The Curious Educator's Guide to AI

# THE CURIOUS EDUCATOR'S GUIDE TO AI

Strategies and Exercises for Meaningful Use in Higher Ed

KYLE MACKIE AND ERIN ASPENLIEDER



The Curious Educator's Guide to AI Copyright © 2024 by Paul R MacPherson Institute for Leadership, Innovation and Excellence in Teaching is licensed under a <u>Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License</u>, except where otherwise noted.

# CONTENTS

Introduction	vii
Acknowledgements	Viii
Accessibility Statement	ix
General Guidelines and Recommendations	х
Disclaimer	xi

### Understanding Your Needs

Identifying Your Problem or Curiosity	3
Aligning with Values and Vision	4
Intention Setting	5

### Exploring AI Tools

Popular Generative AI Tools	9
Databases of Generative AI Tools	13
Evaluating AI Tools	14

### Building Al into Your Practice

Potential Applications of AI for Academic Tasks	19
AI Tools and Platforms at McMaster University	20
Assignment and Assessment Design	21
Developing AI-Integrated Projects	22

### Monitoring, Evaluation, and Reflection on Al Use

Defining Success	27
Evaluating Impact	28
Addressing BIG questions	31
Al Metaphors	32
Further Reading and Resources	33
GenAl Resource List	34
Al Dialogues - McMaster Podcast Series	35

## INTRODUCTION



Welcome. This guide is designed to help educators and researchers better understand the evolving role of Artificial Intelligence (AI) in higher education. This openly-licensed resource contains strategies and exercises to help foster an understanding of AI's potential benefits and challenges. We start with a foundational approach, providing you with prompts on aligning AI with your curiosities and goals.

The middle section of this guide encourages you to explore AI tools and offers some insights into potential applications in teaching and research. Along with exposure to the tools, we'll discuss when and how to effectively build AI into your practice.

The final section of this guide includes strategies for evaluating and reflecting on your use of AI. Throughout, we aim to promote use that is effective, responsible, and aligned with your educational objectives. We hope this resource will be a helpful guide in making informed and strategic decisions about using AI-powered tools to enhance teaching and learning and research.

# ACKNOWLEDGEMENTS

### Authors

Kyle Mackie and Erin Aspenlieder

### **Design and Development**

Kyle Mackie Consulting Ltd

### Sponsors



PAUL R. MACPHERSON INSTITUTE FOR LEADERSHIP, INNOVATION AND EXCELLENCE IN TEACHING



The views expressed in this publication are the

views of the author(s) and do not necessarily reflect those of the Government of Ontario or the Ontario Online Learning Consortium.

# ACCESSIBILITY STATEMENT

### **Commitment to Accessibility**

• The authors of "The Curious Educator's Guide to AI" are dedicated to ensuring the content of this resource is accessible and inclusive for all users.

### Adherence to Standards

• This guide strives to comply with the <u>Accessibility for Ontarians with Disabilities Act (AODA)</u> and the <u>Web Content Accessibility Guidelines (WCAG) 2.1 Level AA</u>.

### Features for Accessibility

- This guide includes alternative text for images where appropriate, keyboard navigation compatibility, and compatibility with screen readers.
- This resource was created using best practices for <u>Pressbooks accessibility</u>, <u>H5P accessibility</u>, and <u>PDF accessibility</u>.

### Feedback and Accommodations

• We welcome feedback on the accessibility of this resource. Please contact us at <u>aspenled@mcmaster.ca</u> for any comments or suggestions.

### **Continuous Improvement**

• Our commitment includes ongoing efforts to improve the accessibility of this guide, ensuring it is updated and aligned with current best practices and regulations.

# GENERAL GUIDELINES AND RECOMMENDATIONS

There is a lot to consider when deciding when and how to integrate AI into educational and research practices. Some of the considerations we'll explore in chapters that follow include data privacy, bias in AI algorithms, and the implications of AI-generated content on academic integrity. While much attention is given to what AI can do, this book invites you to ask critical and reflective questions about what it should (and shouldn't) do in your unique context.

That said, through your engagement with this resource we explain how and why you should:

- Protect student and institutional data while using AI tools.
- Recognize and attempt to mitigate biases in AI outputs to ensure fairness and equality in educational settings.
- Acknowledge your use of AI.
- Balance the use of AI-generated content with the need to maintain academic rigour and integrity.

