

Developing your school's vision for Al

A guide for leaders and administrators



Introduction

As we navigate the dynamic landscape of the 21st century, Artificial Intelligence (AI) is reshaping almost every facet of our lives, and education is no exception. While the promise of AI in the classroom is profound–from personalized learning to administrative efficiencies–it also leads to a new set of questions about its responsible and effective use.

We've organized the guide into four sections that will help you to confidently address the concerns and needs of your school community:



This guide aims to address these questions and more, offering you insights, practical advice, and strategies to ensure our schools remain at the forefront of this exciting digital transformation.

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AI systems **can uphold or undermine children's rights, depending on how they are used**. This impact should be central to how AI policies and systems are developed so as not only to respect but also to uphold all children's rights, and can be viewed through the lenses of **protection, provision and participation**.

UNICEF (2021)

Questions to consider surrounding AI use

As you consider AI use in your school, there's lots of information out there, and it can feel overwhelming to figure out what to do. That's why we've created this straightforward set of guidelines to boost your confidence in making AI-related decisions. This section of the guide is designed to spark meaningful reflection and help you to form your own well-rounded ideas about how best to utilize AI in your school's context. Getting grounded in your school's values and beliefs surrounding AI use is an essential first step in becoming AI literate.

We have structured this policy guide reflection using **UNICEF's framework of protection, provision, and participation.** For each of the 3Ps, we provide some "things to consider" as well as guiding questions around teacher and student/family use.



Protection | Do no harm How do students and teachers use AI safely?



Provision | Do good How can AI be leveraged to improve education?



Participation | Include all How do we consider the needs of all stakeholders?

United Nations Children's Fund (UNICEF), 2021

These questions can serve as a great starting point for shaping both your thinking and your school's AI policy. We've created a sample school AI policy using the 3P framework.

Download the Sample AI School Policy

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Protection | Do no harm

How do students and teachers use AI safely?

Things to consider

When it comes to AI tools, particularly those that interact with students, there are several important questions that need to be considered. Some of the concerns that you as a school leader might need to address might be around:

Consent: Addressing questions about how consent is obtained and managed.

Purpose and Use Limitation: Evaluating the intended purposes of AI tools and how data is used, while ensuring limitations are in place.

Transparency: Ensuring that the inner workings of AI systems are clear and understandable.

Accountability: Establishing responsibility for AI tool outcomes and actions.

An added challenge is that young children may not understand the concept of privacy or the long term impact of sharing data.

Teacher use

- How is parental consent obtained for children under 13, and student consent obtained for students over the age of 13?
- What is the process for selecting and using AI tools (considering transparency and accountability)?
- What information can/can't be shared with AI enabled tools?

Student/family use

• How will we educate students and families about the potential risks associated with AI and data?



Provision | Do good

How can AI be leveraged to improve education?

Things to consider

Al has the potential to unlock personalized learning. Already, tools have been developed that increase access and support for students with diverse needs and abilities. However, as a school leader it is important to keep in mind that Al tools are susceptible to:

Bias and Unfairness: Al systems can inherit biases from their data, potentially leading to unequal treatment of children, especially those from underrepresented groups.

Overgeneralization: AI can mistakenly generalize characteristics or behaviors, impacting decision-making and interventions.

Teacher use

- How will AI enhance teaching and learning?
- How will teachers be trained on ethical use of AI tools?
- What role will teachers retain in decision making?
- Can teachers opt out of AI use or refute decisions made by AI?
- What strategies can be implemented to identify and mitigate any biases that AI systems might introduce into the learning environment?

Student/family use

- Will AI tools be accessible for all students?
- Can students/families opt out of AI use?
- Will there be transparency in how decisions are made using AI?



Participation | Include all

How do we consider the needs of all stakeholders?

Things to consider

Democratizing the use of AI is crucial to ensure that underserved communities have equal access to the benefits of AI technology, helping to bridge digital divides and promote equity in education, employment, and societal opportunities. Some ways to democratize access to AI include:

Inclusive Design Principles: Ensuring that AI systems are designed with principles that consider the widest range of users, regardless of age, gender identities, abilities, or other characteristics.

