



# Recommended Approaches to Generative Artificial Intelligence

## OVERVIEW

The integration of generative artificial intelligence (AI) holds significant promise for enhancing learning and pedagogy. This document provides recommendations for the use of AI in schools, addressing educators, administrators, learners, and the broader school community. It emphasizes the importance of aligning use with learning goals using AI as a supplement to, not a replacement for, educator instruction. The document advises school communities to view AI as a collaboration tool, fostering a culture of conversation to identify how, when, and why it should be used for good. The recommendations discuss into areas such as academic integrity, usage transparency, data privacy, and ethics. The document aims to empower the school community to harness the potential of AI responsibly and effectively.



This document is the result of contributions from learning specialists and directors at EECD anglophone Educational Services Division and coordinators, leads, and educators from the four anglophone school districts, external education partners, and a call for feedback in May-June of 2024. This is a living document and will be updated periodically to reflect and address the rapidly evolving changes to artificial intelligence and its impact on education.



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## What is Artificial Intelligence?

It is important to understand what AI is, as well as what it is not. Artificial Intelligence, or AI, is a branch of computer science aimed at creating machines that simulate human intelligence. It can be used to perform a wide variety of tasks that usually require human thought, such as understanding language, recognizing patterns, or making decisions. The scope of tasks AI can do is increasing in quantity and quality at a rapid rate.

Common types of AI range from recommending movies or autocorrecting typing errors to more advanced forms that can generate new content or predict outcomes. AI is also behind self-driving cars and digital assistants, like Siri or Alexa.

Essentially, AI allows machines to learn, adapt, and perform tasks like humans, often more quickly and accurately. It is tracking to become an increasingly relevant a part of our everyday lives.

### TYPES OF ARTIFICIAL INTELLIGENCE



**Reactive:** Tools that respond to specific inputs or situations without learning from past experiences (e.g., Alexa, Roomba, chess-playing computer)

**Predictive:** Tools that analyze historical data and experiences to predict future events or behaviors (e.g., Netflix, credit-scoring systems)

**Generative:** Tools that generate new content or outputs, often creating something novel from learned patterns (e.g., ChatGPT, Canva Magic Studio)

## About Generative AI

Generative AI begins with very large datasets. This might include text files, web pages, images, and more. The data is used to train a system of algorithms called a Large Language Model (LLM). These models can identify and predict patterns in language, and are the core of generative AI. Once an LLM is trained, applications like ChatGPT can be built upon them. What is created is a powerful tool that generates customized content based on a user's specifications.

While impressive, they have limitations. Their output is dependent on the quality and diversity of the data they were trained on as well as the skills and knowledge of the human prompting the input.

## Ethical Considerations

It has been widely recognized that generative AI has limitations. In particular, the ethical issues surrounding the development, use, and access of generative AI raise questions. These issues include, but are not limited to:

- Generation of biased, ableist, racist, sexist, and/or inaccurate information
- Impact on environment (water supplies, energy usage, etc.)
- Unregulated development
- Overreliance for creation and decision-making
- Lack of transparency on use of data and/or security measures

While it is challenging to address these issues, it is important to keep them in mind when using generative AI in order to mitigate risk and prevent unintended harm.



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## Educators and AI

Artificial intelligence is recognized as a tool that can support and enhance the work of classroom educators. AI tools should be viewed as complements to human processes. The following are recommendations for educators using artificial intelligence to engage in innovative practices while maintaining the integral role of human connections in the learning process.

