



CHAPTER 7 Supplement:

Widening the socio-economic gap? Teachers' concerns about unequal student access to technology and the impact on learning

This report is one of a series documenting the findings of the Poverty and Education survey. For additional information, see: <http://www.bctf.ca/PovertyResearch.aspx>



A BC Teachers' Federation study. This survey was conducted by BCTF Research in collaboration with the Anti-poverty action group of the Committee for Action on Social Justice.

Poverty and
Education survey:
A teacher's
perspective



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About the Poverty and Education survey

The *Poverty and Education survey: A teacher's perspective* was conducted by BCTF Research in collaboration with the BCTF Anti-Poverty Action Group of the Committee for Action on Social Justice, building on the findings of focus group research that explored poverty and education issues with teachers in four school districts¹. The purpose of the provincial survey was to assess whether and to what extent the focus group findings reflect teachers' experience across the province, to deepen our understanding of how poverty and education issues vary by regional, socio-economic, and school characteristics, and to identify what resources are most needed to address poverty within BC schools and the community.

Contributions and acknowledgments

BCTF Research Department

- Research design, data analysis, and reporting of survey results: Margaret White, Senior Research Analyst
- Assistance in all phases of the research project: Anne Field, Research Assistant
- Leadership and support for the project: Larry Kuehn, Director, Research and Technology Division

Committee for Action on Social Justice—Anti-Poverty Action Group

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- Leadership, co-ordination, and input into final reports, Barb Ryeburn, Assistant Director, Professional and Social Issues Division
- Leadership, co-ordination, and survey promotion: Kathy Hartman, Assistant Director, Professional and Social Issues Division
- Leadership in the early phases of survey design: James Chamberlain, Assistant Director, Professional and Social Issues Division (up to August 2012)
- Pre-testing, survey promotion, and/or input into survey results: Amy Dash, Sue Spalding, Debbie Sabourin, Annie Ohana (current members as of May, 2013) and ongoing input from members of the CASJ Anti-Poverty Action Group
- Survey development and questionnaire design: Ilse Hill (former member of the CASJ Anti-Poverty Action Group)

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¹ White, M., Hill, I., Kemp, S., MacRae, J., and Young, L. (2012). *Poverty and education: A teacher's perspective—Summary of the findings of the focus group research*. Available at: www.bctf.ca/PovertyResearch.aspx.

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Information on study design and who responded to the survey: See *Chapter 1, Teachers who responded to the survey and the students that they teach*, at www.bctf.ca/PovertyResearch.aspx.

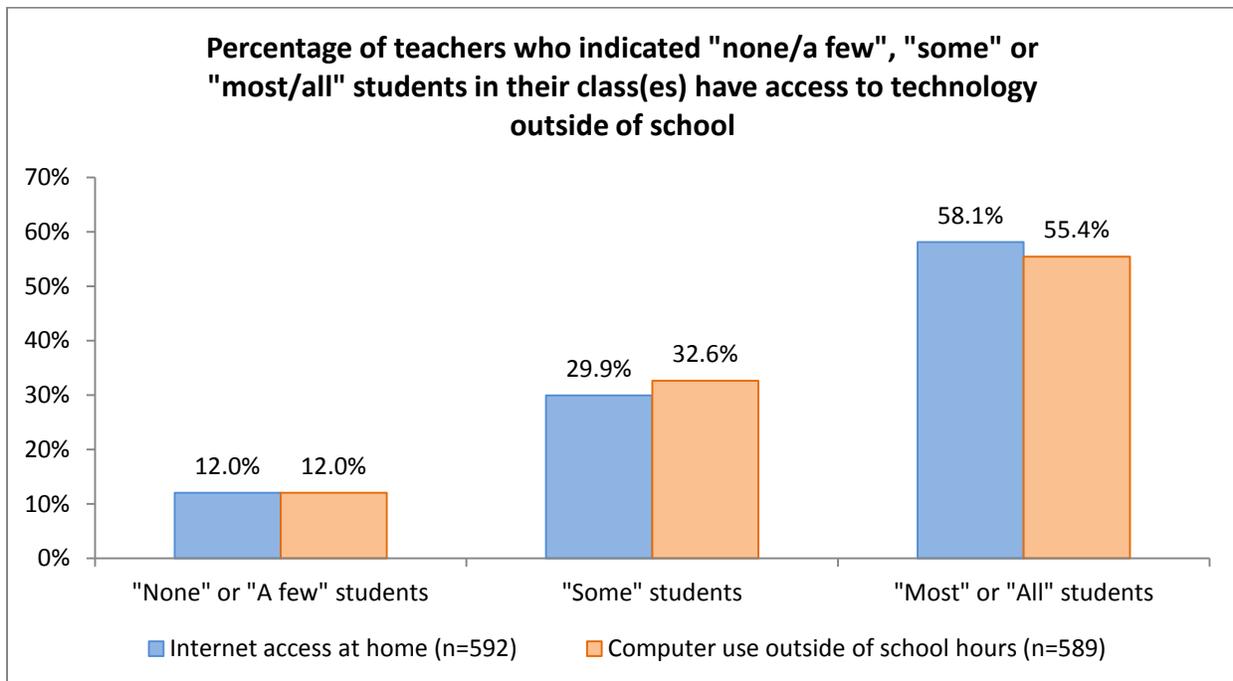
Student access to technology resources outside of school and the socio-economic context of the school

The objective of this section of the survey was to document teachers' perceptions of how many students in their class(es) have access to internet at home and to computer use outside of school hours. The survey also invited teachers to comment on how the increased use of technology in learning affects students who do not have access to internet and computers at home.

