



Why Canada needs a national digital literacy strategy

Panel: Digital Literacy: What is going to make the real difference?

Organized by Actua

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Panelists: **Aaron Brindle**, Communications Manager, Google Canada; **Miles Berry**, Principal lecturer for Computing Education, University of Roehampton; **Jennifer Flanagan**, CEO, Actua; **Karen Gill**, Director of the Curriculum and Assessment Policy Branch, Ontario Ministry of Education; **Steven Woods**, Senior Engineering Director, Google Canada

Takeaways and recommendations

- ✓ Create a federal digital literacy strategy
- ✓ Ensure provinces design a curriculum informed by a digital strategy
- ✓ Be inclusive – equal opportunities for girls, indigenous youth and youth in poor communities
- ✓ Provide professional training for new curriculum
- ✓ Create opportunities for youth to learn how to innovate using digital skills

The policy issue: Educational curricula across Canada are not adequately providing youth with the digital literacy skills they need to drive innovation.

"There is a lot at stake," said Brindle. "What's more important to the health of a country than providing them with the skills they need to participate in the economy of the future."

Basic literacy in computer coding and language has become an essential skill for virtually all sectors of the economy, delegates heard.

"The opportunities to apply technologies in different domains, different areas of interests, different applications of interest to humanity has never been more broadly available," said Woods. "The gap lies in learning how to apply (these) to your particular interest."

Panelists and delegates raised several challenges, including access to hardware, teacher readiness, general misconceptions around aptitudes and approaches to digital literacy, and ensuring a policy strategy that includes women, aboriginals, and vulnerable youth. As Flanagan pointed out, Canada is lagging compared to other OECD countries.

While youth are quick to use new technologies, most remain amateur users of information and communications technology. A 2015 report from Media Smarts points the finger at the considerable differences between provinces and territories in terms of digital literacy policies and implementation programs and schedules. Education falls under provincial and territorial jurisdiction but the report says a national digital literacy and digital citizen strategy are needed to establish common parameters and guidelines for Canadian teachers and students.

"There is a misconception that people who use computers a lot are digitally literate," said Flanagan. Her organization's experience in working with 250,000 youth across Canada has shown that students aren't learning the computer science skills they need.

Berry said the educator's role is to **help students to transition "from users of technology, to makers of technology,** or at least technological artifacts." But, he added the solutions will have to target more than only youth. Teachers and parents have a huge influence on how young people engage with computers.

"It's so unusual for a teacher to be expected to teach something they themselves never learned," said Berry. "Professional development is a big thing."

Another challenge is the persistent stigma around girls entering STEM fields, or the misconception they're not as capable as boys at spatial learning, explained Flanagan.

A 2014 Google study found that encouragement and exposure are key indicators for whether or not young women decide to pursue a computer science degree. "The number one factor in a girl not going into a STEM education direction is her mother," Woods said about the study, "and the second is her teacher."

"This is not about not having women being computer scientists in the future, which is critically important," said Flanagan. "This is about girls being left behind every single career in the future because these are skills that are not just going to lead them down one path, it is across the board."

The options: In the UK, a new curriculum builds the foundations of digital literacy from an unplugged, play-based approach that has children problem-solving using basic computer language.

By ages 8-11, Berry said they are grasping the basics of computer networks, and by 11-14 they are learning to problem solve by building simple programs, using Boolean logic, binary and simple operations. The curriculum considers how a child learns to solve problems, make predictions, test ideas and change strategies.

Echoing the findings of the Media Smarts report, Flanagan said a federal strategy for digital literacy is important because **"very few provinces have computer science content as part of the curriculum."** There has been progress in Manitoba, New Brunswick and Nova Scotia, with commitments to teach computer science at the elementary level, but other provinces are behind. The panel also agreed that policies would need to target all youth, with a focus on girls, indigenous youth and youth in poor communities.

Gill noted that the Ontario curriculum has made recent changes that mirror efforts in the UK in developing the foundation of critical thinking in pre-elementary schools. While there is no computer curriculum in the elementary system, Gill said there is a focus on inquiry-based learning and problem solving. Computer science courses begin in Grade 10.

To ensure teachers are able to deliver this new curriculum, Gill said 20% of the funding in Canada's Technology and Learning Fund – \$150M over three years – supports professional development of teachers.

Berry agreed that one of the challenges in the UK was teacher readiness. "I think the key message is about being inclusive," with mentioning parents, young people, teachers, industry and academics.

When asked by Brindle if Ontario's curriculum changes are enough Gill said the plan must remain open to new evidence: **"curriculum is a living beast that not only has to evolve to keep pace with the times but to think 20 years out."**

In terms of digital literacy's effect on Canada's innovation potential, Woods said **"we need to have our children believe that they can accomplish great things in many areas, but a core part of that is learning how to apply computers to those problems."**

Relevant documents:

Mapping Digital Literacy Policy and Practice in the Canadian Education Landscape, Media Smarts 2015; <http://mediasmarts.ca/sites/mediasmarts/files/publication-report/full/mapping-digital-literacy.pdf>

Women Who Choose Computer Science— What Really Matters, 2014, Google; <https://static.googleusercontent.com/media/www.google.com/en/us/edu/pdf/women-who-choose-what-really.pdf>