For more specific guidelines and recommendations on the use of generative AI, be sure to connect with colleagues in your local context for any discipline or institution-specific expectations.

### DISCLAIMER

This guide was created for educational and informational purposes, and provides a overview of considerations for generative AI's use in higher education. We strive for accuracy and relevance, but given the fast-paced advances of AI, this content may not always be completely up-to-date. We recommend seeking out additional resources and local expert advice as needed.

The opinions, considerations, and applications presented here aim to promote reflection and discussion. They are not exhaustive guidelines, but starting points for exploration of AI's role in teaching and learning and research. XII | DISCLAIMER

# UNDERSTANDING YOUR NEEDS

An important step in considering the use of AI in education is to identify your needs and areas of curiosity you wish to explore. This section includes guidance and exercises designed to help you pinpoint these areas, and set a direction for your use of AI.

### This section is divided into 3 chapters.

### Identifying Your Problem or Curiosity

This first chapter explores the importance of having a goal when considering how you will work with AI tools. The exercises here are designed to help you articulate challenges or areas of curiosity where AI might offer solutions. This chapter focusses on identifying your needs, thereby setting the stage for intentional and effective use of AI.

### Aligning with Values and Vision

The activities in this chapter can help you align your use of AI with your goals and educational objectives. This alignment can ensure that the introduction of AI into your work is meaningful, responsible, and respectful of your educational setting, your teaching philosophy and your approach to research.

### **Intention Setting**

This chapter discusses the importance of being intentional in your adoption of AI tools. The questions presented here are meant to prompt reflection, helping you clarify your intentions for using AI. By engaging with this activity, we hope that you will be able to establish a clear, purposeful path for integrating AI into your work, ensuring that it contributes positively to your overall goals.

#### 2 | UNDERSTANDING YOUR NEEDS

# IDENTIFYING YOUR PROBLEM OR CURIOSITY



The exercises below are designed to help you develop a clearer picture of the areas in your professional practice where AI could be beneficial.



An interactive H5P element has been excluded from this version of the text. You can view it online here: https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=152#h5p-6

# ALIGNING WITH VALUES AND VISION



After identifying needs and areas of curiosity, the next step is to consider how AI use aligns with your personal and institutional values and vision. These activities are designed to help you make this alignment clear and intentional.

Note: the linked examples are generated by ChatGPT.



An interactive H5P element has been excluded from this version of the text. You can view it online here:

https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=154#h5p-5

# **INTENTION SETTING**



The questions below aim to help you clarify your intentions for using AI, ensuring that the technology serves as an effective tool in achieving your educational and research objectives. You can use the space below the prompts to type in your response and export it, or record your response and download the file. Note that the prompts update every 5 minutes.



An interactive H5P element has been excluded from this version of the text. You can view it online here: https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=156#h5p-20

#### 6 | INTENTION SETTING

# **EXPLORING AI TOOLS**

This section aims to equip educators and researchers with the knowledge necessary to navigate the evolving landscape of generative AI. These chapters aim to guide you through a selected number of AI tools and databases with the hope that your use of these technologies is informed and purposeful.

#### This section has 3 chapters.

### Popular Generative AI Tools

This chapter serves as a guide to the most widely-used generative AI tools. The included table offers details about a variety of text generators and text-to-image generators. Each tool is presented with an overview of its functionality, pricing, strengths, and limitations. This chapter is designed to support educators and researchers in decision-making regarding which tools best suit your needs.

### Databases of Generative AI Tools

By exploring these databases, you will gain access to a variety of AI tools and platforms, see what's available, and consider how these tools could be integrated into your work.<sup>1</sup>

### **Evaluating AI Tools**

This chapter introduces a 'Rubric for Evaluating AI Tools', which is designed to help assess AI technologies in different categories. These include functionality, accessibility, privacy, as well as pedagogical, ethical, and environmental considerations. This rubric can help you select AI tools that meet your goals and adhere to standards of quality, reliability, and ethical practice.

#### 8 | EXPLORING AI TOOLS

# POPULAR GENERATIVE AI TOOLS



In the table below, we have compiled a selection of the most popular generative AI tools that have potential to enhance aspects of teaching and research. These tools include both text generators and text-to-image generators. Use this table to explore functionalities, pricing, strengths and limitations and potential applications of these AI tools.