Access to technology resources outside of school

The survey asked teachers (if it applied to their teaching situation) how many students in their class(es) they are aware of who have access to the internet at home and how many have access to computers outside of school hours (at home, community library, or friend's house). The following table shows that of the teachers who provided an estimate of how many students in their class(es) have access to technology, one in eight teachers (12%) indicated that either "none" or "a few" of the students in their class(es) have access to internet at home or access to computer use outside of school hours. At the other end of the continuum, just over one-half indicated either "Most" or "All" students in their class(es) have access to internet at home (58.1%) and either "Most" or "All" have access to computer use outside of school hours (55.4%). (See Appendix for all responses.)

A slightly higher proportion of teachers indicated either "Most" or "All" students have access to the internet at home than for access to computer use outside of school. This discrepancy may be because some students do not have a computer at home they may have another type of device for accessing the internet such as a tablet or smart phone.



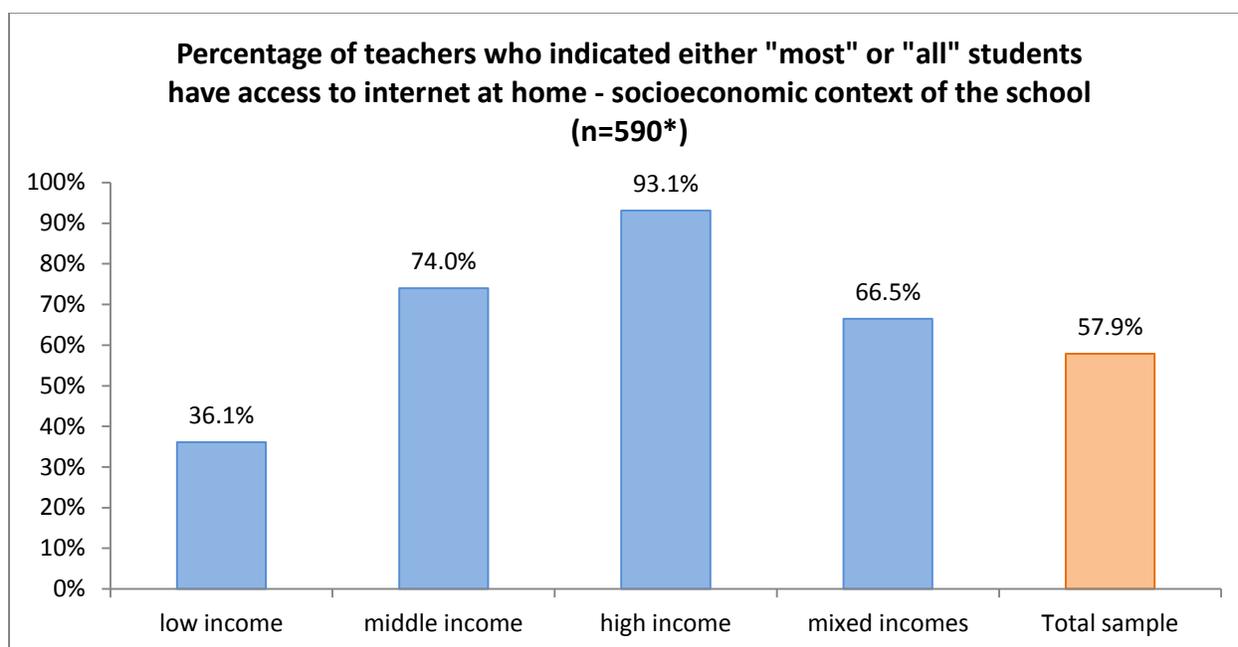
Percentages are calculated after excluding "Does not apply" or "Do not know" responses and are based on valid responses (excludes those who did not answer the question).

Access to technology resources outside of school—Socio-economic context

The above findings suggest that teaching situations vary greatly in the amount of access students have to internet and computers outside of school. A further analysis of the data by the socio-economic context in which the school is located reveals that the percentage of teachers who indicate most or all students have access to technology outside of school is considerably lower for low-income schools than for high-income schools.

Access to the internet at home—Socio-economic context

The following chart shows that only one-third (36.1%) of teachers at low-income schools indicated either “most” or “all” students in their class(es) have access to internet at home, while 74% of teachers in middle-income schools and 93.1% of teachers in high-income schools indicated either “most” or “all” students in their class(es) have access to internet at home. Two-thirds (66.5%) of teachers in mixed-income schools indicated either “most” or “all” students have access to the internet at home, higher than the sample (57.9%), but lower than middle- and high-income schools.

