8%	7%
	Never	75%	80%	86%	80%	77%	77%	77%	76%	77%	75%

As we can see, there is a small number of students who post creative content frequently, but the vast majority of students do so infrequently or not at all. While gender differences in overall participation are not large, when we focus only on the core of frequent content creators we find that boys are much more likely to post audio and video content at the highest frequencies while boys and girls are about equally likely to be frequent posters of stories or artwork.

Similarly, only a small percentage of students participate in public debate and activism online. Although 29 percent of students in grades 7-11 have posted comments on a news site, only a small percentage do so at least once a day (3%), a week (4%) or a month (6%). The remaining 15 percent do so at least once a year or less (Table 20).

Sharing links to news stories or information about current events is more common, especially among older students. Half of students in grades 7-11 have done this, and 28 percent have done so at least once a month or more (Table 20). Although boys are slightly more likely than girls to share links once a week (11% compared to 8% of girls) and girls are more likely to do so less than once a year (14% compared to 10% of boys), there is very little difference between the genders in the other categories of frequency (Table 18).

Table 18: Sending links to news stories: gender/grade

				Grade							
		Boys	Girls	4	5	6	7	8	9	10	11
Send people links to news stories or information about current events	At least once a day	4%	3%				2%	3%	2%	4%	8%
	At least once a week	11%	8%				8%	9%	9%	10%	12%
	At least once a month	14%	13%				13%	12%	13%	14%	16%
	At least once a year	11%	12%				10%	10%	13%	14%	10%
	Less than once a year	10%	14%				12%	12%	14%	14%	9%
	Never	50%	50%				54%	54%	49%	44%	46%

Online activism follows a similar pattern. Thirty-five percent of students have joined or supported an activist group online (for example, Greenpeace, Students Against Bullying or Free the Children): the number of students who had done so is lowest in Grade 4 (27%) and highest in Grade 11 (44%). However, only a small percentage of students do so once a day (3%), once a week (4%) or once a month (7%) (Table 20). There is no significant variation between the genders in this regard, and there is no consistent pattern of increase across the grades (Table 19).

Table 19: Joining or supporting an activist group: gender/grade

				Grade							
		Boys	Girls	4	5	6	7	8	9	10	11
Join or support an activist group (for example, Greenpeace, Students Against Bullying, Free the Children)	At least once a day	2%	3%	5%	1%	3%	1%	2%	2%	3%	5%
	At least once a week	4%	4%	3%	3%	3%	3%	4%	4%	3%	6%
	At least once a month	7%	8%	6%	8%	6%	8%	6%	8%	9%	10%
	At least once a year	8%	11%	6%	8%	9%	10%	9%	14%	12%	12%
	Less than once a year	11%	13%	6%	11%	9%	13%	13%	12%	15%	11%
	Never	68%	62%	73%	70%	70%	64%	66%	61%	58%	56%

In sum, although many students do post photos and comments documenting their day-to-day social lives, only a small percentage of students actively create innovative content or engage in civic affairs online.

Table 20: What are students doing online?

Do you do the following things online?	At least once a day	At least once a week	At least once a month	At least once a year	Less than once a year	Never
Post a story or artwork you created yourself ^{Grade}	3%	6%	9%	9%	11%	62%
Post a video or audio file of you doing something (for example, singing, dancing, how-to video) ^{Grade} ♂♀	2%	3%	8%	9%	11%	67%
Post a video you made using music or clips you found online (for example, fan tribute, mash-up video) ^{Grade} ♂♀	2%	2%	5%	6%	8%	78%
Send people links to news stories or information about current events (grade 7-11 only) ^{Grade}	4%	10%	14%	11%	12%	50%
Post comments on news sites (grade 7-11 only)	3%	4%	6%	6%	9%	71%
Join or support an activist group (for example, Greenpeace, Students Against Bullying, Free the Children) ^{Grade}	3%	4%	7%	10%	11%	65%

Filling the Gap – Where and How Students Learn Digital Literacy Skills

Parents and teachers are the most frequently reported sources of information about digital literacy skills.

Nearly all students (92%) say that they have learned how to search for information online, with parents (47%) and teachers (45%) being the main sources. A smaller number (28%) have learned from friends or have taught themselves from online sources (21%) (Table 21).

Roughly the same number of boys and girls have learned these skills from their parents or friends, but girls are much more likely to have learned from teachers (53% compared to 38% of boys) (Figure 19). Considering that girls and boys generally share the same classrooms, this is a somewhat surprising result. However, this is also consistent with our finding that girls are more likely to ask their teachers for help both with finding and with evaluating online information (Figures 8 and 13). This raises the worrying possibility that skills in finding online information are not yet part of standard classroom curriculum but rather are only available to students with the interest and agency to ask for them. Closer attention to this may be warranted, especially since girls and boys are equally likely to say they would like to learn these skills in school (Figure 21). On the other hand, boys are also more likely to have learned authentication skills from online sources (26% compared to 16% of girls), which suggests that boys may learn these skills earlier and independently and therefore already feel competent by the time the skills are addressed in school (Figure 19).

Older students are less likely to have learned these skills from their parents, somewhat more likely to have learned from their teachers and significantly more likely to have learned from friends or the Internet (Figure 20). This may reflect older students' increasing independence: older students (grades 9-11) are also the most likely to say that they are not interested in learning *any* digital literacy skills in school (Figure 22).

Table 21: Learning about online activities

I have learned about the following activities	From my parent(s)	From teachers	From friends	From reading about it online	I have never learned about this
How to search for information online	Grade 47%	♂♀ Grade 45%	Grade 28%	♂♀ Grade 21%	8%
How to tell if online information is true	Grade 37%	♂♀ Grade 45%	Grade 15%	♂♀ Grade 17%	Grade 20%
How to use privacy settings	♂♀ Grade 41%	Grade 15%	♂♀ Grade 27%	Grade 24%	Grade 18%
How companies collect and use personal information online	Grade 35%	Grade 24%	Grade 10%	♂♀ Grade 20%	♂♀ Grade 34%
How to know what is legal and illegal to do online	♂♀ Grade 58%	♂♀ Grade 42%	Grade 15%	♂♀ Grade 20%	17%