AI Tool	Pricing	Description	Strength	Limitation
<u>ChatGPT</u>	Free & paid versions	Generative text AI by OpenAI. The most popular and effective generative text AI. Can generate human-like responses.	Highly interactive with a wide range of applications. Can understand context and provide detailed responses.	Occasionally generates inaccurate or nonsensical responses.
<u>Copilot</u>	Free	Microsoft's AI tool connected to its search engine. Can create responses that draw on the internet currently.	Integration with search for current information. Provides a wide range of search results.	Responses may be less refined than other AI tools. Limited control over generated content.
<u>Copilot365</u>	Included with Microsoft 365	An AI tool within the Office 365 suite for task automation and content assistance in applications like Word, Excel, and PowerPoint.	Integrates with Microsoft Office, user-friendly, advanced content and data handling.	Requires Office 365, limited to functionalities within Microsoft applications.
DALLE	Free	OpenAI's generative model that can generate images from textual descriptions, allowing users to create unique visual content.	Capable of producing high-quality images based on text inputs. Provides creative output and customizable options.	Limited to generating images only. Requires clear and detailed textual descriptions to generate accurate visuals.
<u>MidJourney</u>	Free trial – paid version	A generative image tool that can be accessed through Discord, a messaging platform. Allows users to create unique visual content.	Convenient for users familiar with Discord. Provides a variety of image styles and customization options.	Requires Discord, which might not be accessible or preferred by all users. Generated images may lack fine details or realism.
<u>Claude</u>	Free	Generative text AI that allows you to upload large text files (a few hundred pages) that can provide additional context for the questions that you ask of it.	Handles extensive context from large text uploads. Can generate detailed and coherent responses.	May not be as sophisticated in shorter, quick-turnaround queries. Limited availability of specific features in the free version. <i>Not currently available</i> <i>in Canada</i> .
<u>Bard</u>	Free	Google's generative AI tool that connected to its search engine. Allows you to upload a file to provide additional context and generate responses.	Google's vast data at its disposal for rich responses. Provides options for context customization.	Still in development, may not be as polished or widely available. Generated content may require additional editing for coherence. <i>Not currently</i> <i>available in Canada</i> .

#### **Comparison of AI Tools**

# Here are example prompts and corresponding outputs from each of the AI tools mentioned in the table:

### ChatGPT Prompt: "Can you explain the concept of photosynthesis?"

Output: "Photosynthesis is the process by which green plants, algae, and some bacteria convert sunlight,

carbon dioxide, and water into glucose and oxygen. It is an essential process for the production of food and oxygen in ecosystems. During photosynthesis, chlorophyll in plant cells captures sunlight energy, which is then used to convert carbon dioxide and water into glucose, releasing oxygen as a byproduct."

### Copilot Prompt: "What are the main causes of climate change?"

**Output:** Search results with a list of articles, websites, and resources related to the main causes of climate change, including factors such as greenhouse gas emissions, deforestation, industrial activities, and burning fossil fuels.

#### DALLE Prompt: "Generate an image of a serene sunset over a calm lake."

**Output:** A serene sunset over a calm lake, with the sky painted in shades of orange, pink, and purple. The water is still, reflecting the colors of the sky.



MidJourney Prompt: "Create a digital art piece inspired by nature."

Output: 4 examples of digitally created artwork featuring vibrant and abstract representations of elements

#### 12 | POPULAR GENERATIVE AI TOOLS

found in nature, such as flowers, trees, or landscapes, using a combination of colors and textures.



Claude Prompt: "Provide a detailed explanation of the Pythagorean theorem."

**Output:** "The Pythagorean theorem states that in a right-angled triangle, the square of the length of the hypotenuse (the side opposite the right angle) is equal to the sum of the squares of the lengths of the other two sides. Mathematically, it can be expressed as  $a^2 + b^2 = c^2$ , where 'a' and 'b' are the lengths of the legs of the triangle, and 'c' is the length of the hypotenuse."

Bard Prompt: "What are the key features of a democratic government?"

**Output:** "Key features of a democratic government include popular sovereignty, where the power lies with the people through elected representatives; political equality, ensuring that every citizen has equal rights and opportunities; rule of law, where laws apply equally to all individuals; protection of individual rights and freedoms; and regular and free elections to ensure the accountability of the government."

Please note that the outputs generated by these AI tools are based on training data and may not always be accurate or contextually appropriate. It's important to critically evaluate and verify the information generated by these tools.