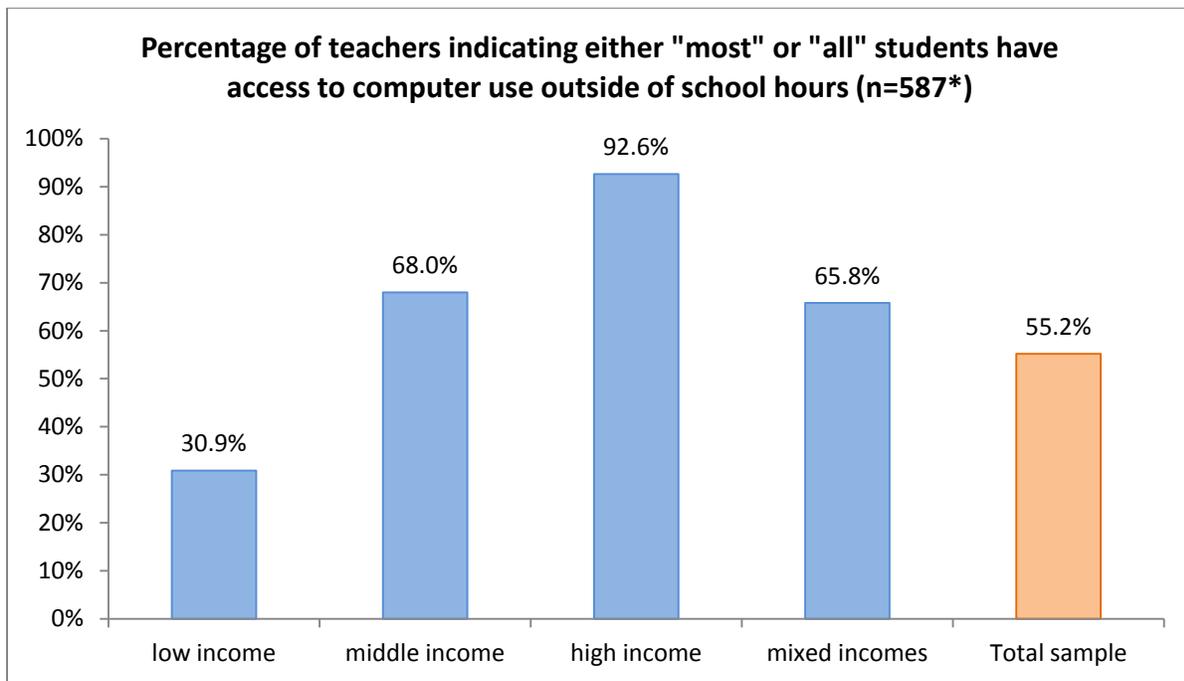


* Percentages are based on total responses after excluding missing values, “Does not apply,” and “Do not know” responses.

These findings suggest that the cost of home internet service may be out of reach for many low-income families living on a limited budget. These students will have less opportunity to communicate by e-mail, participate in collaborative online projects, conduct internet research for school assignments, and develop computer skills, than students in middle- and high-income schools. Teachers in schools located in low-income neighbourhoods will face more challenges related to student access to technology as the curriculum and teaching practices become technology based, and as communication with students and parents moves to an electronic format.

Access to computer use outside of school—Socio-economic context

Similar results are found in comparing the proportion of teachers indicating students have access to computers outside of school hours, by the socio-economic context in which the school is located. The following chart shows that less than one-third (30.9%) of teachers in low-income schools indicated either “most” or “all” students in their class(es) have access to computer use outside of school hours, while 68% of teachers in middle-income schools, and 92.6% of teachers in high-income schools indicated either “most” or “all” students in their class(es) have access to computer use outside of school hours. Two-thirds (65.8%) of teachers in mixed-income schools indicated either “most” or “all” students have access to computer use outside of school hours, higher than the sample (55.2%), but lower than middle- and high-income schools.



* Percentages are based on total responses after excluding missing values, “Does not apply” and “Do not know” responses.

These results also suggest that the cost of owning and maintaining a home computer may be out of reach for many low-income families. Some of these students may have access to other electronic devices, but these may not be suitable for preparing and printing school assignments. And some students may not have easy access to a community library or other places to check email and do internet searches, limiting their ability to utilize technology relative to students in middle- to high-income families. Teachers in schools located in low-income neighbourhoods would also face considerably greater challenges integrating technology into school assignments than teachers in schools in middle-income and high-income neighbourhoods.

Teachers commented extensively on issues related to student access to technology, with the qualitative analysis providing insights into the implications for students who fall behind in learning expectations because they lack access to the same technology as their peers. The broad thematic areas that emerged in the qualitative analysis are included below.

What teachers had to say about the impact on students who do not have the same access to technology at home as other students

Teachers were asked to comment on how the increased use of technology in learning affects students who do not have access to internet and computers at home. Teachers' comments indicate that not all families are able to afford internet service and computers and that some rural areas do not have reliable internet service. Teachers expressed concern about the widening gap between students who have access to the latest technology and those who do not. Some teachers said they limit the type of homework assignments so a computer is not required, and leave the classroom open for computer use at lunch to help address this inequity. Some teachers commented that outdated technology and limited hours for students to use technology at the school can further restrict access. Teachers noted students without access to technology are disadvantaged in completing assignments, skill development, and social opportunities (school blogs, group-work, social media). Some Primary teachers expressed concern about the effects of overuse of technology at home on student well-being. Other teachers expressed concern that even when students have plenty of access to technology it is used primarily as a source of entertainment rather than for educational purposes. The qualitative responses also provide insight into the potential impact of lack of access to technology on the emotional and social well-being of students, and the degree to which students and parents can participate in the school community.

Thematic areas

One-third of survey respondents provided qualitative comments in response to the question "Do you have any comments to make about how the increased use of technology in learning affects students who do not have access to internet and computers at home?" The qualitative results for the responses to this question are organized into seven major topic areas, with illustrative quotes provided for each theme within each of the topic areas.

The broad topic areas are: 1. Access to technology at home or in the community; 2. Teachers' concerns about the use of technology by students; 3. Access to technology for students while at school; 4. Teachers' concerns about the school's expectations on families to provide devices; 5. Teachers' views on the impact of students not having access to technology at home on school assignments; 6 How not having the same access to the same technology as other students can impact the emotional and social well-being of students; and 7. Internet access at home and electronic communication by the school with students and parents.

Theme 1: Access to technology at home or in the community

Teacher views on student access to computers and internet at home

Teachers expressed a range of views as to whether most students at their school have access to computers and internet at home. Many teachers observed students in their class(es) who have no, or inadequate, access to technology at home necessary to complete school assignments. Other teachers observed that most of the low-income students they teach have internet and/or some form of technology, although this tends to be cell phones or gaming devices. Several teachers in rural/remote areas noted that there is no reliable internet service in the area in which they teach. A few teachers noted that even if families have computers and internet it is shared with other family members and their students may not have access to it for schoolwork.

Some students do not have access to computers and internet outside of school

Many of the comments by teachers indicate that some families in their school cannot afford internet service and computers, challenging the assumption that all students have access to technology at home.

When polling kids on the east side many did not have internet at home or a computer.

Literacy Nanaimo supplies free computers but still many can't afford internet.

There are definitely many that have computers for gaming, but no Internet for research or printers.

Not having the money to afford a computer and/or Internet definitely restricts the amount of homework that can go home. We take it for granted that you can just Google something or look it up on the Internet. Many of these families don't have that luxury.

