

Towards A Responsible use of Artificial Intelligence in Canadian Public Education

Challenge: An urgent call for AI governance in Canadian public education

Policymakers are increasingly concerned with how to respond to accelerating developments in **artificial intelligence (AI)** – and specifically, **generative AI (GenAI)**. Significant debate is taking place on how to govern these systems, which are treated as an inevitable part of the social and economic fabric. How can governments regulate tools that advance so rapidly that technology developers themselves often lack a full understanding of how they work? How can policies be designed to safeguard human rights in an age where personal data is a precious commodity? And, crucially, what policies are needed to ensure that AI systems are implemented responsibly in public institutions such as schools?

Artificial intelligence (AI) refers to “...machine-based systems that can, given a set of human-defined objectives, make predictions, recommendations, or decisions that influence real or virtual environments.” (UNICEF, 2021, p. 16)

Generative artificial intelligence (GenAI) refers to AI “...that automatically generates content in response to prompts written in natural-language conversational interfaces...It generates its content by statistically analysing the distributions of words, pixels or other elements in the data that it has ingested and identifying and repeating common patterns.” (UNESCO, 2023, p. 8)

Current processes for embedding AI systems in Canadian K-12 public schools are murky. The extent to which AI systems are evaluated before and during their lifecycle in schools varies significantly across jurisdictions. This makes it hard to know which stakeholders are accountable for addressing risks and minimizing harms to students and educators. **The Canadian Teachers’ Federation (CTF/FCE) calls on the Federal Government and the Council of Ministers of Education, Canada (CMEC) to develop and implement policies that safeguard the rights of educators and students as AI systems proliferate in public education across the country.**

Vision: A responsible use of AI use in K-12 public schools

95% of Canadians support the rights of parents, students, and educators to consent to how and when their data is used in public education.

93% of Canadians agree that provincial/territorial governments are responsible for ensuring student and teacher data is protected and secured.

CTF/FCE Public Opinion Poll, Abacus Data, 2024

There is widespread acknowledgement that AI tools have the potential to enhance teaching and learning. For students, AI may help facilitate personalized learning opportunities that meet a wide variety of unique needs, as well as support the development of valuable digital competencies. Teachers may leverage AI for lesson planning around curriculum goals, while their school leaders may rely on AI to streamline administrative functions. These benefits, among others, are worthy of exploration; however, before the potential advantages of AI can be understood and realized, policies are needed that enable a foundation of safety, privacy, equity, and well-being in public schools. Further, the essential role of teachers in creating caring, human-centred classrooms must be prioritized in all AI policy development to ensure Canadian students enjoy their right to a quality education.

Barriers: An uncertain landscape of AI legislation and policy

Tools such as [Code.org's AI Teaching Assistant](#), [Curriculum.AI's teaching sidekick](#), and [Khan Academy's AI teaching assistant](#) (among many others) are landing in Canadian classrooms. Yet, gaps in AI legislation and policy across Canada have left the public education sector scrambling to determine how to responsibly integrate such powerful systems in schools. The Federal Government's Bill C-27 Artificial Intelligence and Data Act (AIDA) includes no explicit provisions to address the unique risks of AI systems used in K-12 public education, despite acknowledging that the "information of minors is considered to be sensitive" (Bill C-27, 2022). Critics argue that AIDA provides inadequate safeguards for children's right to privacy by leaving out definitions for sensitive and minor, therefore "...businesses are left to decide what is sensitive and appropriate for minors" (Gordon, 2023). Leaving these decisions to businesses risks the prioritization of profit over policies to protect young people, considering the market for AI in education is estimated to be worth US \$20 billion by 2027 (Holmes & Tuomi, 2022). The tech sector's pursuit of innovation at any cost must not take precedence over the rights of students and the quality of their education. Provinces and territories also play a central role in governing AI use in K-12 schools, yet most lack the legislation and policies needed to ensure AI's responsible integration in education. The table below provides a non-exhaustive list of the risks of a fragmented landscape of AI legislation and policy for Canadian students and educators.