# DATABASES OF GENERATIVE AI TOOLS



Exploring a few databases of AI tools is a good way to understand the breadth and depth of artificial intelligence applications available today.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <u>https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=31</u>

# **EVALUATING AI TOOLS**



The **Rubric for AI Tool Evaluation** provides a framework for assessing the strengths and weaknesses of AI tools based on a set of criteria, including functionality, accessibility, privacy, as well as pedagogical, ethical, and environmental considerations.

By evaluating these key areas, you can make informed judgments about the suitability of AI tools, ensuring that they align with your needs.<sup>1</sup> We have provided 2 versions below. The "Fundamental Criteria" version will allow you to perform an initial evaluation of a tool. The "In-Depth Criteria" version introduces more categories and criteria, facilitating a deeper examination of a tool.

#### Fundamental Criteria version

You can download the <u>Rubric for AI Tool Evaluation: Fundamental Criteria version (opens in new window)</u>, or use the interactive version below.

To navigate this resource:

- 1. Answer each of the 15 criteria to receive general feedback.<sup>2</sup>
- 2. Overall results will be compiled on the Final page.<sup>3</sup>



An interactive H5P element has been excluded from this version of the text. You can view it

- 1. This resource is meant as an informal evaluation tool, with the aim of informing decision-making and conversations. Be sure to check with your local teaching and learning centre for advice, along with your local IT department's practices around evaluation and appropriate use of technologies.
- 2. Please note: questions reveal "correct" responses based on what's most ideal. An "incorrect" answer isn't "wrong" but indicates a potential point of concern for consideration and remediation.
- 3. "Works Well" responses receive 1 point. "Minor Concerns" and "Serious Concerns" receive zero points.

online here: https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=29#h5p-35

#### In-Depth Criteria version

You can download the <u>Rubric for AI Tool Evaluation: In-Depth Criteria version (opens in new window)</u>, or use the interactive version below.

#### To navigate this resource:

- 1. Choose a category from the Table of Contents.
- 2. Complete the evaluation criteria to receive general feedback.
- 3. Overall results will be compiled on the Summary page.



An interactive H5P element has been excluded from this version of the text. You can view it online here: https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=29#h5p-33

#### **Risk Mitigation Strategies**

- Cross-check AI outputs with manual methods.
- Request detailed documentation from the tool provider.
- Implement additional data encryption. Limit data access permissions. Use tool in controlled environments.
- Utilize the tool in combination with other platforms. Encourage user feedback for customization.

#### 16 | EVALUATING AI TOOLS

- Explore middleware solutions. Regularly update integrations.
- Establish process for ethical review. Regularly review AI ethics guidelines and update practices accordingly.

# **BUILDING AI INTO YOUR PRACTICE**

This section discusses how AI could assist with academic tasks. It also includes ideas for assignment and assessment design that incorporates AI. Finally, it showcases examples of AI-integrated projects from a variety of academic fields.

#### This section has 4 chapters:

### Potential Applications of AI for Academic Tasks

In this chapter, we present a chart that outlines a variety of academic tasks where AI can assist. This includes tasks ranging from writing reference letters to creating reading lists to developing exam questions. Accompanying each task, we provide considerations and prompts to help you refine your needs and consider how AI might be used.

#### • AI Tools and Platforms at McMaster University

This subsection gives an overview of readily-available AI tools and platforms. It includes information on how to access Microsoft Copilot, Scite via library resources, and ChatGPT through any standard web browser. The video overviews provide a brief overview of the features of each tool.

### Assignment and Assessment Design

This chapter includes a collection of resources from different institutions. These resources focus on assessments that include generative AI. This highlights a number of innovative practices, providing insights for educators looking to integrate AI into their coursework.

### **Developing AI-Integrated Projects**

The assignments showcased are examples of how we might provide students with practical experience while fostering an understanding of AI's potential. The assignments are flexible, and can be adapted to the needs and goals of a specific course or project.

### Using AI to Assist in Filtering New Information

This chapter provides example prompts to assist educators, researchers, and staff in summarizing articles and extracting key information.