Technology requires the financial capital to be able to obtain, thus those who are suffering from financial constraints are forced to be without.

My alternate students have significant barriers related to accessing technology. My regular students in drama do not have the same barriers. Some do. Less of a percent.

Most of our students have to work at school outside school hours to complete assignments requiring technology as there is no computer/internet at home.

Some teachers' comments are a caution to those who assume everyone has access to technology at home:

What concerns me is an assumption or perhaps a conclusion that all kids have technology or a phone, or access to it, or whatever; I can see that that simply is not true, no matter what companies say, or so-called tech-experts say.

The assumption is that all students have access to internet and computers at home, but I am constantly surprised at how many of my students say they don't have access.

Teachers assume students have access to computers. While there is access at school we commonly assume everybody has access to computers AND printers.

There are expectations that everyone is plugged in, but there are some who obviously have more access to tools and internet capabilities than others.

Most students have access to technology regardless of income

Some teachers expressed a different view, observing that in their school even families with very low incomes seem to have access to technology and will sacrifice other basic needs:

Even some of our poorest kids have smart phones and the Internet.

Every kid regardless of income seems to have some form of technology.

I don't know of any students that do not have the internet at home. Families will pay for that before paying for clothes and laundry.

Many families have Internet etc but no money for food.

Surprisingly, those families on welfare have most or all of the technology that well-to-do families have.

One teacher elaborated, suggesting that low-income families value education and within limited means will do what they can to provide their children with technology to support their learning:

Technology access seems to be a priority even for the economically challenged.

Internet access for the poor is much higher than we believe, but usually schools have too many barriers to log on to classroom sites. Poor families value education as much or more, and often see internet as part of furthering education.

Access to games and phones but no computer at home

Other teachers expressed the view that while low-income families may have mobile devices or gaming technology, they do not necessarily have the technology required for school work or use the technology they do have for educational purposes:

Almost all families have mobile devices, I-phones etc. Very few have computers. Tech. is for gaming/face book, that's it.

It seems like even the poorest kids have the best cell phones, but apparently have no computer at home. This makes no sense to me.

Most students have access to some technology, however many do not have access to adequate technology to follow the plan the government wants to happen.

Most of the students play games and have cell phones.

Most students even those who live in poverty have internet at home and spend hours gaming or surfing the net.

Home has computer but students may have challenges gaining access to it

A few teachers observed that even in families with a computer and internet access, students are not able to use it for schoolwork because the computer is shared with other family members:

Even at the grade one level the kids say that the older siblings are on the computer all night so they do not get a chance.

Many of our students have internet but are not allowed to use it as parents are using it or their access is unsupervised and used primarily for games and social networking. Most families don't recognize the computer and internet as learning tools.

Students without access to the internet are not able to keep up. Many of our students have adequate computers at home but the parents must use them for business.

Limited access to reliable internet services in remote and rural areas

Several teachers in rural areas of BC commented on the limited and unreliable internet access in rural and remote areas:

When you live in a rural area access to the internet is difficult. Some are still using dial up service.

Our community lacks adequate internet services in general. It is very expensive to get speeds in excess of dial-up.

Rural locations do not have reliable internet.

Some parents express frustration with poor access to the internet (that some experience) in the area.

In a rural area some students are still on dial up or do not have computers or a library nearby to go to.

In rural areas, high speed internet does not even exist. It is not a reality to expect many of our rural students to have access to internet/computers. Due to cost/lack of access/no high-speed internet, etc.

Lack of access to internet in rural/remote locations. Having just moved to the Cariboo - beyond the Lower Mainland [I] realize internet access is spotty.

Other comments

Some of our students do not have computers and internet access because of family choice.

We do not have the access to technology in our school, so the access to technology at home is not a huge concern.

Various factors prevent such a case. Besides, having the technology in the classroom or at home is nice, but not critical to achieving PLOs, learning or academic success in my opinion.

Theme 2: Teachers' concerns about the use of technology by students

Technology is not always a good thing: Teacher concerns about how much time students spend on technology devices and how they use it

Several teachers expressed concern over what they viewed as the negative effects of having too much access to technology at home for entertainment rather than educational purposes. A few teachers noted students coming to school sleep-deprived from staying up too late playing computer games. Primary teachers were particularly concerned with the exposure of young students to violent computer games.

Concerns about how much time students spend on technology devices and how they use it

Several teachers expressed concern that students who do have computers at home spend too much screen time, mostly for non-educational purposes such as gaming and social media.

I find kids are connected too much at home, either through computer or electronic games.

My students don't tend to do school work at home. If they have computers at home, they use them for gaming or social networking.

No a bit. Students use computers to play games, and text their friends. They do not access online course content or enrichment activities, or improve their work or their learning.

I see a relationship between poverty and internet/computer use, actually. I notice that many of my vulnerable students play video games at home because they are not given attention from their parents or have a lot of time on their own.

I think there is too much screen time at home whether it is 'educational' material or not.

Technology is the biggest distraction in my secondary school classes, more than I would ever have imagined.

Two teachers commented that excessive screen time at home means some students are coming to school without having had enough sleep:

Many have unmonitored computer access and they do not use the technology for learning. They use it for social media, often lacking sleep because they are up late.

Among boys especially, gaming is the major form of leisure. Far fewer kids take part in extra-curricular activities. A few of my boys are sleep deprived because of late night gaming sessions. Also, a few of my female students find on line social networking a stressful pastime.

One teacher suggested that the way in which parents are guiding the use of computers at home (for educational purposes versus entertainment) is contributing to an educational gap between students at school:

Although many of my students have access to computers and the internet, some do not have parental support to ensure these resources are being used in an educational fashion. The separation between those who do practice and those who don't is growing.

Concerns by elementary teachers re: younger students and technology

Some Primary teachers expressed concern about the effects of the overuse of technology at home on student well-being. These included effects such as spending less time in outdoor activities, exposure to inappropriate content and violent video games, and a decrease in basic literacy and motor skills.

