The Digital Divide: Youth Access to Connectivity, Devices & Skills

This Evidence Brief summarizes what we know about the digital divide –in particular, youth access to connectivity, devices, and skills – and identifies opportunities for future research.

HOW DID WE COMPILE THIS EVIDENCE?

We searched YouthREX's online Knowledge Hub, Google Scholar, and Google using various combinations of key terms, including: "digital divide", "youth", "access", "internet", "devices", "digital literacy", and "digital skills".

THE DIGITAL DIVIDE

The digital divide refers to the widening gaps in access to internet and communications technology (ICT) that disproportionately affect rural, Indigenous, and low-income households.[1]

SUMMARY OF EVIDENCE: WHAT WE KNOW – YOUTH ACCESS TO CONNECTIVITY, DEVICES & SKILLS

01. ACCESS TO CONNECTIVITY

While the majority (98.7%) of households in Canada have access to the internet, only 84.1% have access to **high-speed internet**, defined as 50/10 Mbps* (i.e., 50 Mbps download and 10 Mbps upload).[2] The CRTC has identified **speeds of 50/10 Mbps as necessary to take full advantage of the internet**, including cloud-based software applications, multiple government services, online learning resources, and high-definition streaming videos.[3] These speeds can also support use by multiple simultaneous users.[3]

Research suggests that rural households, low-income households, and Indigenous communities face the most significant barriers to access.

a) Rural Households

In 2018, only 40.8% of rural households in Canada had access to high-speed internet, compared to 97% of urban homes.[2] Research suggests that the urban-rural disparity in internet speeds increased during the pandemic: while the median download speed in urban areas rose from 26.16 Mbps to 51.09 Mbps, the median speed in rural areas experienced a much less significant increase – from 5.42 Mbps to 9.74 Mpbs.[4]

b) Low-Income Households

Canadians in low-income households face significant cost-related barriers. While only 1.2% of Canadian households with children under 18 lack access to the internet, the percentage grows to 4.2% among households in the lowest-income quartile.[5] A survey of 472 Canadians found that more than one third of respondents must make sacrifices to afford internet access.[6] In fact, households in the lowest income quartile (those with a household income of less than $32,914) report spending 9.1% of their income on communications services.[2]

c) Indigenous Communities

Access to connectivity is a significant issue in Indigenous communities across Canada: in 2018, only 31.3% of First Nations reserves had access to high-speed internet.[2] These disparities are even wider in some regions: as of September 2020, 32 of the Nishnawbe Aski Nation's 49 communities, located in northern Ontario, lacked access to high-speed internet.[7]

*Megabits per second (Mbps) is a standard measure of the speed, or 'bandwidth', of an internet connection. It measures how many bits (units of digital information) can be transferred each second.[8] Since data can be transferred in two directions – to and from your home – the rate includes both a **download speed** and an **upload speed**.

02. ACCESS TO DEVICES

According to Statistics Canada, more than half (58.4%) of households with children under 18 have less than one internet-enabled device per household member.[5] The rate is higher among households in the lowest income quartile (63.0%), compared with households in the highest income quartile (56.2%).[5] Data from a representative, online survey of 1,500 Canadian youth aged 12-18 also suggests that youth in low-income households are less likely to have access to computers (77%) and tablets (90%) than youth in higher-income households (at 99% and 90%, respectively).[9]

Lower-income families are also more likely to rely on mobile devices to access the internet, with nearly one quarter (24.1%) of households in the lowest income quartile using only mobile devices.[5]

The transition to online learning during the COVID-19 crisis brought these stark disparities to light, as school boards across Ontario scrambled to deliver internet-enabled devices to thousands of students in need.[10] Evidence suggests that access to devices significantly differed across school districts: in High Prairie School Division in Northern Alberta, for example, around 10% of students lacked access to devices,[11] while Winnipeg School Division estimated that as many as 40% of students lacked access to computers at home.[12]