# POTENTIAL APPLICATIONS OF AI FOR ACADEMIC TASKS



The resource below contains a list of tasks AI might be able to assist with, and provides considerations and prompts for you to refine your needs and envision how AI might help. We've also included recommendations for AI tools that might be suitable for each task. **To navigate this resource:** 

- 1. Choose one of the typical tasks from the column on the left.
- 2. Consider the prompts in the 3 screens that follow: Needs & Desired Outcomes, Capabilities & Requirements, and Features & Functionality
- 3. Make note of the recommendation.
- 4. Export your responses to the prompts.

ЕЩ.	An interactive H5P element has been excluded from this version of the text. You can view it online here:
	https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=180#h5p-22

<u>Open this exercise in a new window</u>. More information about these tools.

# AI TOOLS AND PLATFORMS AT MCMASTER **UNIVERSITY**



Here are some of the tools/platforms you have ready access to. Microsoft Copilot is available through Office 365. Scite is available through the library. ChatGPT can be accessed through any browser (free and paid versions).

### An Introduction to Microsoft Copilot

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/ mcmasterpracticalaiguide/?p=406#oembed-1

### Meet scite - Your AI-powered research assistant



One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/ mcmasterpracticalaiguide/?p=406#oembed-2

### **ChatGPT**



One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/ mcmasterpracticalaiguide/?p=406#oembed-3

# ASSIGNMENT AND ASSESSMENT DESIGN



Many institutions have developed excellent resources focused on assignment and assessment design and generative AI. Some of these are linked below

### Here are a few:

- <u>McMaster University</u>
- Carleton University
- The University of British Columbia
- <u>Contact North</u>
- Monash University
- Wharton University
- <u>Harvard University The AI Pedagogy Project</u>

# DEVELOPING AI-INTEGRATED PROJECTS



These assignment examples integrate AI, with the aim of providing students with experience and an understanding of AI's potential and limitations in their area of study or research. These examples were generated by a GPT called "<u>Practical AI in Higher Ed</u>". By Kyle Mackie Consulting Ltd., powered by GPT-4.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <u>https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=182</u>

# USING AI TO ASSIST IN FILTERING NEW INFORMATION



A tool like ChatGPT could be used to extract the core arguments of an article, analyze its structure, suggest implications for the academic world, or highlight possible future trends. This list of example prompts is designed to assist educators, researchers, and staff at universities in extracting insights from articles related to uses of AI.

These prompts were generated by a GPT called "<u>Practical AI in Higher Ed</u>". By Kyle Mackie Consulting Ltd., powered by GPT-4.

- 1. **Summarize Key Points**: "Could you summarize the key points of the article '[name of article]'? Focus on how it discusses the use of AI in higher education, highlighting the main arguments and any significant data or case studies presented."
- 2. **Explain Article's Arc**: "Please explain the arc of the article '[name of article]' related to AI applications in higher education. Describe how the article starts, the progression of its arguments or discussions, and how it concludes."
- 3. Identify Significant Points and Their Importance: "Identify the most significant points in '[name of article]' that discuss AI in higher education. Explain why these points are crucial to the article's overall argument or perspective."
- 4. **Implications for Educators and Staff**: "Based on the article '[name of article]', what are the possible implications or actions that educators, researchers, and staff in a university setting should consider? Focus on the practical applications of AI in their roles."
- 5. **AI's Impact on Research and Teaching**: "How does the article '[name of article]' explain the impact of AI on research and teaching in higher education? Summarize its viewpoints and mention any examples or case studies it includes."
- 6. **Comparison of Perspectives on AI in Education**: "Compare and contrast the different perspectives or arguments presented in '[name of article]' about the use of AI in higher education. What are the pros and cons discussed, and how are they relevant to educators and staff?"
- 7. **Future Trends in AI for Higher Education**: "What future trends in AI for higher education are predicted or discussed in '[name of article]'? Summarize these trends and explain their potential impact on universities."
- 8. **Critical Analysis of AI Implementation**: "Provide a critical analysis of the implementation strategies for AI in higher education as discussed in '[name of article]'. What are the recommended approaches, and how do they address potential challenges or ethical considerations?"

# MONITORING, EVALUATION, AND REFLECTION ON AI USE

Effective integration of AI demands an ongoing analysis of its impact. This section discusses the importance of monitoring, evaluation, and reflection, guiding educators and researchers in assessing and fine-tuning their use of AI tools.