I fear young children spend too much time with technology and not enough time outside exploring.

I have the opposite issue - very young students are spending too much time on computers and technology at home and are having trouble focusing or are exposed to violent games and inappropriate sites.

I teach kindergarten. In my families, technology is generally used in the non-helpful forms such as violent video games.

My students are aged 8 and 9. I have more of a concern over the violent video games they play.

Teaching kindergarten I have seen the decrease in basic skills, printing letters of own name, recognizing numbers and letters, ability to cut with scissors, ability to color, etc.; all deteriorate as the use of technology and devices for "babysitting" have become more available. Many of my students clamour to play with the blocks, doll house and cars and then tell me they don't have toys like this at home, they play video games instead.

Theme 3: Access to technology for students while at school

Access to computers at the school outside of school hours

Several teachers described the ways in which their school provides some access to computers and internet for students outside of school hours (before and after school or during lunch) in the school library, computer labs, and/or the classroom.

As the teacher librarian, I have the library open every day at 8:30 for 1/2 hour before school and 1/2 hour after school. Teachers also send down students who require extra access.

School library or computer labs at lunch, before and after school.

The unreliability of the Vancouver public school browsers and/or Internet service reminds me always to provide extra time for those students who need access to computers in school, beyond classroom time. We have computers in the Library and a dedicated classroom available to any student who wants it every lunch time, before and after school.

In every class of 30 students, there will be one or two students who do not have access to the internet at home. Our school provides adequate access to computers and the internet during school hours (8-3:30pm) and during individual class times.

They can use it at school. There are so many resources at school for students to use technology - I think it is an asset and helps those who don't have internet.

We give them time at school to use technology/internet.

We provide internet access and free time on the computers in the morning for students.

Our school has a lot of computers so those without internet or computers at home are not falling behind.

Barriers to accessing computers at school

But teachers' comments also suggest that there are barriers to students accessing computers at school. Some teachers commented that cuts to school libraries and teacher-librarian positions have meant fewer hours when students can use computers at school:

I had thought that since our school offers computers for use to the student body and the community that there would be adequate access for all, but since our library closes at 3 due to budget cuts, the only time they can access them is when they are already in their classes.

These students may not be able to complete assignments due to cutbacks in teacher librarian staffing.

The comments suggest there are other barriers students may encounter who must use school computers outside of school hours for homework assignments. These include not having enough computers at the school to meet student needs, limited hours because of a policy requiring supervision when students are using the internet, and the inability of some students to stay after

school. This is especially so for students in rural/remote areas who must travel by school bus and for students who care for younger siblings after school.

The school has a limited supply of computers so students who don't have computers at home aren't able to get extra computer time.

We do not have adequate technology in our school especially for students with learning challenges.

I teach somewhat younger students, but there are certainly many older ones who spend extra time at school accessing the internet to do homework. The problem is that they can only access the internet if there is supervision, which is only available some mornings and for a short time after school.

They are really handicapped without a computer. Many of them are not allowed to stay after school to use our computers either.

They have to stay at school longer to use the internet in the library, if they're not bus students, but most kids without internet at home are also from remote areas so this is a problem.

Other access to technology outside of the school

A few teachers commented that students without computers at home need to use the public library in the area or make arrangements to use a computer:

Public library access

Friends' house.

Students have access to public library to use computers.

Good libraries in our town make computers available after school.

Students will have to make arrangements to complete work at school where they have access to internet.

School programs to provide access to technology devices

A few teachers mentioned their school provided laptops or tablets for students:

My class is part of a one-to-one laptop program. This means that the district provides each student in my class with a laptop for use both at school and home. For several students in my class, this laptop is the only computer that they, and their family, have available at home.

We have a laptop program for our students in grades 4 and up, so students do get the opportunity to use this technology at school.

We have I-Pads at our school and they have been useful.

Two teachers noted the need for such programs:

I know of several kids who need I-pads and I-Pods to do their school work and can't get them in our school, never mind at home.

Our district has not allowed students at the secondary level to take part in laptop programs if they could not bring their own device.

Theme 4: Teachers' concerns about the school's expectations on families to provide devices

Teachers expressed concern about the widening gap between students who have access to the latest technology and those who do not. Some expressed strong feelings about social justice issues related to equity, discrimination, undue stress on families, and undemocratic outcomes if not all students have access to technology.

Teachers' concerns about expectations on families re: technology required at school

Several teachers expressed the view that parents are feeling increasingly pressured to provide technology for their children, whether they can afford it or not.

Increasingly students are being asked to bring technological devices to school (e.g. phones and I-Pads), which disadvantages students without these devices or forces parents to redirect scant resources to provide the tools their child needs.

Lots of pressure on parents to get computers [and] internet - when they don't have the money.

Use of smart phones places pressures on families to provide them.

A few teachers expressed a sense of injustice over the pressure on parents to provide electronic devices for their children:

Completely unacceptable to expect parents to pay for technology meant for school use or for teachers to assume all students will be able to do computer assigned homework at home. Shameful!

The expectation that all students have access to, or permission to use, computers and internet outside of school is inherently discriminatory.

Teachers' concerns about Ministry expectations re: technology in the classroom

Some teachers also expressed concern that the Ministry of Education plans to increase the role of technology in learning without considering the social and educational impact on students who do not have access to technology at home.

Boards, Ministry, and admin push, push, push tech but seem to forget about these kids.

There are some students who don't have internet access at home and don't have cell phones and they feel left out. There is more demand from society for our kids to be tech ready for the future, but not all have access. 21st century learning can happen if all students have access to the technologies to participate equally.

It is a mistake to assume that all students have access to computers outside of school, or can afford electronic devices such as I-pads, etc. As these devices become more prevalent in certain schools (often in higher-income areas), it exacerbates the disparity between students and neighbourhoods. I worry that the government's increasing emphasis on technology in education signals an abandonment of the ideal of public education as an equalizing force, available freely to all.