Child Participation: Actively encouraging the participation of children in the design, development, and implementation of AI systems. This involvement should take into account the intended use and be meaningful for all potential child users.

Teacher use

- How can teachers actively involve students in shaping the use of AI in the classroom?
- How will all learners be educated about AI?

Student/family use

- How will we collect input and feedback from all community members around the use of AI tools?
- How can we hear more voices around the efficacy of AI tools?
- How might we teach students and families about safe AI use?

The above guiding principles will help you lay the foundation for understanding the **why** and **how** of integrating AI in education. They will provide the philosophical and ethical backbone for any technological decisions you make. However, these guiding principles are only as effective as the tools that support them.

As we move to the next section on evaluating AI tools, you'll discover a practical tool for determining which technologies align your principles with your school's needs.

How do I select and evaluate AI tools?

In part 1, you explored how to build a strong foundation for your school's values and beliefs surrounding AI use. In this section, you can begin to think about adopting AI-powered tools. There are all kinds of AI tools that promise to revolutionize teaching and learning, but not all tools are designed with students' and teachers' best interests at heart. This checklist will help you to evaluate the AI tools that you are considering to ensure that the tool is safe, effective and equitable.

We have designed this AI tool checklist to be used by school leaders and educators as they consider adoption of a new AI tool. It is organized using the 3Ps framework:

Download the AI tool checklist



Choosing the right tools not only saves time but helps your team to level up their teaching practice. We invite you to use this checklist as a starting point-it can be modified to meet the unique needs of your school context.



Checklist for Evaluating AI Tools for use in School

Guiding principles	Key considerations Evaluation		ition
Protection Do no harm	Does the AI tool adhere to data protection regulations, and ensure secure data storage and usage?		N
	Will the AI tools collect the minimum amount of data to provide the service?	Y	N
	Will users be informed, and their consent obtained, regarding data processing and storage?	Y	Ν
	Is the AI tool trained on diverse datasets to avoid discrimination and ensure objectivity and fairness in content and decision-making processes?	Y	Ν
	Are the ethical frameworks and principles guiding the development of the AI tool aligned with our school's values?	Y	Ν
	Are there mechanisms in place for monitoring the impact of the Al tool?	Y	N
Provision Do good	Is the use of the AI tool motivated by genuine educational needs and make learning more effective than alternative approaches?	Y	N
	Does the AI tool have a clear educational goal and contribute effectively to learning outcomes?	Y	N
	Does the AI tool engage students in a manner that is aligned with my pedagogical philosophy?	Y	N
	Will the application of this AI tool maintain a focus on human values such as agency, compassion, and creativity?	Y	N
	Does the AI tool offer a good return on investment, balancing cost with improvements in learning outcomes and efficiencies?	Y	N

Created by Toddle



Checklist for Evaluating AI Tools for use in School

Guiding principles	Key considerations		Evaluation	
Participation Include all	Will teachers have adequate access to guidance, training, and support to ensure educators and learners can use AI tools effectively and ethically?	Y	N	
	Is this AI tool accessible to diverse learners, compliant with accessibility guidelines?	Y	N	
	Is the AI tool adaptable to different learning environments and scalable to different class sizes?	Y	N	
	Will the AI tool integrate easily with existing teaching practices and learning management systems?	Y	N	

In the guide so far we have:

- Developed your personal beliefs and values around AI use
- Introduced an evaluation tool for adopting new technology tools

In the next section of the guide, we will turn towards our curriculum. As the future of work and life continues to change, we must also adapt our curriculum to ensure it remains relevant to students. Let's dive into how we can adapt and reshape our curriculum for an Al-powered future, ensuring our students are not just consumers, but creators and critical thinkers in this new era.

How might we adapt our curriculum for an Al future?

Whether or not you have chosen to use AI tools in your school, we all have a responsibility to teach students the skills they need to find success in an AI-powered world, but what are those skills?

In this section, we will provide an overview of the current research around what to include in an AI curriculum and how to introduce AI to your students. We will also explore an example of both international and national curriculum programs that have been developed.