<b>LEARNING GOALS FIRST</b>	<ul style="list-style-type: none"> <li>• Clearly define learning objectives before incorporating AI tools into lessons.</li> <li>• Consider the needs of your learners first, and then select the AI tool that fits best with instructional goals.</li> <li>• Seek to design learning opportunities that require more critical thinking or hands-on work to limit learners' ability to rely on AI.</li> </ul>
<b>BALANCE USE WITH HUMAN INTERACTION</b>	<ul style="list-style-type: none"> <li>• Use AI as an intermediate device that is framed by human collaboration and creativity.</li> <li>• Review AI-generated materials collaboratively to identify weaknesses, biases, and misinformation.</li> <li>• Encourage and show learners how to question and analyze AI-generated content.</li> </ul>
<b>TOOL SELECTION</b>	<ul style="list-style-type: none"> <li>• As stated in Policy 311, all softwares and applications must be approved by the DISO, privacy officer, and EECD before use.</li> <li>• If you're unsure if an AI tool is approved, connect with your district's technology coordinator, leads, or ITSS, or consult your administrator.</li> </ul>
<b>SEEK TO LEARN</b>	<ul style="list-style-type: none"> <li>• Educators are encouraged to establish goals for professional learning related to AI use and to engage in continuous learning.</li> <li>• Resources currently available include the EECD PL Hub, IBM SkillsBuild, and Microsoft Learn.</li> <li>• Understanding both how AI works and how it can be integrated into education are important to developing AI literacy.</li> </ul>
<b>ACADEMIC INTEGRITY</b>	<ul style="list-style-type: none"> <li>• Educators should reflect on learners' work habits, learning progress, and past work when determining if AI has been used improperly.</li> <li>• Discuss AI use with learners before assuming they have used it.</li> <li>• The use of AI/plagiarism detectors is discouraged due to bias, inaccuracy, and data privacy issues.</li> <li>• Establish classroom and school-based guidance and expectations for AI use and consequences for misuse.</li> </ul>
<b>DATA PRIVACY AND COPYRIGHT</b>	<ul style="list-style-type: none"> <li>• Educators must keep privacy top of mind when they are considering using an AI tool in their classroom.</li> <li>• All use of AI has to comply with RTIPPA.</li> <li>• According to CMEC's <i>Copyright Matters!</i> 5<sup>th</sup> edition, the student (or the student's parent or legal guardian if they are a minor) must authorize the use of their work in a web posting.</li> </ul>



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## Leadership and AI

The successful integration of artificial intelligence into learning environments will depend on guidance from the school and district leadership. Administrators and directors are essential to determining how educators and learners will work with AI, ensuring privacy and security are prioritized, and measuring the impact of integration. These recommendations for leadership are meant to help school and district educational leaders with the adoption and monitoring of AI use in schools.

<b>SHARED VISION</b>	<ul style="list-style-type: none"> <li>• A shared vision is crucial for fostering a cohesive integration of AI technologies into teaching and learning practices.</li> <li>• Actively involving all parties – educators, learners, administrators, and families – in the creation of a vision empowers them to leverage AI tools effectively.</li> <li>• Visions should foster understanding of the benefits, ethical considerations, and goals associated with AI in education.</li> </ul>
<b>PROCUREMENT</b>	<ul style="list-style-type: none"> <li>• The procurement of AI applications and softwares must align with Policy 311.</li> <li>• Ensure that all apps are approved by the district and EECD, are age appropriate, and are available to learners for free.</li> <li>• Consult with the GNB DISO and privacy officer before using, procuring, or deploying AI technologies.</li> </ul>
<b>IMPROVEMENT GOALS</b>	<ul style="list-style-type: none"> <li>• Incorporating an AI-related goal in your improvement plan opens opportunities to enhance education.</li> <li>• Focus on leveraging AI tools to achieve curriculum outcomes, improve learning experiences, and address ethical concerns.</li> </ul>
<b>REMAINING INFORMED</b>	<ul style="list-style-type: none"> <li>• Creating awareness about the potential and limitations of AI use is essential within a learning community.</li> <li>• Communicating how and why AI will be used empower rightsholders understand its purpose for enhancing education while preparing for ethical challenges.</li> </ul>
<b>EXPECTATIONS AND CONSEQUENCES</b>	<ul style="list-style-type: none"> <li>• Establish school-wide guidelines with a consistent and ethical approach to AI use.</li> <li>• Foster a responsible and accountable culture, helping learners and educators understand the purpose and boundaries of AI applications.</li> <li>• Appropriate and inappropriate use of AI should be noted in student handbooks and codes of conduct.</li> </ul>
<b>CONTINUOUS MONITORING AND ITERATIVE ASSESSMENT</b>	<ul style="list-style-type: none"> <li>• Establish a systematic process for ongoing monitoring and assessment of AI integration.</li> <li>• Regularly evaluate the effectiveness of AI tools, their impact on learners, and alignment with educational goals.</li> <li>• Encourage collaboration among educators to share best practices and lessons learned from AI-enabled learning experiences.</li> </ul>



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## Learners and AI

Learners are frequently the end users of artificial intelligence. They are exploring its potential to create and converse. They are also increasingly encountering AI-created materials online and from their educators. Due to the variety of learners in our system, these recommendations are designed to foster AI literacy skills for all learners in K-12. The goal is to safely explore AI tools and use them for positive outcomes.