Another concern is that the Ministry will not properly fund the training of teachers and the technology necessary to ensure that all students benefit from 21st century learning.

Proper access to technology with direct supervision by a responsible adult (not just someone in the house) is low for students in my classes. If/when the ministry implements their 21st century learning plan thereby increasing the levels of technology in/out of the class - I foresee MANY challenges for teachers/students in BC. As usual, the biggest challenge will be that teachers will be expected to teach using technology where prior training is NOT funded and ongoing training/maintenance of the technology is NOT funded, but what else is new from the ministry?

Technology is only a tool, just like pen and paper. To suggest that technology will solve the crisis in education is like saying that a band-aid will heal a broken leg. Without proper training of teachers and access to up-to-date technology, the computer, iPad, iPod, tablet, etc. become a toy to amuse the students rather than engaging them in meaningful learning.

Theme 5: Teachers' views on the impact of students not having access to computers and the internet at home on school assignments

Teachers noted students without access to technology are disadvantaged in completing assignments, skill development, and social opportunities (school blogs, group-work, social media). Many teachers observed that these students are falling behind their peers academically. Students who lack access to a computer and internet at home are not able to achieve the same quality of presentation without a computer, have less opportunity for research and therefore less information upon which to base their assignment, and may have less proficiency in accessing and utilizing computer software that would enhance their learning. Some Primary teachers use computer programs to develop reading skills, and students without access to online reading programs at home have less opportunity to practise and develop these basic skills.

Students without access to computers and internet at home are disadvantaged relative to their peers in completing school assignments

Teachers noted students without access to technology are disadvantaged in completing assignments, skill development, and social opportunities (school blogs, group-work, social media). Several teachers expressed the view that students without access to technology at home are disadvantaged at school:

Any student who does NOT have access to internet and computers is at a severe disadvantage to the other students. Using technology has changed the way we teach as well as the way [in which] students access information. Lack of access to that information is no longer acceptable.

It is a huge disadvantage to those students who do not have access to the Internet and/or a computer at home.

Detrimental, it is a disadvantage.

It is a disadvantage if the teacher expects assignments to be done at home.

Increased use of technology can and does penalize students who do not have access to internet and computers at home.

It can be a barrier for some students when they do not have a computer, access to a computer or the internet. Some students do not have a cell phone that can be a barrier as well.

It makes doing certain assignments impossible for some students and puts them at a disadvantage.

Fewer computer literacy skills

Teachers observed that students without access to the same technology at home as other students have fewer computer literacy skills such as keyboarding, knowing how to access programs, use of presentation software, and other computer skills that support students to complete schoolwork.

Keyboarding can be an issue, as is familiarity with general use of the computer for students without technology at home.

Illiterate in terms of technology use and lingo. Inability to complete research assignments as well as others.

THEY ARE NOT AS ADEPT ACCESSING PROGRAMS.

They are behind their peers in knowledge and skills related to technology, they cannot get caught up when they miss school computer time.

They are not able to complete assignments in the same amount of time; not able to make glossy colourful posters; they don't learn to use technology in the same way.

Limits access to research information and acquire knowledge

This is huge. Many students do not have computer access. It makes it tough for them to compete with others who do have the access to information.

Only that these children may not have as much general knowledge as those with access.

They will fall further behind. Limits means of representation of learning. Cannot do further research or satisfy individual curiosity.

More difficult to complete homework assignments

Several teachers observed that students without access to the technology at home have more difficulty completing school assignments:

It can be a barrier to some students for completing assignments and accessing resources.

More and more assignments need internet access and/or home computers to complete, it's difficult for students without these resources to get time at school to do the assignments.

It is impossible for some of them to get assignments done at home. So, more class time has to be dedicated to assignment completion.

Limits them in doing assignments effectively and to the best of their ability.

It makes it difficult for students to complete assignments that are internet based.

Not as easy to catch up on work especially when miss computer research at school and have no computer access at home.

Many students are not meeting their educational needs because of inadequate technology and tech support.

Yes. Many of our students in this catchment do not have access to computers at home and so will not come to class with assignments completed. They spend lunch hour and breaks between class and after school in my class or in homework club working on assignments.

For primary, it takes away the ability for the students to practice with certain sites that could help with phonics, etc.

Quality of assignments

Teachers also shared their observations of how not having access to technology at home can affect the quality of school assignments. Assignments have less content because the student is not able to spend enough time researching the subject; the presentation may be of lower quality compared to students who have the software or printers to prepare assignments.

Assignments not as well done, problem doing research, no place to work on a computer as no access even at school before or after school. Limited access in community library - no internet cafes in the area.

Completion of high level, professional products or more creative tech projects is more difficult. Printing costs are the biggest issue in my classroom. I often allow students to print assignments on my printer which gets expensive. Flex funds don't cover \$80 print cartridges.

Without internet and computer access students have limited ability to do research for assignments unless they stay at school which causes transportation issues etc. Quality of work suffers.

It makes it very difficult for them to keep up with the work and the expected standard of work handed in. Homework assignments are often messy or damaged. They don't finish their work because of home duties.

Lack on access means less info which results in lower mark.

Students in early grades with limited access to phonics and other computer programs the teacher is using to reinforce basic skills have less practise time than students with computers at home.

Several of my students are not able to access programs such as Raz-Kids which provide extra reading support. The class website does not seem to be widely accessed.

Students without access to computers and internet at home “falling behind”

The comments by teachers suggest that for all of these reasons students are falling behind their peers:

I am noticing that students who do not have computers or the Internet are falling behind in research and completion of assignments. They have to give up their lunch hours to complete work at school.

We are also making it more difficult for the students whose families do not have access to computers to keep up with their peers.