Figure 19: Learning about searching for information online: Gender

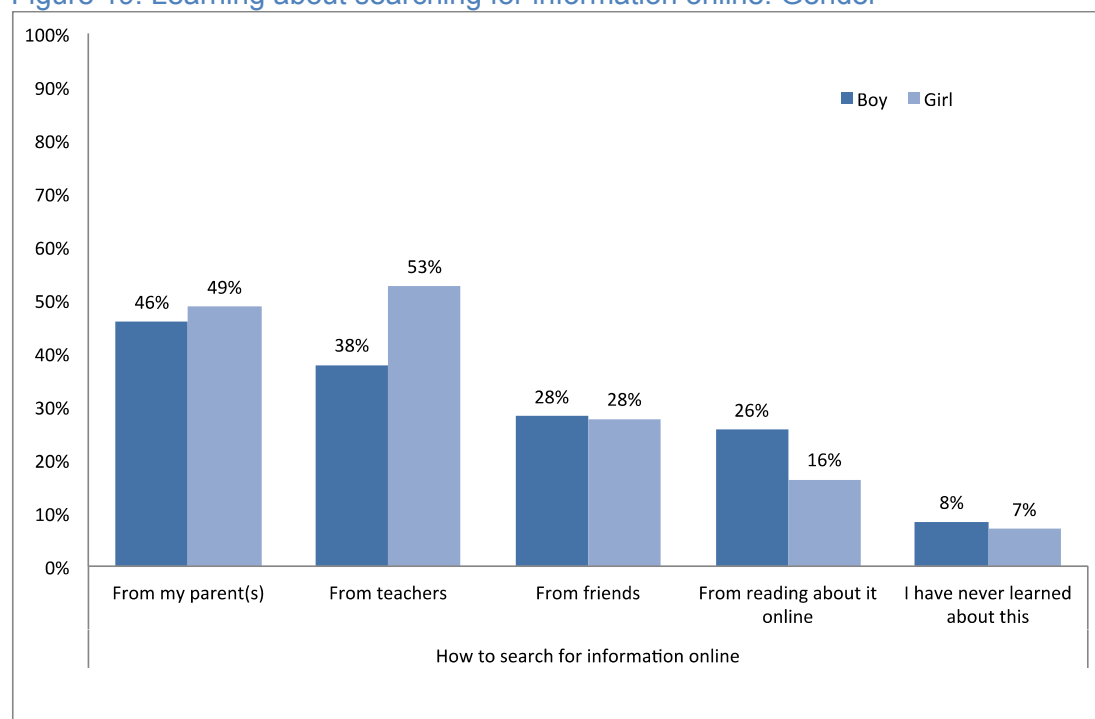


Figure 20: Learning about searching for information online: Grade

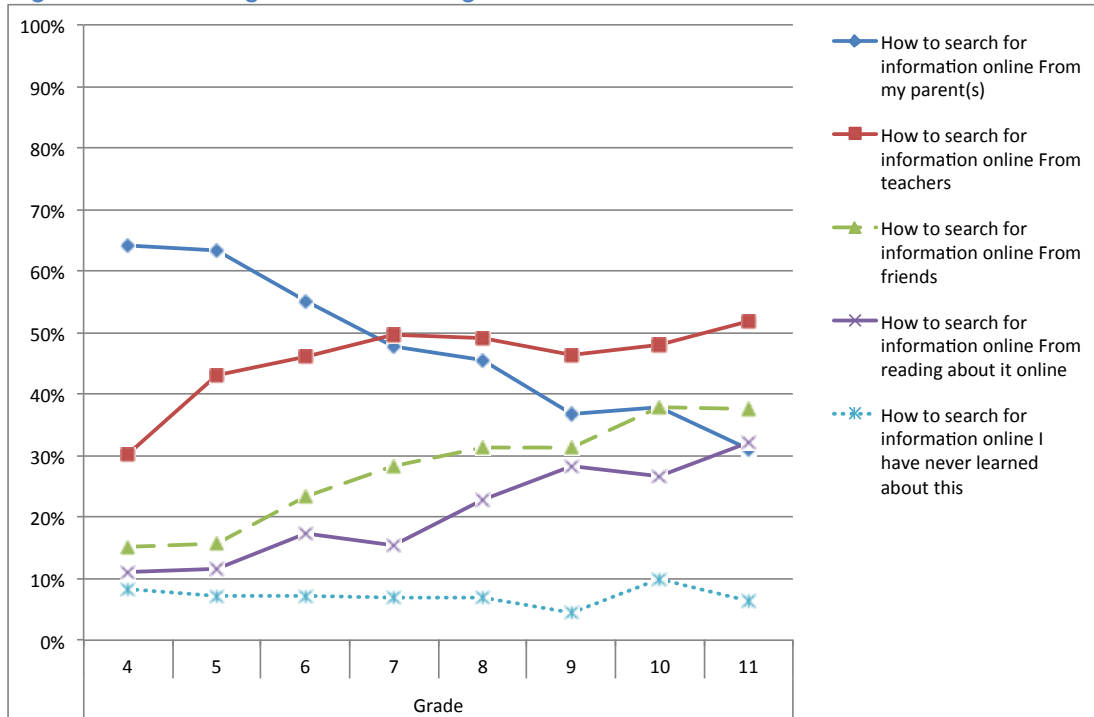


Figure 21: Would you like to learn more about these in school?: Gender

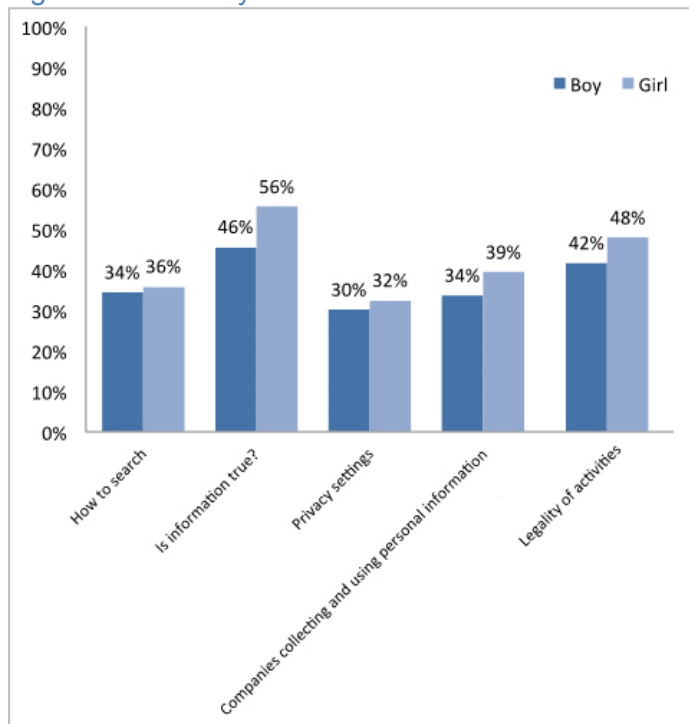
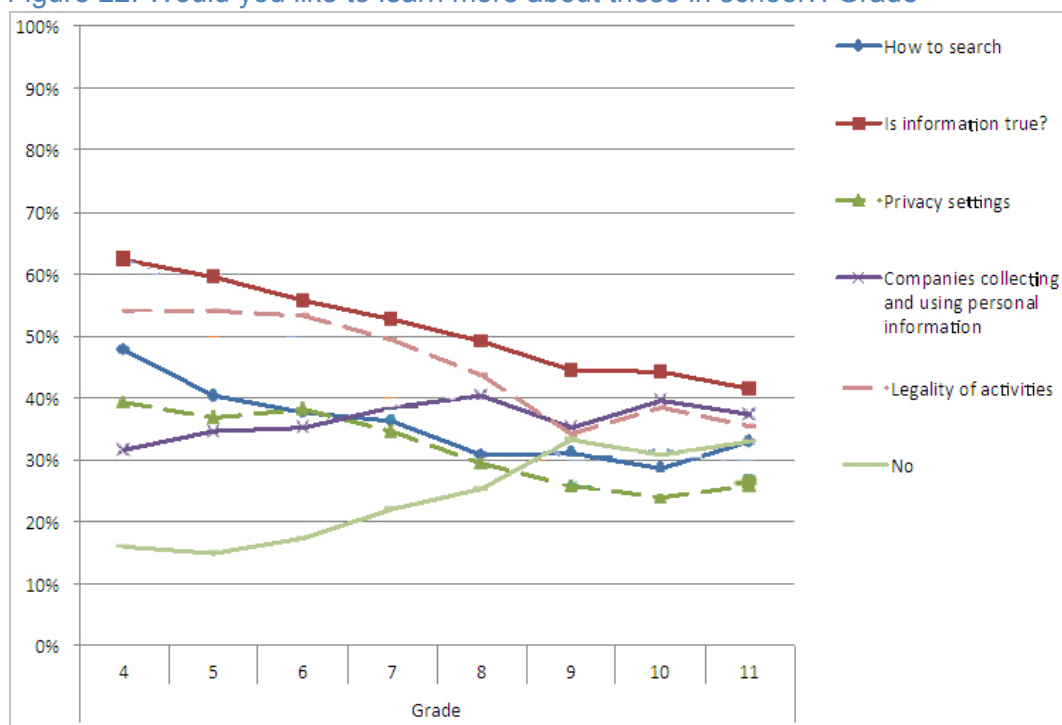


Figure 22: Would you like to learn more about these in school?: Grade

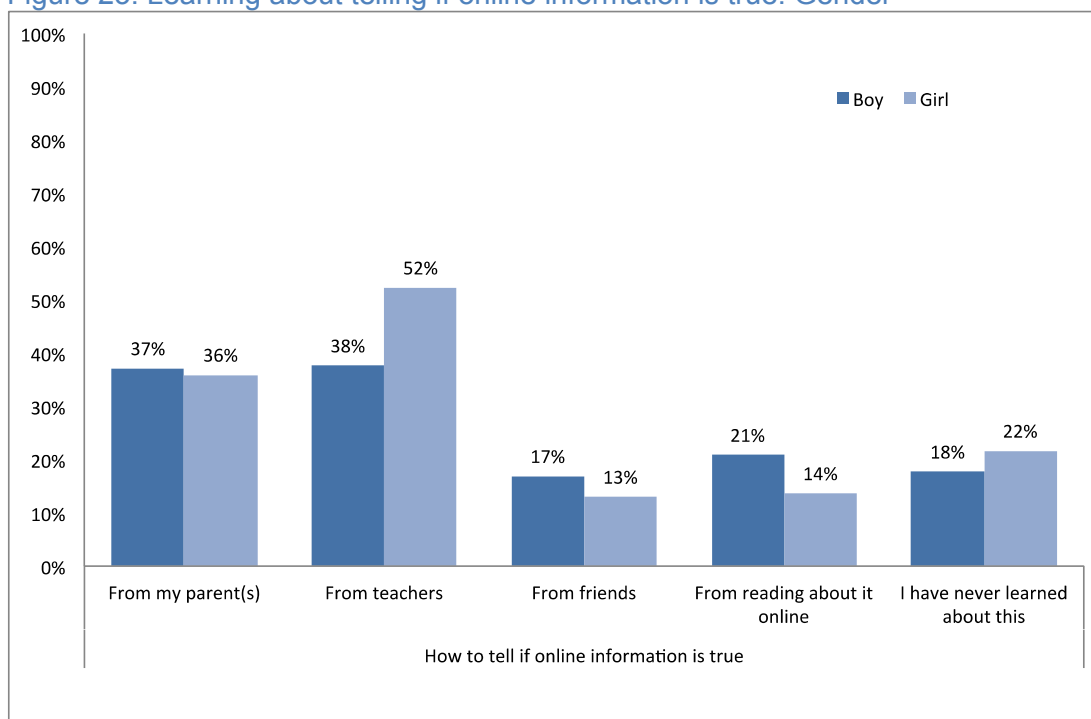


A large majority of students (80%) have received instruction in evaluating and authenticating online information (Table 21).

Nonetheless, one half of students (51%) say they would like to learn more about this in school (Table 22). Similar numbers of students have learned this from teachers (45%) but significantly fewer have learned from parents (37%), online sources (17%) and friends (15%) (Table 21). This suggests that finding and verifying online information are often taught together in schools but that students are much more likely to learn the practical skills involved in finding information (as opposed to the more subjective skills needed to evaluate it) from parents and peers. It may also reflect lower confidence and skill levels among both parents and peers when it comes to verification compared to search skills.