This section has four chapters:

### **Defining Success**

This chapter includes a series of exercises designed to help define what success looks like when using AI. These activities aim to help identify measurable objectives, such as enhancing student engagement, improving learning outcomes, deepening research insights, or streamlining administrative tasks. The chapter encourages readers to consider quantitative metrics like grades and participation rates, and qualitative measures like student feedback and innovation in research.

### **Evaluating Impact**

This chapter builds on the initial exercises introduced in earlier sections of this guide, and focuses on evaluating the impact of AI in education. It includes a range of research questions and methodologies to measure the impact of AI on teaching and research.

### Addressing BIG questions

This chapter includes prompts to consider impact of AI (pedagogically, ethically, and socially). Designed to spark in-depth discussions, this activity aims to guide educators towards informed, responsible, and innovative applications of AI in academic and research settings.

### **AI Metaphors**

This final chapter draws inspiration from the article by Anuj Gupta et al., which explores the use of metaphors

#### 26 | MONITORING, EVALUATION, AND REFLECTION ON AI USE

to understand AI. It discusses the importance of developing "critical AI literacy," focusing on the ethical and equitable use of tools like ChatGPT.

# **DEFINING SUCCESS**



This section offers a set of exercises aimed at helping educators, administrators, and researchers define success when using AI tools.

### These workshop activities are designed to help:

- identify measurable objectives for AI implementation that are relevant to your context (e.g., student engagement, learning outcomes, deepening research insights, and/or increasing efficiency in administrative tasks), and
- consider both quantitative (e.g., grades, participation rates, number of published papers) and qualitative measures (e.g., student feedback, instructor observations, innovation in research, and/or workload management).

We hope that by engaging with these exercises participants will gain insights into how AI can be used effectively, while also considering broader implications.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <u>https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=325</u>

# **EVALUATING IMPACT**

In an earlier section of this guide, we introduced exercises to help you <u>identify specific problems</u> or areas of curosity regarding AI. Now that we've explored a range of tools and ideas for embedding AI in your educational and research practices, it's timely to reflect on those initial exercises.

The emerging field of AI in education presents opportunities to develop methods for assessing the impact of AI on teaching and research. Below, you'll find a collection of research questions / curiosities, with potential methodologies to assess the impact and effectiveness of AI tools.

### **Quantitative Insights**

#### Grades

Curiosity: How have AI tools influenced the average grades or assessment scores in your courses?

Methodology: Compare average grades, test scores, and assignment scores before and after AI implementation.

#### **Engagement and Participation**

Curiosity: In what ways has AI contributed to increased student participation and engagement in classroom activities?

Methodology: Track participation rates in discussions, attendance, and engagement in online platforms or forums.

#### **Critical Thinking and Problem-Solving**

Curiosity: Can you identify specific improvements in students' critical thinking and problem-solving skills due to AI tools?

Methodology: Use pre- and post-implementation surveys, assessments focusing on critical thinking, and problem-solving tasks.

#### Accessibility, Diversity, Inclusivity

Curiosity: Have you observed any changes in the diversity and inclusivity of classroom interactions since implementing AI?

Methodology: Analyze demographic data of class participation, conduct surveys on student perceptions of inclusivity.

#### **Teaching Practices and Workload Management**

Curiosity: What changes, if any, have you noticed in your own teaching practices and workload since adopting AI tools?

Methodology: Self-assessment of teaching methods, time spent on grading and administrative tasks, educator surveys.

### Scope and Depth of Research Findings

Curiosity: How has the use of AI tools influenced the scope and depth of your research findings?

Methodology: Evaluate the number of new research questions addressed, depth of analysis in research papers, and peer reviews.

### Efficiency in Research Processes

Curiosity: In what ways has AI integration affected the efficiency and speed of your research processes?

Methodology: Time taken for data collection and analysis, number of research processes automated by AI, time-to-publication.

#### **Publication and Dissemination**

Curiosity: Have you observed any significant changes in the rate of publication or dissemination of research findings?

Methodology: Track the number of publications before and after AI implementation, citation rates, and reach of research findings.

### **Qualitative Insights**

### Student Feedback on AI-Enhanced Learning

Curiosity: What are students' perceptions of AI tools in their learning experience?

Methodology: Analyze themes from student surveys, focus group discussions, and feedback forms regarding AI's usability, engagement, and impact on learning.

### Faculty Perspectives on AI Integration

Curiosity: How do faculty members perceive the integration of AI into their teaching methods?