Students who do not have access to technology get behind in their research projects, due to living in outlying areas, have no vehicles and cannot afford to buy a computer for their children or for themselves. Due to seasonal work and the lumber mills shutting down.

Those with access have a considerable advantage. Not only can they work on assignments at home, they are just more computer savvy and comfortable when using the computers at school. They are able to get more done in less time.

They cannot practice so they are left behind.

These students will fall behind on assignments.

Those students who go without are increasingly being left behind.

One teacher expressed a different view suggesting that students with supportive parents can still succeed:

Students from supportive backgrounds can succeed in school even without computer access at home.

Challenges for teachers as technology becomes more integrated with learning

Technology is increasingly becoming integrated into the learning process. Two teachers described positive examples of school programs that provide students with the technology to support academic learning:

Absolutely. Our school was part of the UDL program a few years ago. What a difference it has made in our knowledge of technology and access to it. Our students can access many programs using computers - it definitely enhances their learning, independence, and self esteem. Not to mention that teachers can access their progress online at any given time.

I use two programs with the whole class: Mathletics and Tux Typing. Mathletics allows me to track students' progress with Math concepts and Tux Typing sets them all up for having typing skills when they are older. I borrow I-Pods for phonics and spelling practise for an ESL student.

It is not clear whether access to these programs is affected by whether students also have access to them at home to further develop their skills. A few teachers did express the view that some teachers assume students have technology at home:

Some teachers are assigning work to be done at home on computers without asking if all students have computers.

Teachers assume students have access to computers. While there is access at school we commonly assume everybody has access to computers AND printers.

Other comments by teachers suggest that as technology increasingly becomes a part of learning, computer access at home raises new challenges about how **they** enhance learning, while being sensitive to the varying degrees to which students have access to technology at home, and their proficiency in computer skills.

Last year I was working in an inner city school, this year at a mixed wealthy/poor school where all the students in my particular class are well off. I can complete the same Socials project in half the time at this school because the students all have computer access at home. So we can actually cover more material in the term because I can expect more of the online research to get done at home.

It makes it difficult for these students to complete technology-based assignments, and it is difficult for teachers to ensure access to technology or create alternate ways for the assignments to be completed.

By not having internet access or a computer that is not working makes it very difficult to assign work that involves research.

Theme 6: How not having the same access to the same technology as other students can impact the emotional and social well-being of students

Social exclusion

Some teachers noticed that students without the same access to technology at home feel socially isolated at school:

Feeling left out and not being able to participate or catch up to work missed when away if it is on computer.

I feel sorry for them, their peers and teachers sometimes refer to things that are on the 'net' but they have little or no access to it.

Students feel singled out/self-conscious.

They feel out of the loop.

They have a sense of being shut out or set apart.

Makes them feel isolated from their peer group.

Emotional well-being

Other teachers observed that it can be very stressful for students who do not have the same access to technology as their peers, leading to feelings of frustration, resentment, and confusion.

Some students feel somehow less than their classmates and esp. if their classmates comment on the fact that the child doesn't have what everyone else has [has and has-not]. It causes stress to the child who does not have a computer at home when the teacher says to do a computer based task. Some teachers do not understand that some kids really can't go to the public library after school or on weekends because their parents won't let them for a variety of reason.

Impoverished kids feel left out and somewhat resentful of peers who have the latest high tech phones etc. This low key anger adds to their overall frustration at not having the home support more well off families have that make community recreation and academic support available.

Students without access to technology are less likely to be able to keep up during a lesson on using a program or app, and they get confused, frustrated and tearful.

It stifles their learning and self-concept as learners.

It marginalizes their education.

One teacher expressed the view there are social benefits to not having access to technology:

They are the most fortunate of the lot because they still need to attend with a teacher to get their education. They have the benefit of developing real relationships with real people as opposed to the artificial reality of the network.

Theme 7: Internet access at home and electronic communication by the school with students and parents

The qualitative comments reveal that teachers, schools, and districts are increasingly reliant on technology to communicate with students and parents. Teachers identified a number of ways in which students and parents are unable to participate fully in the school community if they do not have easy access to technology outside of school.

With students re: assignments

Some of the ways in which teachers describe using technology to communicate with students include maintaining classroom blogs for students and parents to access, communicating by email with students about course assignments, and facilitating student collaboration in online sharing for class projects or to access assignments. The following quote illustrates how technology has become central to learning for some courses, raising the expectation that students have access to the technology they require to complete assignments:

Equity of access to technology at home is crucial. Students who may already be disadvantaged when it comes to traditional resources such as books are doubly damned if they cannot access the internet or a computer at home. Many major assignments for both elective and academic courses are produced cooperatively with peers. Teachers in my school expect students to access tech and the internet outside of class hours to complete their major projects.

The following quotes reveal that teachers are aware of the difficulty the growing use of technology in day-to-day communication creates for students who do not have access to computers and internet at home:

It puts them further behind because they cannot read teacher blogs, complete online assignments, etc.

Makes it difficult to complete on-line course work and to be notified of class announcements, homework reminders, or to generally communicate in a timely manner.

It is very difficult for them because often assignments are emailed now - they can access our school computers any time and the public library is now attached to our school so I hope that can help but transit is still an issue.

Many teachers assign blog posting or sharing writing on line as part of the course, and so if a kid can't access the internet at home, s/he can't do it.

Since some of our courses are offered only online, students without internet access at home are very limited in their course choices. They also cannot work on school in off hours.

With parents

School and district websites

Lack of access to internet at home is also a communication issue for parents when schools and districts post school information such as newsletters on the school and district website, assuming all parents can readily access information online. Some teachers expressed concern about the widening communication gap as technology becomes the primary mode of communication:

I feel we are widening the gap of communication even more with the increased use of technology and growing practice of putting everything onto the school website. Not all parents will go to the website to read newsletters. At least with a "piece of paper" to look at, they may glance at it.