Gender differences for this question break down in a very similar way to the previous one (Figure 23) except that girls show significantly more interest than boys in learning these skills in school (56% of girls compared to 46% of boys) (Figure 21).

Figure 23: Learning about telling if online information is true: Gender



Similar numbers of students had learned about how to use privacy settings on their social network accounts (82%) and how to know what is legal and illegal to do online (83%), with a smaller number saying they had learned how companies collect and use personal information online (66%) (Table 21).

Parents are the most common source of information on each of these topics. While teachers are significant sources of information about data collection (24%) and legality (42%), they are the least common source of information on privacy settings (15%) (Table 21).

Using privacy settings and searching for information are the two skills for which friends are most often given as a source (27% and 28%, respectively). Use of privacy settings is also the skill that students are most likely to have taught themselves by reading about it online (24%) (Table 21). Since privacy settings give them greater control over their audiences on social media, this again suggests that students will learn digital literacy skills if they see them as having an immediate relevance to their lives.

Unlike search and authentication skills, boys and girls are roughly equally likely to have learned how to use privacy settings (Figure 24) or how companies collect information (Figure 26) from teachers. Girls are more likely to have learned about privacy settings from their parents (44% compared to 38% of boys) and less likely to be self-taught (23% compared to 27% of boys) (Figure 24). The higher level of parental involvement relates to the greater parental protectiveness towards girls observed in our *Life Online* report. Girls are also more likely than boys to have learned about privacy settings from their friends (30% compared to 25% of boys) (Figure 24). This is consistent with girls' relative preference for turning to their friends for help

when faced with privacy-related issues, as observed in our report *Online Privacy, Online Publicity*.

Older students are less likely to say that they had not learned about the use of privacy settings, and that they learned about privacy settings from their parents (Figure 25). They are somewhat more likely to have learned from friends and substantially more likely to have learned from online sources (this is actually the top response in grades 10 and 11).

Teachers are basically stable as a source of information on the use of privacy settings across the grades, fluctuating in a range between roughly 10 and 20 percent with peaks in grades 6 (20%) and 9 (18%) and troughs in grades 4 (8%) and 11 (11%) (Figure 25). This lack of a consistent pattern suggests that privacy education has not found a place in the curriculum and that, when it is taught, it may occur as a one-off rather than as part of a larger digital literacy framework. Only 31 percent of students express an interest in learning about using privacy settings in school, suggesting that they too see this as fundamentally not a school-related skill (Table 22).

There is basically no gender difference in how often parents are a source of information about how companies collect and use personal information online (Figure 26). This may be because – unlike using privacy settings – this is not seen as a safety issue. Again in contrast to the use of privacy settings, there is a significant gender difference in whether or not students have ever learned about this (70% of boys compared to 62% of girls), and whether students have learned about it from online sources (25% of boys compared to 15% of girls) (Figure 26).

Older students are more likely to have learned about commercial collection and use of personal information and, unlike using privacy settings, are more likely to have learned about it from teachers (Figure 27). They are substantially more likely to have learned about it from online sources and somewhat more likely to have learned from friends. They are also less likely to have learned about it from parents, although the difference is smaller than in learning other digital literacy skills.

Figure 24: Learning about using privacy settings: Gender

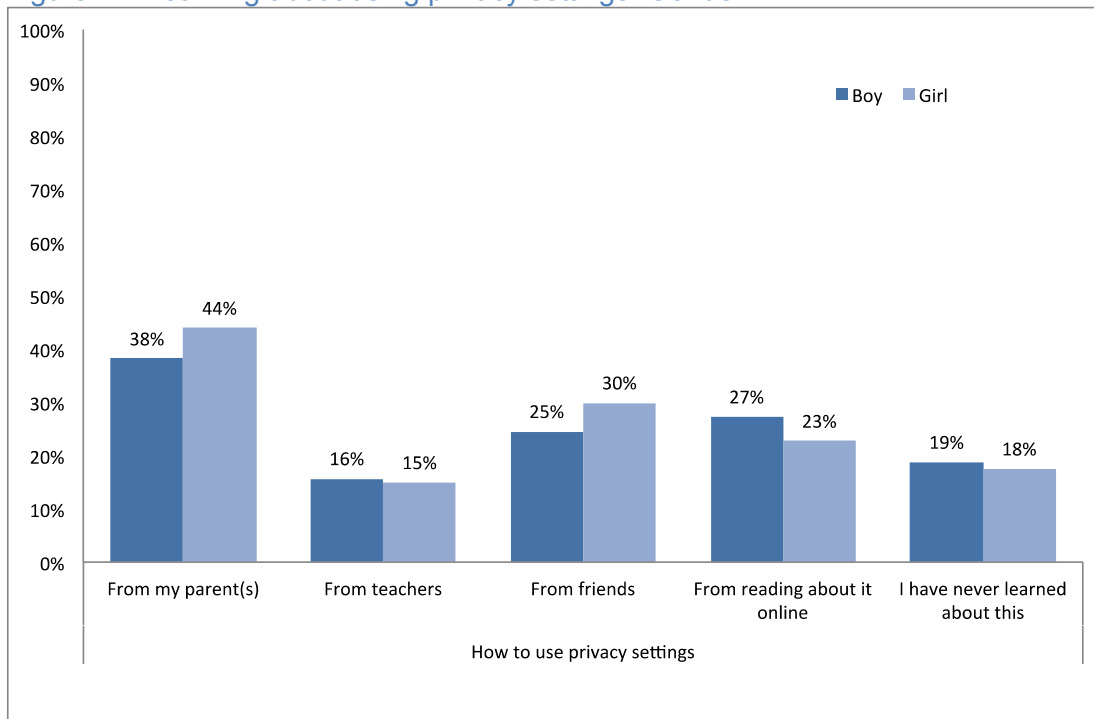


Figure 25: Learning about using privacy settings: Grade

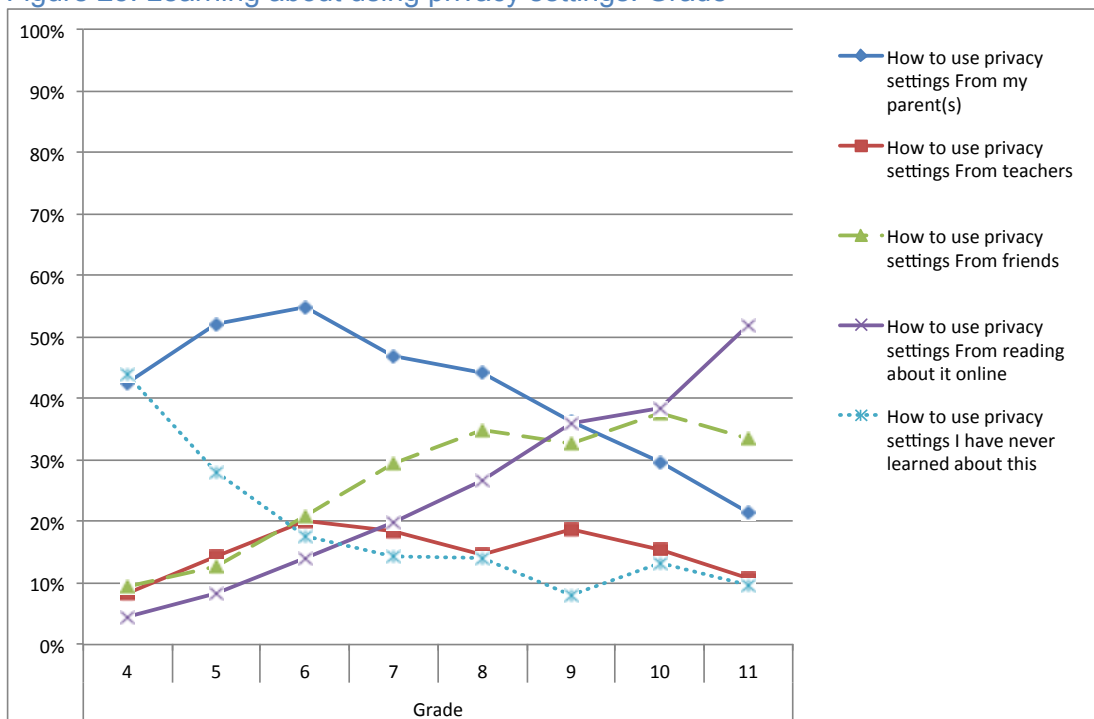


Figure 26: Learning about how companies collect and use personal information online: Gender