Risk	Effects on teaching and learning in public schools
Privacy, security, and well-being	<p>Privacy</p> <ul style="list-style-type: none"> • A lack of transparency requirements over how AI system providers gather and process data threatens student and educator privacy • AI tools that surveil students and teachers, including algorithmic management for discipline, infringe on privacy rights and risk negative psychological impacts <p>Security</p> <ul style="list-style-type: none"> • Weak cybersecurity protocols of AI providers and/or institutions lead to data breaches and the exposure of sensitive, personal data of minors using AI systems at school • The use of GenAI systems in schools increases the risk of exposing minors to manipulation via disinformation and misinformation, threatening their security and agency <p>Well-being</p> <ul style="list-style-type: none"> • AI systems deployed in schools without critical evaluation may negatively impact learning outcomes, including degrading cognitive skills like critical thinking and problem-solving • Adolescent mental health issues may be worsened by the increased use of technology and decrease in human connection at school, and/or due to exposure to harmful GenAI content
Commercial exploitation	<ul style="list-style-type: none"> • A lack of accountability requirements for AI providers may lead to the exploitation of student and educator data, such as selling data to third-party providers without consent • A lack of transparency and explainability on how AI algorithms generate outputs, including predictions about users, risks subjecting students to biased or discriminatory outcomes • Students may have their intellectual property (IP) rights violated if their work is submitted into GenAI systems without their informed consent. Conversely, students/educators may violate others' IP rights by using AI systems trained on data appropriated without consent
Discrimination and bias	<ul style="list-style-type: none"> • Digital divides may be further entrenched if students have unequal access to digital literacy education and AI systems, including access to AI resources representative of minority languages for Francophone and Indigenous populations in Canada • Training data and, therefore, the outputs of GenAI systems, overwhelmingly reflect the perspectives of dominant groups (white, western, male), which may further marginalize diverse, pluralistic knowledge such as Indigenous history and worldviews • Biased and discriminatory outputs of GenAI systems can expose students to harmful content and perpetuate oppressive stereotypes

Deprofessionalization of teaching	<ul style="list-style-type: none"> • A lack of professional learning on AI for pre- and in-service teachers may lead to ineffective or irresponsible application of AI tools in schools • The increased deployment of AI tools in schools may automate the essential human elements of teaching, including core social and relational dimensions of learning
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Policy recommendations: Protecting Canadian students and educators in the age of AI

The CTF/FCE calls on the Federal Government and the CMEC to enact policies which mitigate the emerging risks of AI systems and reduce the likelihood of harms to students and educators. The recommendations in the table below emphasize **a human-centred future of AI use in education**. These are grounded in UNESCO’s (2021) Recommendations on the Ethics of Artificial Intelligence and Guidance for generative AI in education and research (2023) which emphasize “...that the use of AI should be at the service of the development of human capabilities for inclusive, just and sustainable futures” (p. 21). These policies are urgently needed to create a solid foundation for a responsible, ethical future of AI in Canadian public education.

UNESCO (2023) Policy Framework	Policy Recommendations
Promote inclusion, equity, and linguistic and cultural diversity	<p>The federal government, in coordination with provincial and territorial governments, should fund research to understand the extent of digital poverty across Canada and to close gaps in digital connectivity and access to technology. Reducing the digital divide for Indigenous communities should be a particular priority to avoid further entrenching existing inequities and ensure that First Nations, Metis, and Inuit communities can participate in the evolution of AI within and beyond education.</p> <p>CMEC should support Ministries of Education to incentivize the procurement of AI systems for schools which are trained on data and generate outputs in multiple languages to ensure inclusivity for linguistic and culturally diverse students.</p>