Methodology: Conduct interviews or focus groups with faculty to gather insights on changes in teaching practices, challenges, and benefits of using AI.

#### Impact of AI on Classroom Dynamics

Curiosity: How has the introduction of AI tools affected the dynamics and interactions within the classroom? Methodology: Observe classroom interactions and gather anecdotal evidence or case studies on changes in student collaboration and participation.

#### AI's Role in Inclusivity and Accessibility

Curiosity: What is the perceived impact of AI on inclusivity and accessibility in educational settings?

Methodology: Collect qualitative feedback from diverse student groups on AI's accessibility and its role in fostering an inclusive learning environment.

#### Changes in Student Motivation and Attitudes

Curiosity: How has AI implementation affected students' motivation and attitudes towards learning?

Methodology: Assess student reflections and narratives on their learning journey with AI, focusing on motivation, interest, and attitudes.

#### Faculty Workload and Time Management

Curiosity: How has AI impacted faculty workload and time management in terms of teaching and administrative responsibilities?

Methodology: Evaluate faculty self-reports and diary studies on time allocation and perceived workload changes.

#### AI's Influence on Research Methodologies

Curiosity: How has AI integration transformed traditional research methodologies and approaches?

Methodology: Gather insights through in-depth interviews with researchers about changes in research design, methodology, and data analysis.

#### Perceptions of AI in Enhancing Research Quality

Curiosity: What are researchers' perceptions of the impact of AI on the quality and innovation of their research?

Methodology: Analyze researcher testimonies on the contribution of AI to the depth, breadth, and innovation in their research.

#### Challenges and Ethical Considerations in AI-Driven Research

Curiosity: What are the perceived challenges and ethical considerations when using AI in research?

Methodology: Collect viewpoints from ethical reviews, focus groups, and interviews on the challenges and ethical dilemmas faced when integrating AI into research.

# ADDRESSING BIG QUESTIONS

This activity is designed to help you consider the integration of AI in education. Each dialogue card presents a different potential impact of AI, from educational practice to ethical and societal considerations. This activity is designed to spark discussions that will hopefully lead to informed uses of AI in academic and research environments.

#### How to use this activity:

- There are 15 dialogue cards and they display randomly.
- Read the main category on the front to set the context.
- Flip the card to reveal reflective questions.
- Reflect on these questions individually or use them as conversation starters in group settings.
- Jot down notes, insights, or action points that arise from these reflections.



An interactive H5P element has been excluded from this version of the text. You can view it online here: https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=348#h5p-28

# AI METAPHORS

# $\bigcirc$

The article, "<u>Assistant, Parrot, or Colonizing Loudspeaker? ChatGPT Metaphors for</u> <u>Developing Critical AI Literacies</u>" by Anuj Gupta et al, focuses on understanding AI through metaphors. It emphasizes the need for "critical AI literacy" to consider the ethical, equitable, and accessible use of AI.

They discuss the concept of "metaphor reflection", which involves examining how commonly-used metaphors influence our understanding, attitudes, and relationship with tools. Inspired by this article, the reflective exercise below encourages you to critically engage with these metaphors to help refine your understanding of the capabilities, limitations, and implications of AI.



An interactive H5P element has been excluded from this version of the text. You can view it online here: https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=353#h5p-29

Note that this activity could be adjusted to be completed in small groups. Groups can work as a team to come up with new AI metaphors. Each group then presents their metaphors and discusses them with other groups. Together, groups can explore how their metaphors might apply in real-world scenarios.

# FURTHER READING AND RESOURCES



One or more interactive elements has been excluded from this version of the text. You can view them online here: <u>https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=140</u>

# **GENAI RESOURCE LIST**

Curated by Dr. Stephannie Verkoeyen, educational developer at the MacPherson Institute, this tagged and annotated set of resources is geared to the post-secondary context



An interactive H5P element has been excluded from this version of the text. You can view it online here:

https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=238#h5p-14



An interactive H5P element has been excluded from this version of the text. You can view it online here: https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=238#h5p-11

# AI DIALOGUES - MCMASTER PODCAST SERIES

The AI Dialogues are produced by the MacPherson Institute and feature conversations with staff, faculty, and students about how generative AI is shaping and impacting post-secondary education.



An interactive H5P element has been excluded from this version of the text. You can view it online here:

https://ecampusontario.pressbooks.pub/mcmasterpracticalaiguide/?p=260#h5p-9