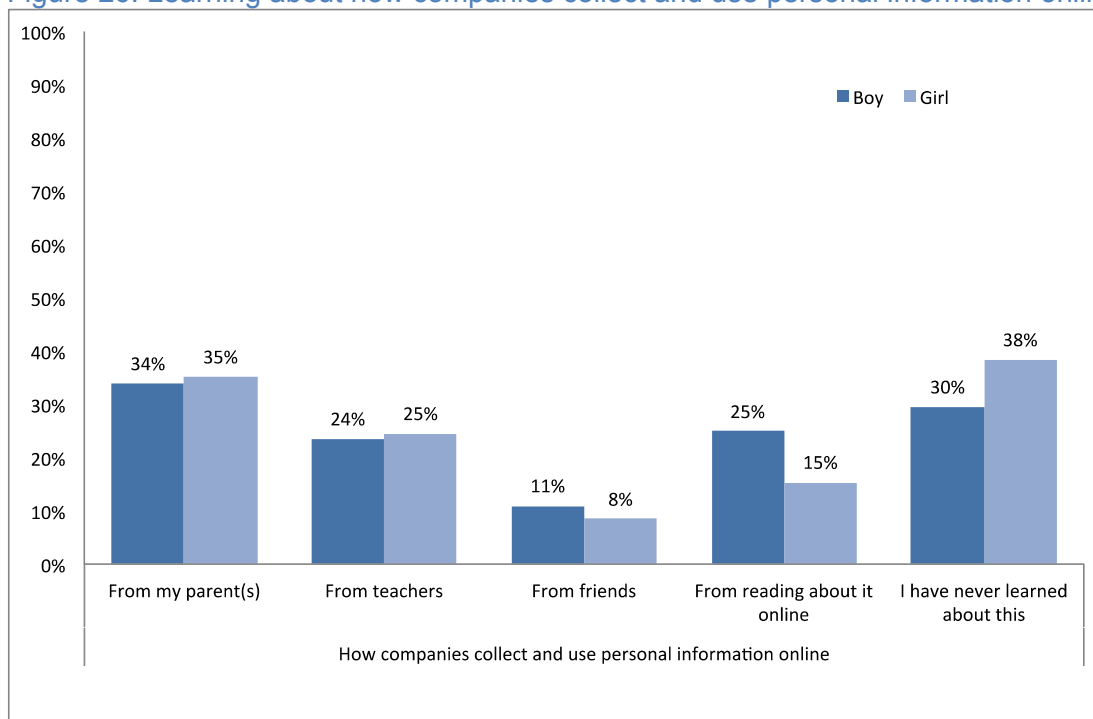
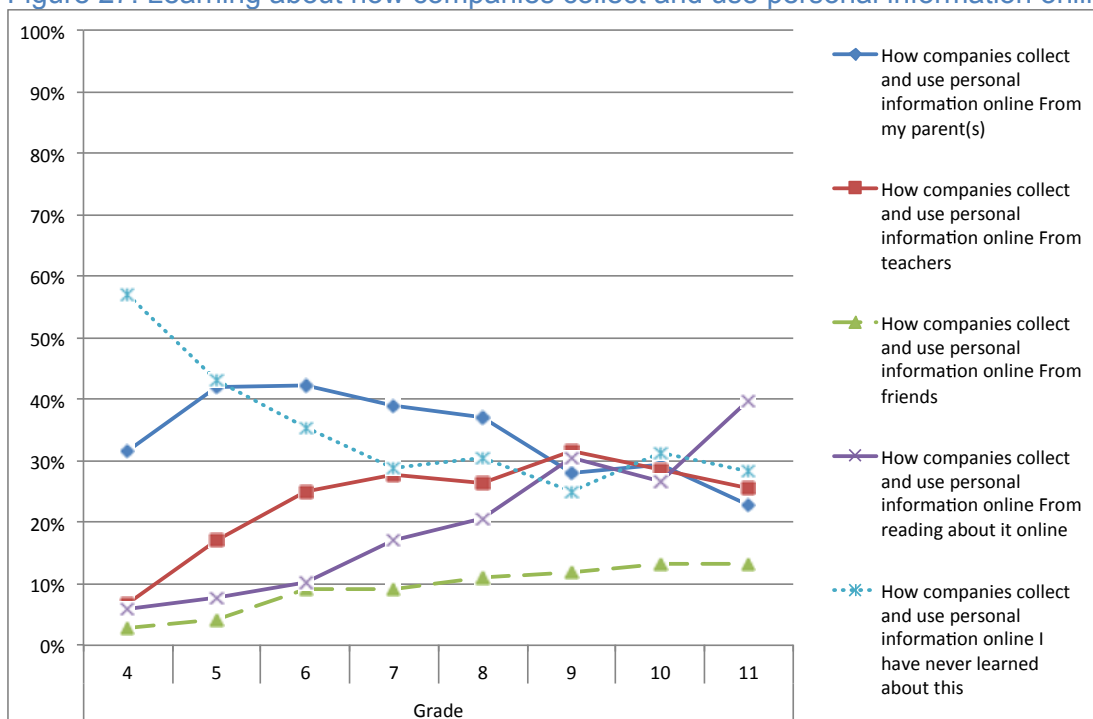


Figure 27: Learning about how companies collect and use personal information online: Grade



Older students are also less likely to incorrectly agree with the statement that, “If a website has a privacy policy, that means it will not share my personal information with others”, although 60

percent of even the oldest students believe this⁸. There is no gender difference in whether or not students agree with this statement⁹, suggesting that formal instruction on this topic does have an effect on students' understanding.

Despite the high ranking of teachers as a source of information on commercial collection and use, a relatively small number of students express an interest in learning about it at school (Table 22), although this may reflect a general lack of awareness about the topic since it requires a certain amount of education about the issue to understand why you might need to know about it.

Boys and girls are equally likely (83%) to have learned about what is legal and illegal to do online, but there are differences in their sources. Once again, girls are more likely than boys to have learned about this from teachers (46% compared to 38% of boys). They are also more likely than boys to have learned from their parents (61% compared to 54% of boys). Boys, on the other hand, are more likely to learn about this from online sources (24% compared to 17% of girls) (Figure 28).

The number of students who have learned about illegality from online sources climbs sharply from Grade 8 onwards and especially between grades 10 and 11, where it goes from being the third to the top choice. As usual, parents are a less common source for older students (Figure 29). Interestingly, students in grades 5, 6 and 7 are most likely to say that they have learned about illegality, and students in Grade 11 are the second most likely to say that they have never learned about it after those in Grade 4. Since teachers' rank as a source is basically consistent between grades 5 and 11, this – along with the rise of reading online as a source – may mean that teachers are not filling the void left by less parental involvement on this topic (Figure 29). This is unfortunate, since it is students' second-highest choice of things they would like to learn about in school (45% of all students – Table 22), especially among girls (48% compared to 42% of boys) (Figure 21).

Interest in learning about illegality is highest among younger students and lowest among students in grades 9-11 (Figure 30). This may be due to the various stages of cognitive and moral development: younger students, who are more oriented towards following rules and avoiding punishment, may be more concerned with legality while older students, who are more oriented towards following the perceived norms of their society, may have embraced a culture in which illegal downloading is normalized. However, it is also possible that older and younger students have had different experiences with streaming and downloading, especially since the more easy-to-use legitimate sources of content, such as iTunes and Netflix, have been available for a longer part of younger students' lives.

As with other online activities, parents have an important role to play in helping youth make decisions relating to knowing what is legal and illegal to do online: overall, students are most likely to turn to parents to learn about this (Figure 28). Family discussions and rules also impact behaviour. For example, there is a direct correlation between families with household rules

⁸ Steeves, V. (2014). *Young Canadians in a Wired World, Phase III: Online Privacy, Online Publicity*. Ottawa: MediaSmarts, p. 38. Available at: <http://mediasmarts.ca/ycww/online-privacy-online-publicity>

⁹ *Ibid*, p. 37

about downloading music, videos, TV shows, movies or software and the likelihood and frequency of students doing so illegally (Figure 31).