We hope this serves as a starting point for adopting, adapting, or creating your own curricular expectations as a school.

In 2022, UNESCO published a curriculum review of all existing AI curricula worldwide:

- They recognized **nine common topic areas** addressed in AI curriculum as well as the associated competencies
- These nine topic areas might serve as a starting point for a school looking to create or evaluate a new AI curriculum
- There is still a lack of research regarding effective AI curriculum, but these nine topic areas might serve as a starting point for creating effective curriculum:

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Up to 65 percent of children in primary school today will be working in jobs that do not even exist yet... Preparing children for the future will require education systems to be aligned with the needs of the future workforce, which includes soft skills, such as creativity and communication; technical skills, such as coding; and a lifelong learning ecosystem that supports children into their full adulthood.

UNICEF (2021)

Part 3

Category	Topic area	Competency and curriculum considerations
Al foundations	Algorithms and programming	Together with data literacy, algorithms and programming can be viewed as the basis of technical engagement with Al.
	Data literacy	A majority of Al applications run on 'big data'. Managing the data cycle from collection to cleaning, labelling, analysis and reporting forms one of the foundations for technical engagement with using and/or developing Al. An understanding of data and its functions can also help students understand the causes of some of the ethical and logistical challenges with Al and its role in society.
	Contextual problem-solving	Al is often framed as a potential solution to business-related or social challenges. Engaging at this level requires a framework for problem-solving in context, encompassing things like design thinking and project-based learning.
Ethics and social impact	The ethics of Al	Regardless of technical expertise, students in future societies will engage with Al in their personal and professional lives – many do so from a young age already. It will be important for every citizen to understand the ethical challenges of Al; what is meant by 'ethical Al'; concepts such as transparent, auditable, and fair use of Al; and the avenues for redress in case of unethical or illegal use of Al, e.g. that which contains harmful bias or violates privacy rights.
	The social or societal implications of Al	The social impacts of Al range from requiring adjustments to legal frameworks for liability, to inspiring transformations of the workforce. Survey respondents were asked about the extent to which their curricula targeted these issues. Trends such as workforce displacement, changes to legal frameworks, and the creation of new governance mechanisms were given as examples.
	Applications of Al to domains other than ICT	Al has a wide range of applications outside of computer science. The survey asked participants whether and to what extent Al applications in other domains were considered. Art, music, social studies, science and health were given as examples.
Understanding, using and developing Al	Understanding and using Al techniques	This area included (1) the extent to which theoretical understandings of Al processes were developed (e.g. defining or demonstrating patterns, or labelling parts of a machine learning model); and (2) the extent to which students used existing Al algorithms to produce outputs (e.g. training a classifier). Machine learning in general, supervised and unsupervised learning, reinforcement learning, deep learning, and neural networks were given as examples of Al techniques.
	Understanding and using Al technologies	Al technologies are often human-facing applications which may be offered 'as a service'. NLP and computer vision were given as examples. Respondents were asked about the extent to which learners used existing Al technologies to complete tasks or projects, and/or studied the processes of creating these technologies.
	Developing Al technologies	Developing Al technologies deals with the creation of new Al applications that may address a social challenge or provide a new type of service. It is a specialized field requiring knowledge of a range of complex techniques and skills in coding, mathematics (especially statistics), and data science.

This image summarizes the findings of the 2021 UNESCO curriculum review. It outlines nine areas to consider when adopting or adapting curriculum. (United Nations Educational, Scientific and Cultural Organization, (UNESCO), 2022)

Examples of AI curriculum for students

Several organizations and national governments have begun work on AI curriculum. In this section, we will provide one international example and one national example of developed AI curriculums.

Adopting Curriculum: An International Example

<u>AI4K12</u>

- The Artificial Intelligence (AI) for K-12 initiative (AI4K12) is jointly sponsored by <u>AAAI</u> and <u>CSTA.</u>
- It provides a learning continuum of curriculum. The guidelines are like a roadmap for those creating educational standards and curricula about AI.
- These guidelines, called AI4K12, are structured as charts that show how AI concepts, important information, and skills should progress from kindergarten to 12th grade.