<b>GUIDE ON THE SIDE</b>	<ul style="list-style-type: none"> <li>• AI can be used to improve existing student-made work, break down complicated topics, and enhance understanding of new topics.</li> <li>• Use AI to support your education and improve work, not do the work.</li> </ul>
<b>INTEGRITY</b>	<ul style="list-style-type: none"> <li>• Learners are expected to be responsible users of AI.</li> <li>• AI is not to be used to generate inaccurate, inappropriate, or misleading images or content.</li> <li>• Ask for help on knowing when and how to use AI in class.</li> </ul>
<b>CHECKING WITH YOUR TEACHER</b>	<ul style="list-style-type: none"> <li>• Not all assignments will be easier with AI or require its use.</li> <li>• Check with a teacher to see if AI use is allowed in assignments.</li> <li>• Think about how much of the work is being done by the AI vs you.</li> <li>• Citation of AI use on assignment may be required depending on use.</li> </ul>
<b>MISINFORMATION</b>	<ul style="list-style-type: none"> <li>• When creating or viewing AI-generated materials, check for mistakes.</li> <li>• AI is prone to making biased, false, and inaccurate information.</li> <li>• Sharing AI-generated images or content designed to be misleading or false is considered inappropriate use</li> </ul>
<b>AI LITERACY</b>	<ul style="list-style-type: none"> <li>• It is important to become familiar with how AI works and when it can help.</li> <li>• Use different generative AI to see how they are similar and different.</li> <li>• Protect personal information when exploring generative AI.</li> <li>• Learn to recognize AI-generated content.</li> </ul>



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## School Communities and AI

Educators, administrators, learners, and learners' families are all members of the school community. The following recommendations apply to all partners in education. Factors such as data privacy and cybersecurity are considerations that have impact beyond the classroom and school. Schools are encouraged to discuss AI tools and their use in classrooms with families to ensure transparent communication.

<b>TRANSPARENCY OF USE</b>	<ul style="list-style-type: none"> <li>• Know and share why and when generative AI is used as well as what data was used.</li> <li>• Transparency protects the rights and dignity of learners and educators.</li> <li>• Communication when AI is used for assessment or decision-making purposes is recommended.</li> </ul>
<b>DATA PRIVACY</b>	<ul style="list-style-type: none"> <li>• Entering personal information into an AI system poses a risk to privacy and security and is not recommended.</li> <li>• AI systems use data to train their models, which is not an authorized use under RTIPPA. In such cases, consent is recommended.</li> <li>• Use AI tools that prioritize data encryption and anonymization for added protection.</li> </ul>
<b>LEGALITY AND ETHICS</b>	<ul style="list-style-type: none"> <li>• Consider if you're willing to take responsibility for missed inaccuracies or negative consequences of AI use.</li> <li>• Generative AI should not be used to fully create or complete any legal documents.</li> <li>• Critically evaluate AI-generated materials to ensure accuracy and relevance.</li> <li>• All use of AI must comply with RTIPPA.</li> </ul>
<b>BECOMING FAMILIAR WITH A VARIETY OF AI TOOLS</b>	<ul style="list-style-type: none"> <li>• Exploring different AI tools that are available helps to learn about their strengths and limitations.</li> <li>• Learn how to create effective prompts and improve AI output.</li> <li>• Sharing experiences and insights on AI use promotes a collaborative educational environment.</li> <li>• Ongoing professional development to keep updated on the latest AI tools and best practices is recommended.</li> </ul>
<b>CONSIDERING THE EXTERNALITIES OF AI</b>	<ul style="list-style-type: none"> <li>• Generative AI use places demand on the environment such as energy consumption and water usage.</li> <li>• Care should be taken to consider when to supplement or substitute human work with AI-generated output.</li> </ul>
<b>TERMS AND CONDITIONS</b>	<ul style="list-style-type: none"> <li>• Reviewing the terms of use and privacy policies associated with AI tools is essential to protecting user privacy and maintaining data security.</li> <li>• Examining these policies allows school communities to make informed decisions on the benefits of generative AI in teaching and learning while prioritizing the protection of data.</li> <li>• AI applications considered for adoption should be reviewed by a privacy officer and DISO.</li> </ul>



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## Frameworks for Supporting AI Integration

It's important to learn how to use AI tools ethically and effectively, but educators should also be thoughtful about implementing these tools. AI should be viewed, like other technologies, as an educational tool that requires skills to be used effectively.

### NEW BRUNSWICK DIGITAL LITERACY FRAMEWORK

The New Brunswick Digital Literacy Framework consists of six components: Digital Citizenship; Digital Health and Wellness; Critical Inquiry and Meaning Making; Creativity, Design, and Problem Solving; Communication and Collaboration; and Computational Thinking. They are grounded in the idea that digital literacy can empower youth to use digital technologies, **including artificial intelligence, to understand the world and create a brighter future for all.**



More details about the New Brunswick Digital Literacy Framework can be found here: <https://nbed.sharepoint.com/sites/DigitalLearning/SitePages/Digital-Literacy-Framework.aspx>