Figure 28: Learning about what is legal and illegal to do online: Gender

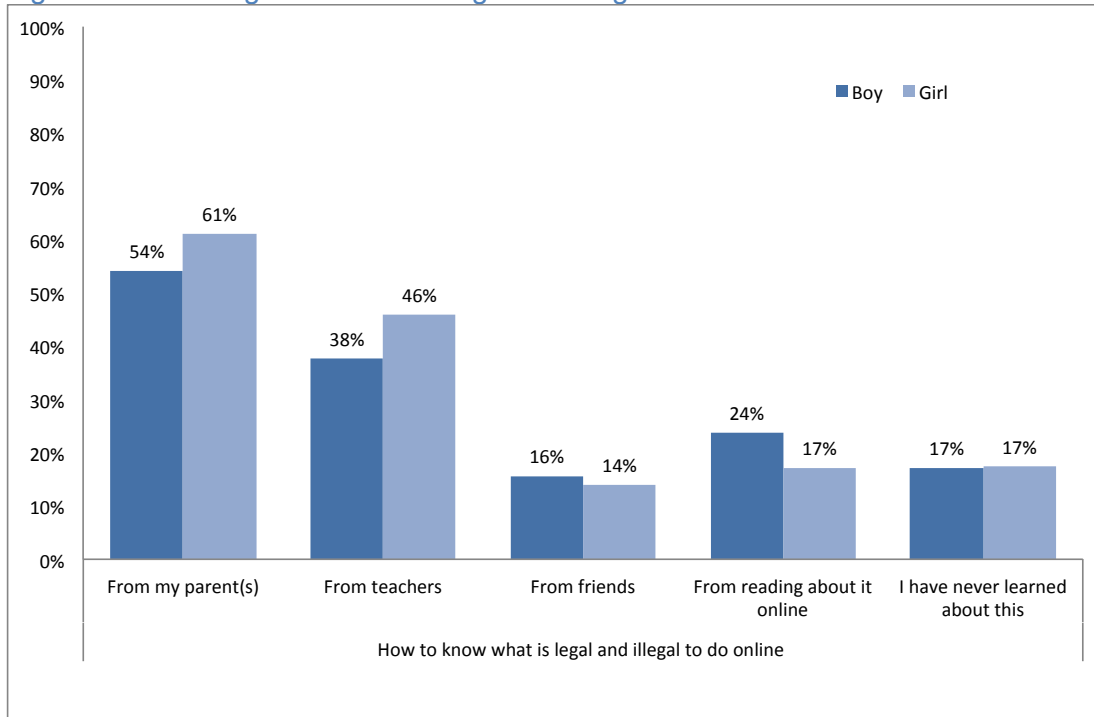


Figure 29: Learning about what is legal and illegal to do online: Grade

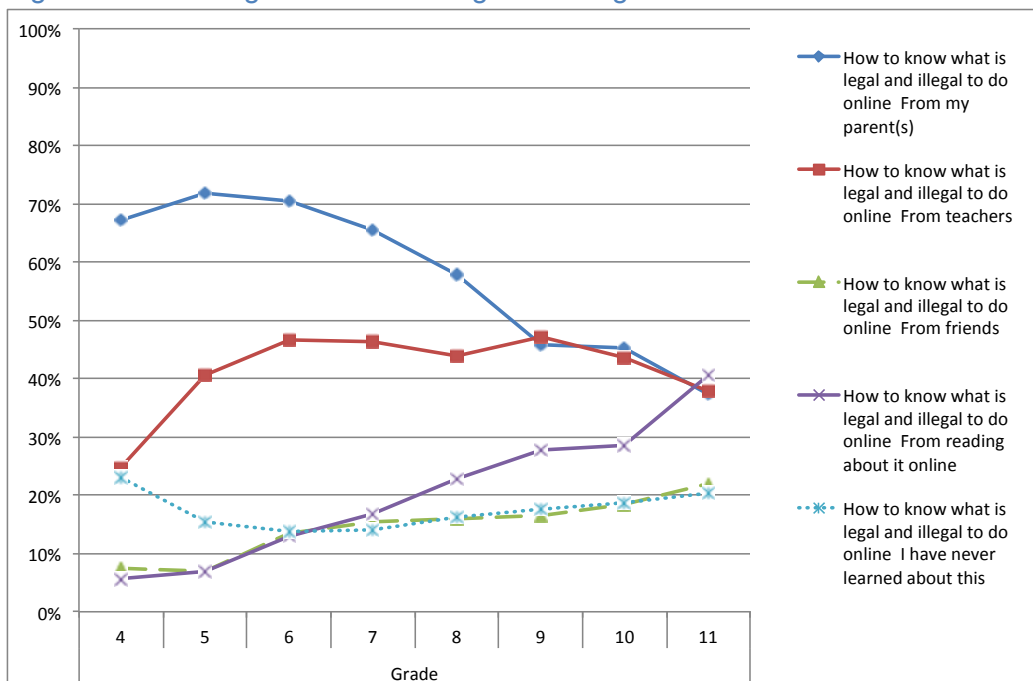


Figure 30: Interest in learning about what is legal and illegal to do online: Grade

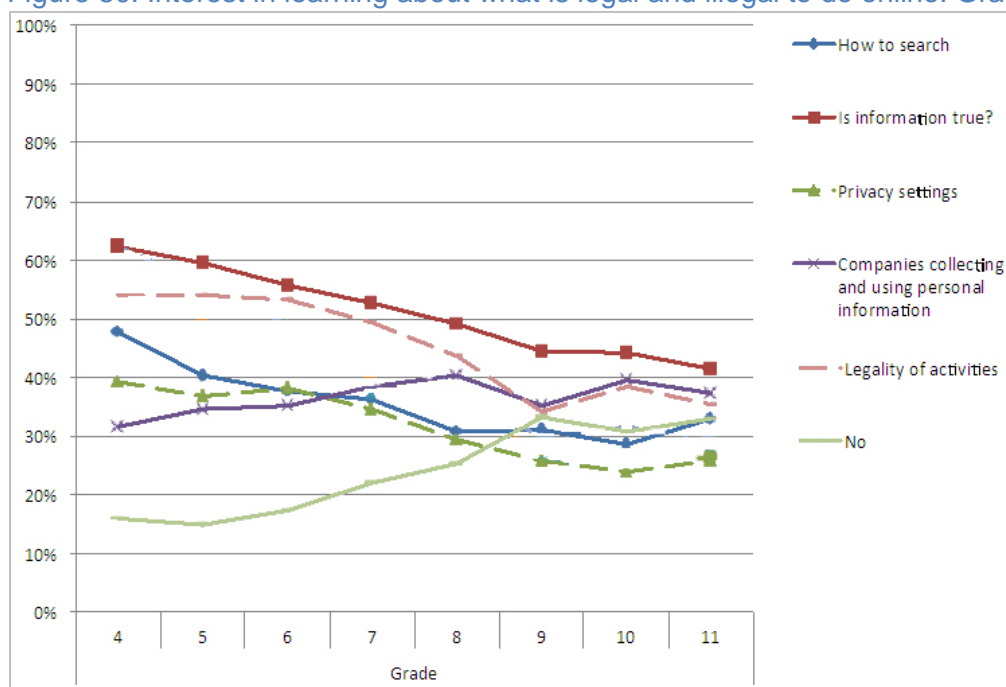


Figure 31: Downloading rule and frequency of downloading or streaming music, TV shows, or movies

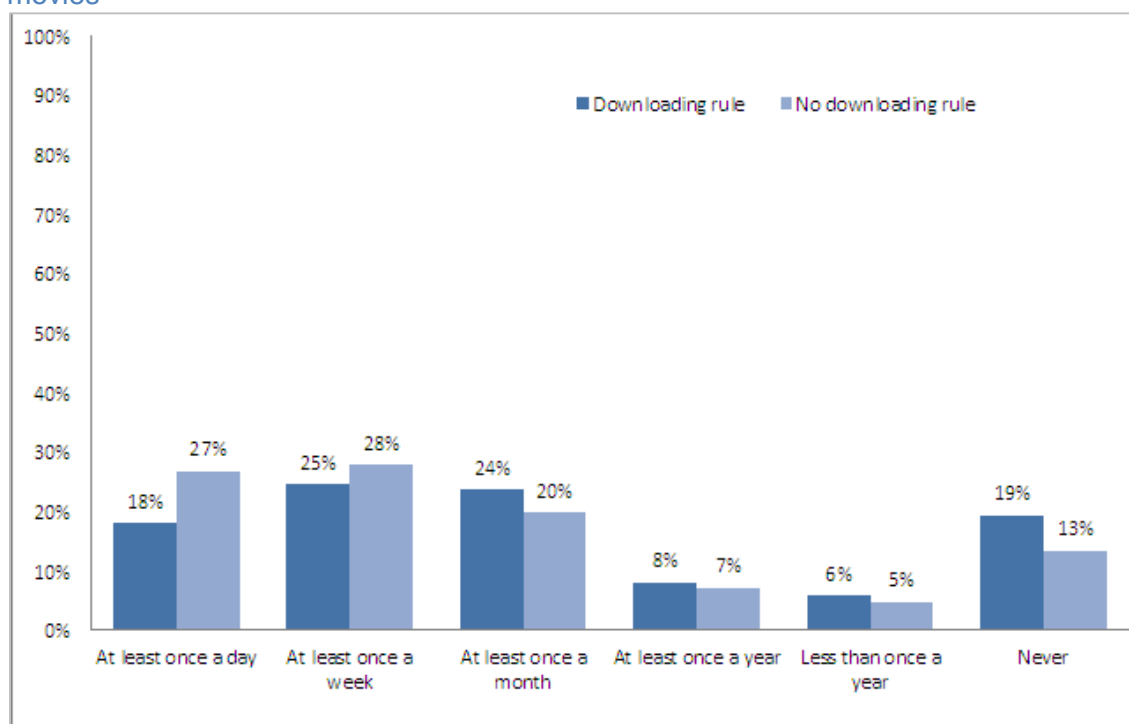


Table 22: Would you like to learn more about these in school?

Would you like to learn more about these in school?	Percentage Yes
How to search for information online ^{Grade}	35%
How to tell if online information is true ♂♀ ^{Grade}	51%
How to use privacy settings ^{Grade}	31%
How companies collect and use personal information ♂♀	36%
How to know what is legal and illegal to do online ♂♀ ^{Grade}	45%

Technology in the Classroom and School Filters

Another issue affecting students' education in digital literacy skills may be the role of technology in the classroom.

While a large number of students report that their schools have teacher-focused digital technologies such as class websites (72%), digital whiteboards (68%), computer labs (74%) and computers in the classroom (66%) (Table 23), a much smaller number are able to use their own digital devices such as laptops or netbooks (53%), tablets (31%), e-readers (27%) or cell/smart phones (25%) (Table 24).

This last figure was, unsurprisingly, higher for older students (Figure 33) but it was also higher among boys than girls (32% compared to 25% of girls) (Figure 32).