(AI4K12, 2023)

The Five Big Ideas in AI

Adopting Curriculum: A National Example

- The Republic of Korea published elementary and secondary standards for AI in 2020
- Local governments and schools can adjust their curricula to fit the set hours and standards as needed

Machine learning Grade level **Understand Al** Social impact Data Al Play Data visualisations Computer and human Al that helps us Grade level Weak and strong Al Text data perception Proper use of Al Uses of Al Data trends Classification methods Al development Al and my job The data cycle, 2 Middle school Introduction to ML process Preventing misuse of Al data management Turing test Characteristics of Al Data properties Data bias and fairness High school Al and social change Sensors, CV, NLP, ML Structured and Solving social problems (basic) The role of intelligent concepts Ethical dilemmas unstructured data agents (IA) Domain applications Heuristic search Algorithm bias High school of Al technology Big data Neural networks Al ethics for developers (advanced) IA analysis Data attribute analysis Reinforcement and adopters Al convergence learning

Curriculum standards, Republic of Korea

(United Nations Educational, Scientific and Cultural Organization, (UNESCO), 2022)

Whether you choose to adopt a new curriculum or adapt your existing programs, looking for guidance from your local or national government is a great first step. While many of these programs are still in development, you can often find specific guidance or frameworks that will inform your thinking.

We suggest forming a committee with interested volunteers from your school community to conduct a formal curriculum review, adaption, or adoption process.

Other Considerations for Curriculum

In addition to deciding what to teach, we must also address decisions regarding **how** and **when** we will teach AI skills:

- Will AI be taught as a stand alone class or integrated into existing subjects?
- How will time be made to address additional content?
- How (and when) will teachers be trained?
- What is the most effective method of instruction?

As AI continues to influence the future of work, we as school leaders and educators must keep pace and empower our learners with the knowledge, skills, and dispositions they will need to find success in their lives. While there are no definite answers into what should be taught in schools, the guidance from UNESCO provides a great starting point for adopting or adapting our curriculum to meet the needs of our learners.

One of the essential skills our learners must acquire pertains to academic integrity. After talking with many school leaders and teachers, academic integrity and proper citation arose as a major concern. In the world of ChatGPT and other generative AI models, how can we know what students actually know? How do we ensure that intellectual property is honored? In the final section of the guide, we will conclude with some ideas surrounding academic integrity.

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Part 4

How do we ensure academic -1integrity when using AI?

Having adapted our curriculum to embrace an AI-powered future, we also need to address the challenges this new technology introduces to academic integrity. As AI tools become more integrated into the learning process, it's crucial that our policies and practices reflect the changing nature of how students complete and present their work.

This section will delve into updating academic integrity policies, ensuring they capture the appropriate and ethical use of AI, and promote genuine learning and understanding among students.

Can students use generative AI?

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The first question to gain clarity on as a school is how and when students will be permitted to use AI tools. Carnegie Melon provides helpful language around 6 different scenarios of AI use in schools. This can be used to modify your existing academic integrity policy.

One important thing to note is that students under the age of 13 are not permitted to use AI tools like ChatGPT without parent consent. This should be communicated to all members of your school community.

Example 1: Students may NOT use generative AI in any form.

To best support your own learning, you should complete all graded assignments in this course yourself, without any use of generative artificial intelligence (AI). Please refrain from using AI tools to generate any content (text, video, audio, images, code, etc.) for an assignment or classroom exercise. Passing off any AI generated content as your own (e.g., cutting and pasting content into written assignments, or paraphrasing AI content) constitutes a violation of <u>CMU's academic integrity policy</u>. If you have any questions about using generative AI in this course please email or talk to me.

Example 2: Students may NOT use generative AI in any form.

I expect that all work students submit for this course will be their own. I have carefully designed all assignments and class activities to support your learning. Doing your own work, without human or artificial intelligence assistance, is best for your achievement of the learning objectives in this course. In instances when collaborative work is assigned, I expect for the submitted work to list all team members who participated. I specifically forbid the use of ChatGPT or any other generative artificial intelligence (AI) tools at all stages of the work process, including brainstorming. Deviations from these guidelines will be considered violations of <u>CMU's academic integrity policy</u>. Note that expectations for "plagiarism, cheating, and acceptable assistance" on student work may vary across your courses and instructors. Please ask me if you have questions regarding what is permissible and not for a particular course or assignment.