03. ACCESS TO SKILLS, EDUCATION & TRAINING

Digital literacy can be understood as "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".[13] Digital literacy is complex and comprises a range of skills. In a study informed by interviews with 90 digital literacy experts, The Brookfield Institute of Innovation + Entrepreneurship suggests that a digital literacy framework should include *professional digital skills* (e.g., software development and data science), *workforce digital skills* (e.g., digital design and customer

relationship management software), and *baseline digital skills* (e.g., conducting a search online and communicating with others). These three categories must be supported by traditional literacy skills (literacy and numeracy), critical thinking, creative abilities, and technical skills.[14]

The K-12 education system provides a significant amount of digital literacy education in Canada, but approaches and priorities may differ across provinces, districts, schools, and even individual teachers.[14] This means that, "by the time students leave high school, disparities in digital literacy levels can already be substantial".[14] Even when Canadians have access to connectivity and devices, they may encounter other **barriers to digital skill education and training**, including:[14]

- Geographic and financial barriers
- Lack of access to high-speed internet to access online learning
- Limited literacy, numeracy, and English fluency
- Lack of confidence, intimidation, and fear of failure, especially among those who lack consistent access to connectivity or devices
- Lack of navigation skills required for independent learning
- For people living with disabilities, lack of access to accessible websites, teaching tools, and educational spaces

Given the disparities in access to devices, connectivity, education, and training, it is not surprising that youth from lower-income households and Indigenous youth are less likely to report being confident in their digital skills. A representative, online survey of 1,500 young Canadians suggests that students from lower-income households are less likely to report being "totally confident" in their ability to use digital technologies, such as computers, smartphones, and tablets.[9] In a study conducted by RBC Thought Leadership, Indigenous youth were 13% less likely to rate their digital literacy skills at 7+ out of 10 than non-Indigenous youth.[15]

SUMMARY OF EVIDENCE: OPPORTUNITIES FOR RESEARCH

Much of the existing evidence on the digital divide in Canada focuses on geographic and economic barriers to access. While the evidence base on the digital divide in Canada is extensive, only a few survey-based studies examine the experiences of youth.[9,15] This section identifies five broad topics that can inform future research on the digital divide among young Canadians.

a) The relationship between access to devices, access to connectivity, access to education and training, and youth digital literacy.

Evidence suggests that students from lower-income households are less likely to have access to devices, and less likely to report being "totally confident" in their ability to use digital technologies, such as computers, smartphones, and tablets.[9] Similarly, digital literacy experts report that "a lack of consistent access to hardware, software, the internet, and cellular data" is a "core barrier to developing and maintaining digital literacy".[14]

More research may be needed to establish a relationship between access to devices, access to connectivity, access to education and training, and youth digital literacy. For instance, we know that youth in lower-income households are more likely to only have access to mobile devices – how might this affect their ability to navigate professional software that is optimized for use on desktop devices (e.g., Microsoft Office, Adobe Creative Suite)?

b) The digital divide in individual communities.

Much of the data on the digital divide in Canada is at the provincial and national levels, but there is less research on disparities in individual communities. One of few such studies, Mapping Toronto's Digital Divide,[16] draws on surveys with residents, as well as data from Statistics Canada, Toronto school boards, the Toronto Public Library, and the federal government's Connecting Families initiative.

c) Young people's access to space, (device) time, and privacy.

Although some data exists on young people's access to devices, we know little about whether they also have access to the space, (device) time, and privacy that may be required to develop their digital skills and participate in virtual school or online programming.

d) An inventory of young people's digital skills.

Much of the existing research on young people's digital skills focuses on online safety.[13,17] Few studies examine young people's comfort with different tasks, such as creating and formatting text documents, creating digital presentations, and managing spreadsheets and organizing data.[15] An inventory of young people's digital skills that includes baseline skills, workplace skills, and professional skills[14] may help identify gaps and inform programming.

e) Barriers to access among diverse groups of youth.

Research confirms that the digital divide impacts the lives of youth in rural and remote communities, Indigenous youth, and youth living in poverty. However, we know less about barriers to access among other youth populations, such as racialized youth, newcomer youth, youth in and leaving care, and youth living with a disability.

ENDNOTES

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