Those students who are allowed to use their own digital devices in class most often use them for traditional educational activities such as: research (83%); reading class material (51%); using educational games and programs (42%); and watching videos, listening to podcasts or reading websites for class work (40%). A significant minority use devices to block out distractions (38% overall, but climbs significantly from 7% in Grade 4 to over half of students in grades 9-11) [Figure 5]. A much smaller number of students use their devices to communicate with other students inside the classroom for class work (24%) or with people outside of the classroom for class work (16%) or to contribute to a class blog or wiki (19%) (Table 26). Overall, relatively few students are able to use the portable digital devices that are ubiquitous in their lives, such as smart phones and MP3 players, in school. Even when these devices and platforms are available, they are mainly used for activities that are essentially the same as traditional classroom exercises. This means that there is less exposure to collaborative work and communication with others in the community, both of which are central features of the ***Understand*** competencies of digital literacy.

There is some use of social media in the classroom for learning, especially among older students.

Although only 29 percent of students as a whole say their teachers have ever used social media to help them learn, the percentage rises from a low of 14 percent in Grade 4 to a high of 41 percent in Grade 9. This is encouraging because teachers who use the elements of networked technologies that are central to students' experiences, like social networking, may make the digital literacy education students receive in school more meaningful to them because it has a strong connection to their digital lives outside of school.

Students, especially older students, find school filters an obstacle to learning.

More than a third of students (36%) said that they have had trouble finding something they needed for their school work when using a school computer due to blocking or filtering software,

echoing students' comments in our 2012 focus groups. Boys and girls report this at roughly the same rates (Figure 34) but older students are much more likely to say that filters had blocked legitimate content than younger ones (Figure 35). This is most likely because students are expected to do more independent research for their school work, generally starting in grades 7 or 8, and so are more likely to have tried to use a source considered inappropriate by the filter. Older students may also be more likely to do independent collaborative group work and may have had difficulty in using social networks or similar platforms to connect with other group members.

As well as students, teachers in our 2011 report *Young Canadians in a Wired World, Phase III: Teachers' Perspectives* had similar concerns about filters, both because filters interfered with their ability to use digital technology in a meaningful way in the classroom and because they prevented students from learning the skills they needed to succeed in unfiltered environments. Both students and teachers report that along with research sources and content sites such as YouTube, schools frequently block social networks such as Facebook and Twitter which are natural platforms for collaboration.

Moreover, there is evidence that a significant number of students are able to bypass school filters: 25 percent of students say they are able to do this (Table 27). While similar numbers of boys and girls have been prevented from accessing online resources by school filters, more boys than girls say they can bypass school filters (Figure 34). As noted above, boys are much more likely than girls to turn to online sources for information about digital literacy skills; it seems that they are more likely to learn how to bypass filters from peers or online sources than teachers or parents. (It may also be true, of course, that boys are more interested than girls in finding ways to bypass filters.) Older students are much more likely than younger ones to say they can bypass filters, almost certainly because they are more likely to have experienced difficulty in accessing online content for school because of them (Figure 35). Unfortunately, those students who are able to access blocked resources may be unlikely to use them for their school work due to a fear of punishment. The relatively high number of students who say they are able to bypass school filters suggest that in many cases they may not even be succeeding in preventing students from encountering problematic content as well as blocking access to legitimate tools and content. (A future report will look in more detail at how students deal with encountering problematic content online.)

It is clear, then, that the digital environment students experience at school bears little resemblance to their online lives outside the classroom. There is relatively little use, by teachers and in classrooms, of the elements of networked technologies that are central to students' experiences, such as social networking, and efforts by teachers and students to make use of these technologies are frequently blocked by filtering software. Considering the clear connection between the perceived relevancy of digital literacy skills and the willingness of students to learn and use them, it seems likely that the digital literacy education students receive in school is less effective because it has little connection to their digital lives outside of school.

Table 23: Technology at school

Does your school or classroom have	Percentage
A website where you can get information about homework, assignments and tests ^{Grade}	72%
Online help with homework after school ^{Grade}	35%
Digital whiteboards (for example, Smart Boards) ^{Grade}	68%
A computer lab ^{Grade}	74%
Computers in the classrooms ^{Grade}	66%
A media lab ^{Grade}	21%
My school does not have any of these things	0%
I don't know if my school has any of these things ^{Grade}	3%

Table 24: Devices allowed for use in the classroom

Are you allowed to use these in your classroom?	Percentage
MP3 player (for example, iPod) ^{Grade}	36%
Cell phone / smart phone ^{Grade}	25%
Computer, laptop or netbook with Internet access ^{Grade}	53%
Tablet with Internet access (for example, iPad, Blackberry Playbook) ^{Grade}	31%
E-readers (for example, Kindle, Kobo) ^{Grade}	27%
I am not allowed to use any of these in class ^{Grade}	29%

Table 25: Teachers using social media in the classroom

	Percentage Yes
Have any of your teachers used social media (for example, Facebook, Twitter) in the classroom to help you learn? ♂♀ ^{Grade}	29%

Figure 32: Teachers using social media in the classroom: Gender

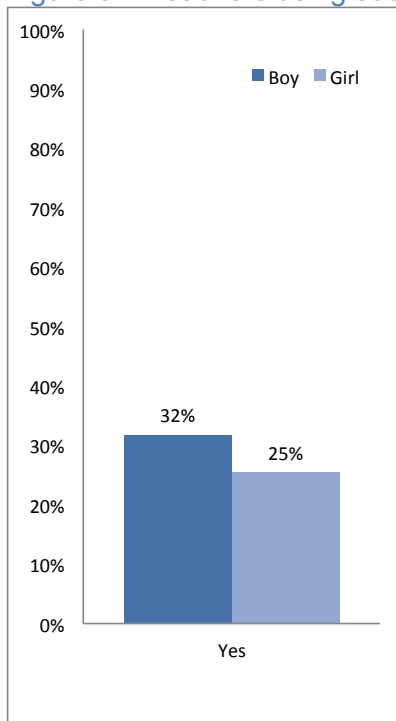


Figure 33: Teachers using social media in the classroom: Grade

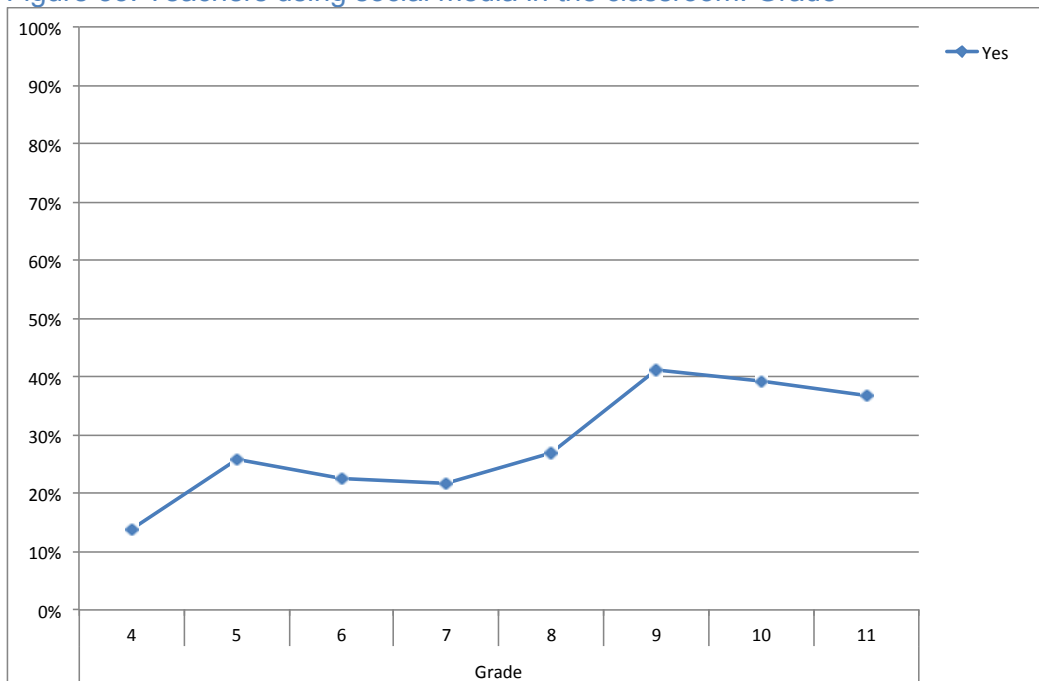


Table 26: Uses of devices in the classroom

If you selected any of the above, what do you do with them during class?	Percentage
Do research for a school assignment or project ^{Grade}	83%
Use educational games or programs ^{Grade}	42%
Read class material (books, textbooks, etc.) ^{Grade}	51%
Watch videos, listen to podcasts, or read websites for class work ^{Grade}	40%
Communicate with other students in your class for class work ^{Grade}	24%
Communicate with people outside the classroom for class work ^{Grade}	16%
Contribute to a class blog or wiki ^{Grade}	19%
Help you concentrate on school work (for example, listening to an iPod to drown out noise) ^{Grade}	38%
As a reward when you finish your school work early ^{Grade}	31%
I don't do any of these things	5%