(Carnegie Mellon University, 2023)

Example 3: Students are fully encouraged to use generative AI.

I encourage students to explore the use of generative artificial intelligence (AI) tools, such as ChatGPT, for all assignments and assessments. Any such use must be appropriately acknowledged and cited, following the guidelines established by the <u>APA Style Guide</u>, including the specific version of the tool used. Submitted work should include the exact prompt used to generate the content as well as the AI's full response in an Appendix. Because AI generated content is *not* necessarily accurate or appropriate, it is each student's responsibility to assess the validity and applicability of any generative AI output that is submitted.

You may not earn full credit if inaccurate, invalid, or inappropriate information is found in your work. Deviations from these guidelines will be considered violations of <u>CMU's academic integrity policy</u>. Note that expectations for "plagiarism, cheating, and acceptable assistance" on student work may vary across your courses and instructors. Please email me if you have questions regarding what is permissible and not for a particular course or assignment.

Example 4: Students are fully encouraged to use generative AI.

You are welcome to use generative AI programs (ChatGPT, DALL-E, etc.) in this course. These programs can be powerful tools for learning and other productive pursuits, including completing some assignments in less time, helping you generate new ideas, or serving as a personalized learning tool.

However, your ethical responsibilities as a student remain the same. You must follow <u>CMU's academic</u> <u>integrity policy</u>. Note that this policy applies to all uncited or improperly cited use of content, whether that work is created by human beings alone or in collaboration with a generative AI. If you use a generative AI tool to develop content for an assignment, you are required to cite the tool's contribution to your work. In practice, cutting and pasting content from any source without citation is plagiarism. Likewise, paraphrasing content from a generative AI without citation is plagiarism. Similarly, using any generative AI tool without appropriate acknowledgement will be treated as plagiarism.

Here are some specific expectations for your use of AI generation tools in this course:

- You can include AI generated content verbatim into a writing assignment with quotations and a citation.
- You can paraphrase AI generated content with a citation.
- You can include non-text AI generated content (images, video, code, etc.) with an appropriate citation, when expressly permitted in the assignment prompt.
- You will conduct your own research and generate bibliographies yourself for topics that you have researched.
- You will not use or present generative AI content that you pass off as your own work.

Finally, it is important that you recognize that generative AI tools frequently provide users with incorrect information, create professional-looking citations that are not real, generate contradictory statements, incorporate copyrighted material without appropriate attribution, and sometimes integrate biased or offensive concepts. Code generation models may produce inaccurate outputs. Image generation models may create misleading or offensive content.

While you may use these tools in the work you create for this class, it is important to note that you understand **you are ultimately responsible for the content that you submit**. Work that is inaccurate, biased, unethical, offensive, plagarized, or incorrect will be treated as such during the evaluation of your work.

Example 5: Students may use generative AI in some cases, but not others

Certain assignments in this course will permit or even encourage the use of generative artificial intelligence (AI) tools, such as ChatGPT. When AI use is permissible, it will be clearly stated in the assignment prompt posted in Canvas. Otherwise, the default is that use of generative AI is disallowed. In assignments where generative AI tools are allowed, their use must be appropriately acknowledged and cited. For instance, if you generated the whole document through ChatGPT and edited it for accuracy, your submitted work would need to include a note such as "I generated this work through Chat GPT and edited the content for accuracy." Paraphrasing or quoting smaller samples of AI generated content must be appropriately acknowledged and cited, following the guidelines established by the <u>APA Style Guide</u>. It is each student's responsibility to assess the validity and applicability of any AI output that is submitted. You may not earn full credit if inaccurate on invalid information is found in your work. Deviations from the guidelines above will be considered violations of <u>CMU's academic integrity policy</u>. Note that expectations for "plagiarism, cheating, and acceptable assistance" on student work may vary across your courses and instructors. Please email me if you have questions regarding what is permissible and not for a particular course or assignment.