<p>Protect human agency</p>	<p>The federal government should amend Bill C-27 to include AI systems for education within the classes of high-impact AI systems. For instance, AI systems used in education for assessment, admission, or surveillance purposes can significantly impact the lives of students and should face stringent accountability and monitoring, including explicit expectations for data privacy. The federal government should align with the European Union’s AI Act in classifying a range of AI for education systems as high-risk “...since they may determine the educational or professional course of a person’s life and therefore their ability to secure their livelihood” (Recital 56).</p> <p>The federal government’s Canadian AI Safety Institute should include a mandate to monitor the responsible development and deployment of AI systems for education.</p> <p>CMEC should support all Ministries of Education to assess provincial and territorial privacy acts and update legislation as needed to address new risks associated with AI systems. Legislation should hold AI system developers/deployers accountable for algorithmic transparency, including which data is collected from users and how this is processed and used. No personal data should be collected from students, nor should any student data be sold by system developers to third parties.</p> <p>CMEC should support all Ministries of Education to establish guidance on the use of AI in schools in collaboration with educators, school leaders, students, and teachers’ unions. Guidance should address AI risks, responsible implementation, and effective pedagogical approaches that respect the autonomy of educators and students and protect the social and relational dimensions of learning. Guidance must be developed in alignment with broader AI policies and legislation, including ensuring boards/districts receive funding to implement the guidance safely and responsibly.</p>
<p>Monitor and validate GenAI systems for education</p>	<p>In coordination with Bill C-27, CMEC should support all Ministries of Education with establishing infrastructure to evaluate and validate AI systems for K-12 education. Procurement processes must hold system providers accountable for “their ethical and pedagogical appropriateness for education” (UNESCO, 2023, p. 3), such as:</p> <ul style="list-style-type: none"> • Algorithmic transparency, including which data is collected, how it is processed, and the potential impacts of inferences on users in schools

	<ul style="list-style-type: none"> ● Upfront and ongoing testing for bias and discrimination in the training data and outputs of AI systems ● Evidence-based benefits to teaching, learning, or well-being <p>CMEC should support all Ministries of Education to develop—in consultation with educators, school leaders, teachers’ unions, students, and families—principles for the responsible use of AI systems in K-12 public schools. These principles should inform future policy development related to AI, including standards for procuring AI systems which minimize risks and maximize benefits for students and educators.</p>
<p>Develop AI competencies including GenAI-related skills for learners</p>	<p>CMEC should support all Ministries of Education to develop and implement updated curriculum on digital literacy which includes a focus on both the ethical and technological dimensions of AI, including teaching students to navigate risks associated with AI such as exposure to misinformation and disinformation.</p>
<p>Build capacity for teachers to make proper use of GenAI</p>	<p>CMEC should support all Ministries of Education to outline key areas for teacher professional learning related to AI. Pre- and in-service educators must be supported to learn how to responsibly and effectively use AI to complement teaching and learning to avoid increasing shortages of teachers skilled in digital literacy education.</p>
<p>Promote plural opinions and plural expressions and ideas</p>	<p>CMEC should support all Ministries of Education to ensure that teachers’ professional learning and student curriculum on AI includes a focus on how to critically assess AI system outputs, which are often inaccurate and perpetuate discriminatory views. Educators and students must be supported to understand why AI systems risk reinforcing dominant worldviews and further marginalizing others.</p>

<p>Test locally relevant application models and build evidence base</p>	<p>The federal government—in coordination with CMEC, the technology sector, academia, and public education institutions—should fund research on the effectiveness of AI systems for education. As the market for AI systems for education expands, there is an urgent need for studies on the impacts that such systems have on students and teachers. A strong evidence base around what works related to AI use in schools would enable strategic policymaking to scale up the benefits of these systems in the future.</p>
<p>Review long-term implications in an intersectoral and interdisciplinary manner</p>	<p>CMEC should implement a plan to consult with a broad range of experts in any policy and program development related to the future use of AI in schools. Opportunities for open debate should include educators, students and their families, school leaders, and teachers’ unions, and specifically engage marginalized groups who face a greater risk of exclusion from AI policy development.</p>

Taking action

On April 7, 2024, the federal government committed \$2.4 billion to ensure Canada’s advantage in the AI market. Creating strong AI infrastructure and adoption in Canada is a top priority of the government, the implications of which reverberate throughout K-12 public education systems. Yet, there are crucial gaps in policies to ensure the responsible use of AI systems in schools.

The CTF/FCE calls on the federal government and the CMEC to prioritize enacting policies which anticipate and minimize the risks that AI systems pose to students and educators, including threats to privacy, security, and well-being; commercial exploitation; discrimination and bias; and deprofessionalization. With policies that ensure AI systems in schools are safe and trustworthy, educators can focus on making sound pedagogical decisions about how to best leverage these systems to meet the learning needs of their students. Recognizing how rapidly AI systems evolve, the CTF/FCE continues to monitor potential impacts on public education and advocate for policies that prioritize the best interests of educators and students.

[Click here for references and further reading.](#)

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