Table 27: Blocked sites at school

	Percentage Yes
Have you ever had trouble finding something you needed for school work on a school computer because it was blocked? ^{Grade}	36%
Can you access sites at your school even if your school has blocked them? ♂♀ ^{Grade}	25%

Figure 34: Blocked sites at school: Gender

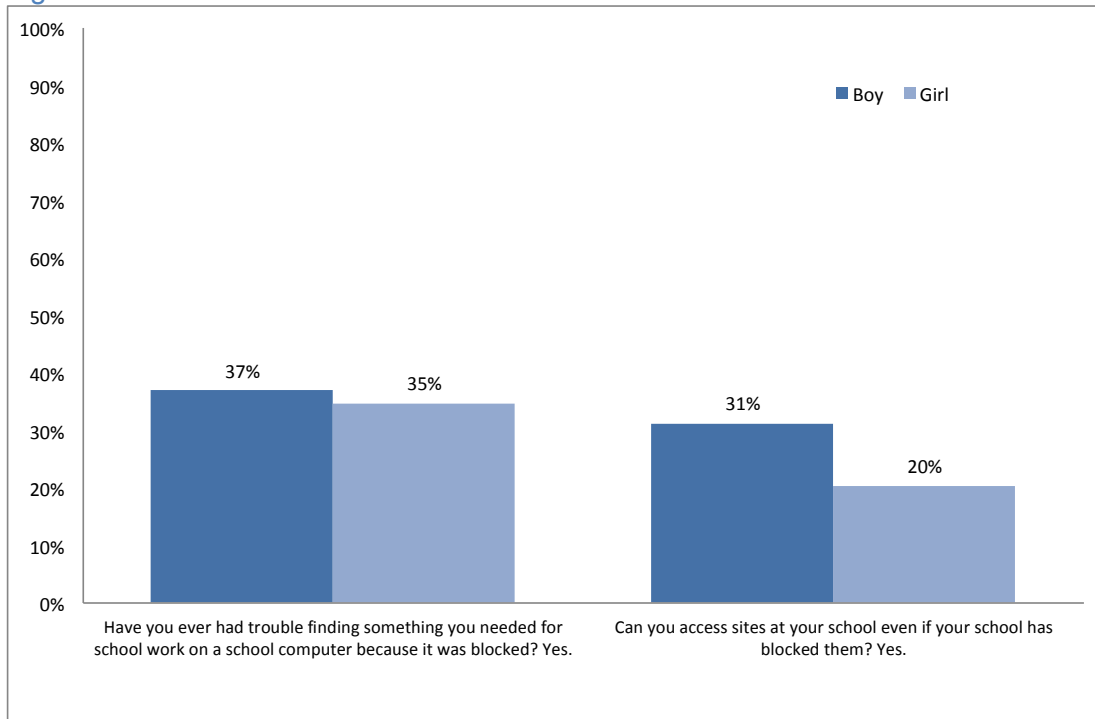
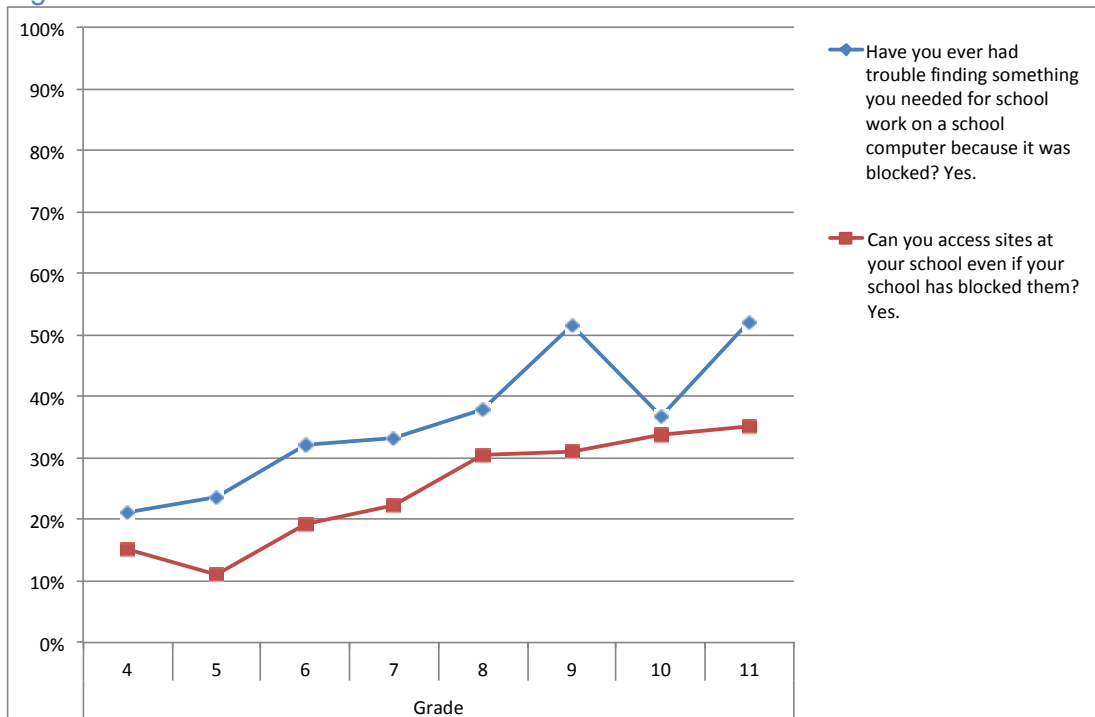


Figure 35: Blocked sites at school: Grade



Methodology

This report is based on the findings of a survey that was administered in 2013 to 5,436 Canadian students in grades 4 through 11. The purpose of the survey was to explore the benefits and challenges children experience when they use networked devices such as computers, tablets, cell phones and iPods. The survey explored the social codes young people develop with respect to their online social interactions and their attitudes about online issues such as privacy, cyberbullying, sexting and offensive and hateful content. It also explored the ways young people use online media to support their learning (both in and out of school) and to create new content.

The survey instrument, consent documents, recruitment text, instructions and method of analysis were approved by the University of Ottawa Research Ethics Board.

► **Recruitment**

Students were recruited through school boards and schools in all 10 provinces and three territories.

MediaSmarts contacted school boards that had participated in its 2005 survey. Additional school boards were also contacted. In total, 51 school boards (44 English and 7 French) agreed to assist in recruitment and all requisite board approvals were then obtained. In Nunavut and the Northwest Territories approval was also obtained from territorial research institutes and the school boards' district education councils.

MediaSmarts then contacted principals of schools within participating school boards. The principals of schools that had participated in the 2005 survey were asked to provide access to the same number of classes and grade levels for the 2013 survey. Principals of new schools were asked to provide access to classes with teachers who were willing and able to assist with recruitment. In total, 140 schools (126 English and 14 French) agreed to assist with recruitment. The schools included a representative selection of urban and rural and public and Catholic schools.

Principals then approached teachers and asked them to assist with student recruitment. Teachers who agreed to do so received the survey documents from Directions Evidence and Policy Research Group (*Directions*). Survey documents included: student information letters; detailed parental consent forms; instructions for teachers; and (where applicable) paper copies of the survey. Teachers distributed the student information letters and parental consent forms to students in specific classes approved by the principal. Students interested in participating were asked to take the information home to their parents. Parental consent forms for all participating students were signed and returned to the teacher by the students.

► *Administration of the Survey*

The survey instrument was developed by Valerie Steeves, with input from MediaSmarts and an advisory committee of experts in the field of children and technology, including Jacquelyn Burkell (Faculty of Information & Media Studies, University of Western Ontario), Wendy Craig (Department of Psychology, Queen's University), Bernard Froese-Germain (Researcher, Canadian Teachers' Federation), Sara Grimes (Faculty of Information, University of Toronto), Phillip McRae (Executive Staff Officer, Alberta Teachers' Association, University of Alberta, Faculty of Education) and Leslie Regan Shade (Faculty of Information, University of Toronto).

The survey was open from February to June of 2013. Students in grades 7 through 11 responded to 57 questions in total. However, since some of the questions dealt with age-sensitive content – including sexting, sexism, racism, romantic relationships, gambling, pornography, future employers and more complex digital tools (e.g. advanced search functions) — a shorter version of the survey without these questions was created for students in grades 4 through 6. Accordingly, those students responded to 52 questions in total.

Students in schools where the language of instruction was English completed the survey in English. Students in schools where the language of instruction was French completed the survey in French.

The surveys were completed during class time and administered by the classroom teacher, teacher-librarian, vice-principal or the principal. Participating students either completed the survey electronically or filled out a paper version, depending on the availability of Internet access and the preference of the teacher. Students were advised that: neither the teacher nor the school would see their responses; their answers would be kept anonymous; they could skip any question they did not want to answer; and they could stop filling out the survey at any time. Surveys completed on paper were placed in an envelope and sealed in the students' presence. The envelope was then mailed to Directions by express post. Surveys completed electronically were administered by Directions using Fluidsurveys online survey software.

In total, 5,776 surveys were received in paper and electronic formats. Data cleaning left 5,436 surveys (1,721 paper and 3,715 electronic) for analysis. Some students skipped questions and/or did not complete the entire survey. Accordingly, to minimize the loss of data, the analysis was conducted on a question by question basis. The results reported are therefore based on the number of students who completed each question and not on the number of students who completed the survey as a whole.

