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In Brief: Critical Thinking & GAI in Course Delivery

Brief Description

A guide on critical thinking and ethical generative AI use in course delivery, introducing a 3-part series on pedagogy and GAI.

Introduction

As generative AI (GAI) becomes increasingly integrated into learning and teaching in higher education, instructors are navigating complex questions around academic integrity and student learning. While many emerging policies emphasize detection and sanctions, this guide offers a proactive alternative—inviting students to critically engage with GAI as a method for developing broader analytical skills. By centering trust, transparency, reflection, and student agency, instructors can position GAI as a tool of inquiry rather than a shortcut, encouraging students to interrogate its outputs, reflect on their reasoning, and take ownership of their learning. This shift solidifies the instructor's role as a facilitator of dialogue and the student's role as an active participant in both the content and process of learning. It also models professional practice and prepares students for meaningful engagement beyond the classroom.

1. What Does the Research Tell Us About Critical Thinking?

Definitions of critical thinking abound; however, they generally include skills such as evaluating information, identifying and challenging assumptions, taking multiple perspectives, identifying information that supports or contradicts a hypothesis, analyzing and integrating information to solve a complex problem, generating innovative and alternative solutions, and communicating critical analyses and problem solutions effectively (Brookfield 1987; Curzon-Hobson 2003; Stein et al. 2007). These skills are especially important in the context of GAI—with students not only evaluating the content GAI produces but also questioning the assumptions, biases, and limitations embedded in the tools themselves.

Critical thinking is more than a set of skills—it is a habit of mind and, therefore, requires practice. Scholars emphasize the importance of developing a disposition towards critical thinking (Facione et al. 1995; Facione 2000; Dwyer et al. 2015). Students who have a disposition towards critical thinking are more likely to engage in critical thinking in class as well as in other areas of their academic and personal lives.

Unless prompted, students might not exercise critical thinking while using GAI tools. Incorporating in-class activities that intentionally help students develop critical thinking skills while using GAI can help students make better choices about when and how to use these tools. Oftentimes, the experience of coupling critical thinking with GAI use may reveal that GAI tools

do not always increase efficiency or save time. Instead of penalizing students for using GAI uncritically, instructors can help students to develop the skills necessary for productive GAI use.

Reflection Prompts:

- **Where could GAI be intentionally embedded in your course to build more opportunities for students to engage in critical thinking?**
- **How can you empower students to see using GAI as a catalyst for critical thinking rather than a shortcut that displaces the need for critical thinking?**

2. Why Does Critical Thinking Matter When Teaching with AI?

Critical thinking has been referred to as a 21st Century skill (Trilling and Fadel 2009) and critical thinking is consistently one of the top skills that employers look for in their employees across a wide range of disciplines (American Association of Colleges and Universities 2015). As students navigate a complex world in which news, social media and other content is increasingly generated by GAI and conspiracy theories abound, they need to have highly developed critical thinking skills. Similarly, as many students will be users of GAI in their learning and professional lives after graduation, they need to be critical consumers of GAI.

Instructors can support students in evaluating GAI content in the following areas of teaching that uphold academic integrity:

Focus Area	Instructor Strategies
Credibility & Source Quality	• Verify citations by checking for broken or fabricated references • Encourage use of academic databases and trusted sources
Hallucinations & Inaccuracies	• Identify unsupported claims or overly confident assertions in outputs • Promote cross-checking facts and reliable sources
Bias & Marginalized Perspectives	• Examine whose voices are represented (included or excluded) • Discuss how GAI may reinforce stereotypes

It is important to emphasize ethical use by clarifying expectations around attribution, originality, and responsible engagement with GAI tools. Embedding these principles into classroom norms helps students navigate the evolving landscape of learning with GAI and integrity. Practical activities—such as source verification exercises, comparative analysis of AI-generated versus human-authored content, and reflection prompts on bias and representation—offer meaningful ways to reinforce critical thinking and ethical decision-making (Aref n.d.). These strategies not only support academic standards but also empower students to become discerning, reflective users of emerging technologies.

Reflection Prompts:

- **What opportunities do students have to critique or revise GAI outputs as part of their learning process?**
- **With its ability to produce instant information, how is GAI enhancing or diminishing students' capacity to engage in deeper, more complex intellectual work?**

3. What Can We Do?

The following ideas offer scalable entry points—from quick additions to existing assignments to deeper collaborations with students on ethical GAI use, including estimated times for instructors to implement these ideas.

15–30 Minutes

1. **Compare and contrast.** Ask students to compare their own answer to one generated by GAI, including an explanation of the strengths and weaknesses of each.

2. **Facilitate a brief class discussion on verification strategies.** Ask students to share how they verified GAI outputs and what sources or reasoning they used.

3. **Add a reflection prompt.** Ask students to reflect on what might have been lost if they had relied on GAI for completing the assignment and what might have been gained?

4. **Facilitate a brief class discussion on signs of GAI outputs.** Ask students what signs they look for to identify text that has been generated by GAI.

1–2 Hours

1. **Design an assignment that explores GAI bias.** Instruct students to identify potential biases in a GAI output and suggest ways to mitigate or challenge them.

2. **Create a critical thinking rubric for GAI use in assignment submissions.** Include criteria like reasoning, source evaluation, and reflection on tool limitations.

3. **Design a classroom discussion activity on verification strategies about sources in assignments.** Ask students to share strategies they use to determine if a source has been generated by GAI, but this has not been acknowledged by the author.

4. **Design a small group activity requiring students to analyze text to detect use of GAI.** Create 3-4 short answers to complex questions with some answers using GAI and some not. Ask students to work in small groups to identify which answers have been generated by GAI.

1–2 Days

1. **Co-create a GAI use guide with students.** Invite students to help define ethical and critical use of GAI in your course, including expectations in alignment with a shared definition of critical thinking.

2. **Create a GAI output that intentionally includes subtle inaccuracies or fabricated references.** The learning goals are to practice critical thinking and source verification, reflect on the ethical and social implications of GAI, and communicate complex ideas clearly to diverse audiences and communities who are meaningful to students.

   Explore: Present students with a GAI output(s).

   Investigate: In small groups, students work together to verify claims using credible sources and discuss how they identified errors.

   Create: Ask students to create a short informational resource (e.g., video, infographic, guide) explaining how to spot misleading or inaccurate GAI content. Frame the activity around a real-world audience (e.g., child, grandparent, or future colleague) and a relevant context for your discipline/field of study (e.g., environmental science, healthcare, politics). Example prompts include:
   - How to talk to your grandparents about deepfakes in political ads
   - A guide for kids on spotting GAI misinformation in climate news

How to Cite This Guide

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