For the older grades I have noted an increase in need for the school computer lab when assignments are required. I am certainly concerned that as the school board and school provide more information on their websites, less of this information is making it home to families without access.

Having a class website and encouraging programs like 60 Minute Kids Club is difficult with families who have no Internet.

Email communication

The following comments by teachers suggest they rely on email communication with parents and that this can make it difficult to reach parents without email.

I communicate frequently through email and parents contact me that way as well. Families without a computer or internet access have less communication and longer wait times.

It is also difficult for communication, because families may not have a phone or email access.

School info is passed on only through email to parents. My parents do not have email!

The comments suggest that some teachers print hard copies of school information for parents who cannot be reached by email.

My newsletters and most communication are emailed and parents respond from home computers or their smart phones. There are only two that I need to print off and send home because their parents do not regularly check email.

Half of my families cannot get the school newsletter on line so I have to make copies and give them a paper copy as the office only sends it out on line.

One teacher expressed a concern that parents with easy access to a home computer are not using it to access the school blog about their child's classroom:

While students have increased access to technology, it seems that they use it for nothing more than entertainment. In fact, most parents cannot find the time to check out our classroom blog, despite the fact they have easy access to it. It appears that parents are too busy and don't have the time or desire to invest anything extra into their child's learning.

Socio-economic implications of Ministry plans for integrating technology into student learning

Technology has changed rapidly since the implementation of this survey, with smart phones and tablets also becoming more prevalent as a way to access content on the internet and communicate with others electronically. Enhancing access to technology within schools and providing online resources for parents to support students to practise and further develop academic skills at home are stated goals within the Ministry of Education's strategic plans.

In the *2014/15 Annual Service Plan Report*², the Ministry of Education listed among its strategic priorities "Provide options for the provision of online textbooks for parents to assist their children with homework in the K–12 sector", such as providing online access to a number of parent support resources through OpenSchool BC. These resources include online textbooks for parents of students in Kindergarten to Grade 8, covering literacy and numeracy skills and 18 online secondary courses for self-study and additional practise. Additional goals related to technology are stated in the *2015/16 – 2017/18 Service Plan*³, including "Working with districts and teachers to ensure educators have effective technology to support student success" and "Facilitating access to the technology students and parents need to support success in personalized learning and setting standards for digital literacy".

These above goals seem to assume that all students have access to the technology and internet at home to be able to utilize these online resources and to easily participate in online forms of communication with the school. The survey results reveal that as technology becomes more integrated into teaching and learning, inequities can arise between students who have easy access to computers and internet outside of school hours and students who have little or no such access. This has the potential to widen the learning gaps that teachers have already identified as an issue related to poverty, and to contribute to new forms of exclusion if students and parents are unable to fully participate in the online forms of communication in the school community.

In the *2015/16 – 2017/18 Service Plan* (p.10) the Ministry also announced a plan to implement a province-wide digital strategy "To ensure students are able to thrive in an increasingly digital world, BC's Education Plan must continue to support quality learning empowered by technology" indicating the Next Generation Network (NGN) initiative will convert approximately 1,650 school district sites to the NGN over a period of three years.

Should this digital strategy be successful, the improved access to technology in schools will be a welcome improvement. But rapid advancements in technology have occurred over the same period that districts have faced ongoing structural shortfalls, leading to reduced expenditures on many programs and services. In an era of funding cutbacks, schools are increasingly dependent on school fund-raising to purchase new technology for the school. Those with greater capacity to fund-raise are better able to fund technology improvements through the PAC or other fund-raising efforts. The survey results suggest these will be the schools in more affluent areas where students have the greatest access to technology outside of school hours.

For the Ministry of Education's goals to be achieved, the provincial government needs to provide sufficient funding to ensure all students across the socio-economic spectrum have access to the

² Ministry of Education. *2014/15 Annual Service Plan Report*, p.22.

http://www.bcbudget.gov.bc.ca/Annual_Reports/2014_2015/pdf/ministry/educ.pdf

³ Ministry of Education. *2015/16 – 2017/18 Annual Service Plan*, pp.9–10.

<http://www.bcbudget.gov.bc.ca/2015/sp/pdf/ministry/educ.pdf>

technology required to complete assignments and fully participate at school. Otherwise, technology will become yet another poverty-related barrier to educational success.

Appendix: Student access to technology resources

The following tables shows the responses to the question “How many students in your class(es) have access to technology resources” for all categories: None, A few, Some, Most, or All.

Percentage of teachers indicating how many students have access to internet at home

How many students?	Access to internet at home (n=592)	Computer use outside school hours (n=589)
none	0.5%	0.8%
a few	11.5%	11.2%
some	29.9%	32.6%
most	54.4%	50.8%
all	3.7%	4.6%
Total	100.0%	100.0%

Percentages are based on total responses after excluding missing values, “Does not apply” and “Do not know” responses.

Percentage of teachers indicating how many students have access to internet at home: Socio-economic context of the school (n=590)

	none	a few	some	most	all
low income	0.5%	24.0%	39.4%	36.1%	
middle income		6.8%	19.2%	74.0%	
high income			6.9%	69.0%	24.1%
mixed incomes	0.7%	4.6%	28.2%	61.1%	5.4%
Total sample	0.5%	11.5%	30.0%	54.2%	3.7%

Percentages are based on total responses after excluding missing values, “Does not apply” and “Do not know” responses.

Percentage of teachers indicating how many students have access to computer use outside school hours: Socio-economic context of the school (n=587)

	none	a few	some	most	all
low income	0.5%	23.0%	45.6%	29.9%	1.0%
middle income		8.0%	24.0%	64.0%	4.0%
high income		3.7%	3.7%	70.4%	22.2%
mixed incomes	1.4%	4.3%	28.5%	60.1%	5.7%
Total sample	0.9%	11.2%	32.7%	50.6%	4.6%

Percentages are based on total responses after excluding missing values, “Does not apply” and “Do not know” responses.