► *Notes on Statistical Analysis*¹⁰

Statistical analysis was conducted by Directions and the tables and graphs included in this report were prepared by Directions.

Chi-squared tests were used to identify statistically significant differences in responses by gender, grade, primary language of instruction (French, English) or affluence. To compensate for the possibility that errors may be correlated with one another in some way when making multiple comparisons from the same data set, it is often helpful to establish a more stringent significance level. Thus, instead of the commonly used significance/alpha level of .05, it is sometimes recommended that one perform a Bonferroni Correction by dividing the alpha level (.05) by the number of items being compared, therefore establishing a higher and more stringent threshold for significance. For the current analysis, for each factor of gender or grade, 400 tests were run, thus, the significance/alpha level was calculated as $.05/400 = 0.000125$ and applied to all of the tests.

In the results presented in this report, statistically significant differences by gender are indicated next to the question by ♀♂ and statistically significant differences by grade are indicated next to the question by ^{Grade}.

► *Comparing French language Students in Quebec and English language Students in the Rest of Canada*

Throughout the report, we compare the responses of French language and English language students in the sample. Because the number of students in English language schools in Quebec (124) and the number of French language students outside of Quebec (204) was very low, comparisons between students on the basis of language of instruction alone would have made statistical comparisons difficult. To explore any differences between French language students and English language students, we therefore compared the responses of students in Quebec whose primary language of instruction was French with the responses of students in the rest of Canada whose primary language of instruction was English.

There were statistically significant differences between the two groups regarding access to technologies, privacy-related behaviours, the role of adults in students' online lives, cyberbullying and racism/sexism. However, interpretative and inferential caution is warranted, because there were approximately eight times more English language students than French language students in the sample. Even though the analysis applied very stringent criteria (significance level of 0.000125), making strong inferences about the differences observed or generalizing the findings beyond the sample is not warranted.

¹⁰ The paragraphs on Chi-squared tests and on interpretive and inferential caution were written by Directions and were included with the permission of the author.

► **Comparing High Affluence Students and Medium Affluence Students**

A modified version of the Family Affluence Scale¹¹ was used to measure students' socioeconomic status. The scale is widely used in research with children because it enables researchers to solicit information about socioeconomic status directly from the children themselves and the scale shows some construct validity¹². Although reports in regard to reliability are mixed, we opted to use the scale instead of relying on postal codes as a proxy for socioeconomic status because of the number of rural schools with large catchment areas in the recruitment pool and the variability of socioeconomic status within individual Canadian schools.

The scale is based on responses to the following four questions:

1. Does your family own a car, van or truck?
(No, we don't own a car, van or truck = 0; Yes, one car, van or truck = 1; Yes, more than one car, van or truck =2)
2. During the past 12 months, how many times did you travel away with your family?
(Not at all = 0; Once = 1; Twice = 2; More than twice = 3)
3. How many computers does your family have?
(None = 0; One = 1; Two = 2; More than two = 3)
4. How well off do you think your family is?
(Very well off = 4; Quite well off = 3; Average = 2; Not very well off = 1; Not at all well off = 0)

We created a composite score for each student who responded to all four questions. The composite scores were then divided into categories of low affluence (including composite scores of 0, 1, 2 and 3), medium affluence (including composite scores of 4, 5, 6 and 7) and high affluence (including composite scores of 8, 9, 10, 11 and 12).

Only two percent of the sample fell into the low affluence category. Because the numbers of students (65) in this category was so low, statistical comparison between the low affluence group and the medium and high affluence groups was not possible. Accordingly, students on the low affluence category were not included in the analysis of socioeconomic status, and the results reported in this report are based on a comparison of the medium and high affluence groups only.

► **Limitations: Interpretive and Inferential Caution is Recommended**

As with all survey data, readers should be cautious about the interpretations or inferences they draw from these findings. Regardless of the age of the respondents, answers from self-reports are typically less reliable than direct observation of a behaviour. All respondents manage the impression that they convey with their answers. Answers may represent what the respondent wants us to know or think about their behaviour, rather than how they actually behaved. In

¹¹ Currie, Candace E., Rob A. Elton, Joanna Todd and Stephen Platt. (1997). Indicators of socioeconomic status for adolescents: The WHO health behavior in school-aged survey. *Health Education Research*. 12(3), 385.

¹² Kehoe, Susan and Liam O'Hare. (2010). The reliability and validity of the Family Affluence Scale. *Effective Education*. 2(2), 155-164

addition, differences in the percentage reporting behaviour between groups may reflect differences in how comfortable each group is in reporting the behaviour, rather than differences in how much each group actually engages in the behaviour.

When data are collected from different age groups in the same survey, it is tempting to want to interpret the differences in the percentages as increases or decreases from one age group to another. These data do not support such claims. The most that can be said is that a larger or smaller percentage of respondents in one or another age group said this or that. Moreover, when there are differences between age groups it is also tempting to infer that the differences are attributable to maturity when they might simply reflect differences in the frame of reference or experiences that younger and older students have about the object of the question.

One should be cautious about comparing the findings from this survey to the findings in previous surveys for several reasons. First, technology has changed dramatically; online accessibility and content in 2013 is very different from that of 2005 or 2001. Second, in addition to the technological changes that have occurred the rapid nature of social and cultural changes occurring in the eight years since the last survey may mean that the Grade 4 students today are different from the Grade 4 students surveyed eight or 12 years ago.

Demographics of Survey Participants

Forty-one percent of survey participants were boys and 46 percent were girls. An additional 13 percent did not report a gender. The number of students per grade ranged from 424 for Grade 11 to 745 for Grade 7.

Table 28: Demographics: Number of survey responses by gender and grade

Gender	Grade									Total	
	4	5	6	7	8	9	10	11	Not provided / other ¹³		
Boy	226	213	271	356	322	249	304	194		96	2231 (41%)
Girl	272	296	288	368	376	252	347	229		73	2501 (46%)
Not Provided	13	12	24	21	14	17	8	1		594	704 (13%)
Total	511	521	583	745	712	518	659	424		763	5436
	(9%)	(10%)	(11%)	(14%)	(13%)	(10%)	(12%)	(8%)		(14%)	

Survey participants were drawn from all 10 provinces and three territories. Eighty-six percent of students were enrolled in schools in which English was the primary language of instruction. The remaining 14 percent of students were enrolled in schools where the primary language of instruction was French. Seventy-three percent of the students enrolled in French schools were from Quebec; the remaining students enrolled in French schools were from Manitoba (20%), Ontario (3%), Prince Edward Island (2%) and New Brunswick (2%).

¹³ 16 students from Grade 3 participated and 44 students from Grade 12 participated. This is likely because some classes are split Grade 3/4 and 11/12 and these classes participated as a whole.

Table 29: Demographics: Number of responses by language of instruction and province

Primary Language of Instruction				
	English	French	Total	
British Columbia	513		513	(9%)
Alberta	560		560	(10%)
Saskatchewan	382		382	(7%)
Manitoba	171	152	323	(6%)
Ontario	1992	24	2016	(37%)
Québec	124 ¹⁴	557	681	(13%)
Newfoundland and Labrador	162		162	(3%)
Prince Edward Island	106	16	122	(2%)
New Brunswick	373	12	385	(7%)
Nova Scotia	180		180	(3%)
Yukon	32		32	(1%)
Northwest Territories	24		24	(<1%)
Nunavut	29		29	(1%)
Unknown	26	1	27	(<1%)
Total	4674 (86%)	762 (14%)	5436	

The survey asked students to indicate what languages they spoke at home. Ninety-one percent spoke English at home and 28 percent spoke French at home. Two percent to 6 percent also reported speaking a language at home other than French or English.

¹⁴ Eight students in an English language school took the survey in French as the survey was administered in their French Second Language class.

Table 30: Demographics: Languages spoken at home

What languages do you speak at home? ¹⁵	% Speaking
English	91%
French	28%
Arabic	3%
Chinese (Cantonese, Mandarin, other dialect)	6%
German	3%
Greek	2%
Italian	5%
Korean	2%
Panjabi (Punjabi)	3%
Persian (Farsi)	1%
Polish	2%
Portuguese	2%
Russian	2%
Spanish	4%
Tagalog (Pilipino, Filipino)	3%
Tamil	2%
Urdu	2%
Vietnamese	2%
Other	11%

A large majority of the students who completed the survey in one of the official languages reported that they spoke that language at home (96% English and 92% French).

Table 31: Demographics: Languages spoken at home by students taking survey in English or French

What languages do you speak at home?	English survey	French survey
English	96%	57%
French	19%	92%

Students were asked a series of questions to determine their socioeconomic status based on the Family Affluence Scale¹⁶. Only two percent of the sample scored in the low affluence category. Approximately two-thirds self-reported as being high affluence.

¹⁵ Twelve percent of respondents did not provide language information. In addition, some students reported an improbable number of languages spoken at home; however, these numbers were very low and these students' responses were included in the analysis.

¹⁶ See [Methodology](#) for more information about the Family Affluence Scale.

Table 32: Demographics: Affluence

Affluence Level	Percent Respondents
Low	2%
Medium	32%
High	66%

Figure 36: Demographics: Frequency distribution of composite affluence scores