### FIVE BIG IDEAS IN ARTIFICIAL INTELLIGENCE

The Five Big Ideas in Artificial Intelligence is a framework put together by The Artificial Intelligence (AI) for K-12 initiative. These guidelines define what students should know about AI and what they can do with it. Organized in grade band progression charts that span grades K-2, 3-5, 6-8, and 9-12, **the big ideas consist of Perception, Representation and Reasoning, Learning, Natural Interaction, and Societal Impact.**



More information about each of the Five Big Ideas in Artificial Intelligence can be found here: <https://ai4k12.org>

### ISTE STANDARDS FOR STUDENTS

The International Society for Technology in Education (ISTE) Standards for Students emphasize skills and qualities that enable students to engage and thrive in a digital world. The standards are designed for use by educators with a goal of cultivating these skills throughout a student's academic career. **The standards are Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational Thinker, Creative Communicator, and Global Collaborator.**



More information about each of the ISTE Standards for Students can be found here: <https://iste.org/standards/students>

### TEACHAI: AI GUIDANCE FOR SCHOOLS TOOLKIT

The TeachAI Toolkit is designed to help districts, school leaders, and educators create guidance to realize the potential benefits of incorporating AI in education while understanding and mitigating the potential risks. **The toolkit uses seven guiding principles to develop policy and guidance on AI use: Purpose, Compliance, Knowledge, Balance, Integrity, Agency, and Evaluation.**



More information about the Teach AI Toolkit can be found here: <https://www.teachai.org>



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## Universal Design for Learning

Universal Design for Learning (UDL) is an integral part of curriculum, instruction, and assessment. UDL encourages providing multiple means of engagement, representation, and expression. Educators should consider how AI can be used to engage students and offer novel means of representation, and the impact AI has on expression.

The integration of AI aligns well with the principles of UDL, as it can enhance the learning experience by providing personalized and adaptive support. UDL instructional design and educational AI intersect in the following ways:

### **PERSONALIZATION AND DIFFERENTIATION:**

UDL emphasizes the importance of providing multiple means of representation to accommodate diverse learning preferences. AI technologies can be used to analyze strengths and weaknesses, enabling the delivery of personalized content and instruction. This helps in creating a more inclusive and accessible learning environment.

### **ADAPTIVE LEARNING:**

AI systems can adapt to students' progress and adjust the difficulty of tasks or content based on individual needs. This aligns with UDL's principle of providing multiple means of engagement, ensuring that students are appropriately challenged and engaged in their learning.

### **ASSESSMENT AND FEEDBACK:**

AI-powered assessment tools can provide timely and targeted feedback, offering multiple means of expression for students. This supports UDL's goal of allowing learners to demonstrate their understanding in various ways, accommodating differences in communication and expression.

### **DATA-DRIVEN DECISION MAKING:**

AI can analyze large sets of data to identify patterns and trends in student performance. This information can guide educators in making data-driven decisions about instructional strategies, interventions, and the overall design of learning experiences, aligning with UDL's continuous improvement cycle.

### **ASSISTIVE TECHNOLOGY:**

UDL emphasizes accessibility for all learners. AI enhances accessibility by providing features such as text-to-speech, speech-to-text, translation, and other tools that cater to diverse learning needs. This ensures that content is accessible to students with different abilities and preferences.



The integration of educational AI in UDL instructional design enhances the adaptability, personalization, and accessibility of learning experiences. Using AI in ways aligned with UDL principles supports a more inclusive and effective educational environment for all learners.



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## Guiding Questions

The following is a series of guiding questions designed to encourage educators and administrators to reflect on how they can begin to embed AI into their existing goals, pedagogy, content, and assessments. Incorporating AI into educational practices can open up a world of possibilities for both educators and students. Consider the following guiding questions:

- How can AI enhance personalized learning for students with diverse needs and learning preferences?
- In what ways can AI support analysis of performance data to tailor instruction more effectively?
- How might AI be integrated into existing curricula to foster critical thinking, creativity, and problem-solving skills?
- What ethical considerations should be considered when using AI in educational settings?
- How can AI aid in automating administrative tasks to allow educators more time for direct student engagement and support?
- How might AI be leveraged to provide real-time feedback and assessment for students, promoting continuous learning and growth?
- What professional development opportunities are needed to equip educators with the skills and knowledge to effectively integrate AI into their teaching practices?
- How might we achieve a balance between student-AI interactions and peer-to-peer interactions?
- How might we apply AI to pedagogy in ways that foster collaborative learning and peer-to-peer interactions?
- How might AI tools help educators model complex concepts and processes for students?



By reflecting on these questions, educators and administrators can begin to explore the transformative potential of AI in education and pave the way for a more innovative and engaging learning environment.



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