(Carnegie Mellon University, 2023)

Example 6: Students may use generative AI in some cases, but not others

During some class sessions, we may leverage generative AI tools to support your learning, provide you with an opportunity to explore how they can be used, and/or better understand their benefits and limitations. Learning how to use AI is an emerging skill, and we will work through the implications of these evolving systems together, during class sessions. However, use of generative AI will be limited to exercises during class sessions. I will always indicate when and where use of AI tools during class sessions is appropriate (and not). Examples of use during ungraded classroom exercises might include:

- brainstorming new ideas,
- developing example outlines or approaches to your work, and/or
- generating different ways to talk about a problem.

In contrast, you may *not* use AI tools to generate work for an assignment to be submitted for a grade, as this cannot be considered a substitute for developing the fundamental skills and expertise represented by the learning objectives of this course. Please note that generative AI tools rely on predictive models to generate content that may appear correct, but has been shown to sometimes be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research and you should complete all graded assignments without any assistance from AI tolls. You are ultimately responsible for the content of the information you submit and may not attempt to pass off any work generated by an AI program as your own.

Citation and plagiarism: an AI mindset shift

Deciding **how** and **when** students will be permitted to use AI is an essential first step, now we will turn to the concept of plagiarism and citation with AI.

Much like Hansel and Gretel marked their path with breadcrumbs to find their way back home, when we cite sources, we're leaving behind markers that show where our ideas have come from. These breadcrumbs show the connections and influences that have guided our thinking.



In the past, citation was a way to show where we got our ideas and give credit to others. But now, with AI, our view of citation has changed. It's not just about giving credit; it's about inviting others to see how we think. We want to make our thought process clear and understandable.

When we cite sources, we're saying, "Here's how I got here, and you can follow the same path if you want." It's a way to connect and learn from each other, all while keeping the idea of leaving a trail for others to follow.

When citing use of AI, we must move beyond traditional bibliographies and challenge learners to recognize the part AI played in the collaborative, creative process. We've created this template for students and teachers to use to share their thinking and use of AI throughout the creative process:



When was Al used?

ex. Synthesizing, brainstorming, outlining, drafting, editing

EXAMPLE

Which Al tool was used?

Be specific about the name and the version, eg ChatGPT4

What prompt(s) did you use?

ex. Synthesizing, brainstorming, outlining, drafting, editing

How did you use the output?

ex. was it a reference, a first draft, a counterpoint? When I was synthesizing my research sources, I prompted ChatGPT4 to identify the themes that are common across the texts and summarize the main points made about each of the themes in each text. I used the output to create a Venn diagram to compare and contrast the arguments made across texts.

Additional citation resources

For specific guidance regarding in-text citation and bibliography creation it is best to refer to the style guide chosen by your school:

- <u>APA Guide</u>
- <u>MLA guide</u>

In today's educational landscape, it is more crucial than ever for learners to grasp the significance of academic integrity. Creating an environment that fosters curiosity, embraces the opportunity to learn from mistakes, and encourages robust classroom discussions is a vital component of building AI integrity.

Conclusion

Due to the influence of AI technologies, the world of education is evolving rapidly. As school leaders, we need to keep a finger on the pulse of these shifts. While the road ahead may seem daunting, our duty is simple: stay informed and do our best. This guide has been thoughtfully crafted to

- help you shape your approach to AI integration,
- make informed decisions regarding tool selection,
- adjust your curriculum, and
- navigate the intricacies of academic integrity and citation.

We're confident this guide will be an accessible and practical resource to assist you on this extraordinary journey.

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Have you seen Toddle AI?

As you navigate your way through generative AI, we're excited to introduce you to Toddle AI, designed specifically to be the ultimate assistant for every progressive educator. Toddle AI is trained to understand the nuances of learnercentered education and will help teachers deliver future-ready learning.

The first release of Toddle AI helps teachers:



Lesson planning

Progress reports

Writing Assistant

Sign up for a free walkthrough to learn how Toddle AI can help you reclaim your time and elevate your practice!

