

Generative AI & Higher Education

Classroom Integration, Ethical Considerations, & Future Implications

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A group of diverse students and a professor are gathered around a laptop in a classroom setting. The professor, a woman with dark curly hair, is leaning over the laptop, pointing at the screen. Two students, a man with glasses and a woman with dark curly hair, are looking at the screen. Another student is visible in the background. The image has a dark, semi-transparent overlay with white text.

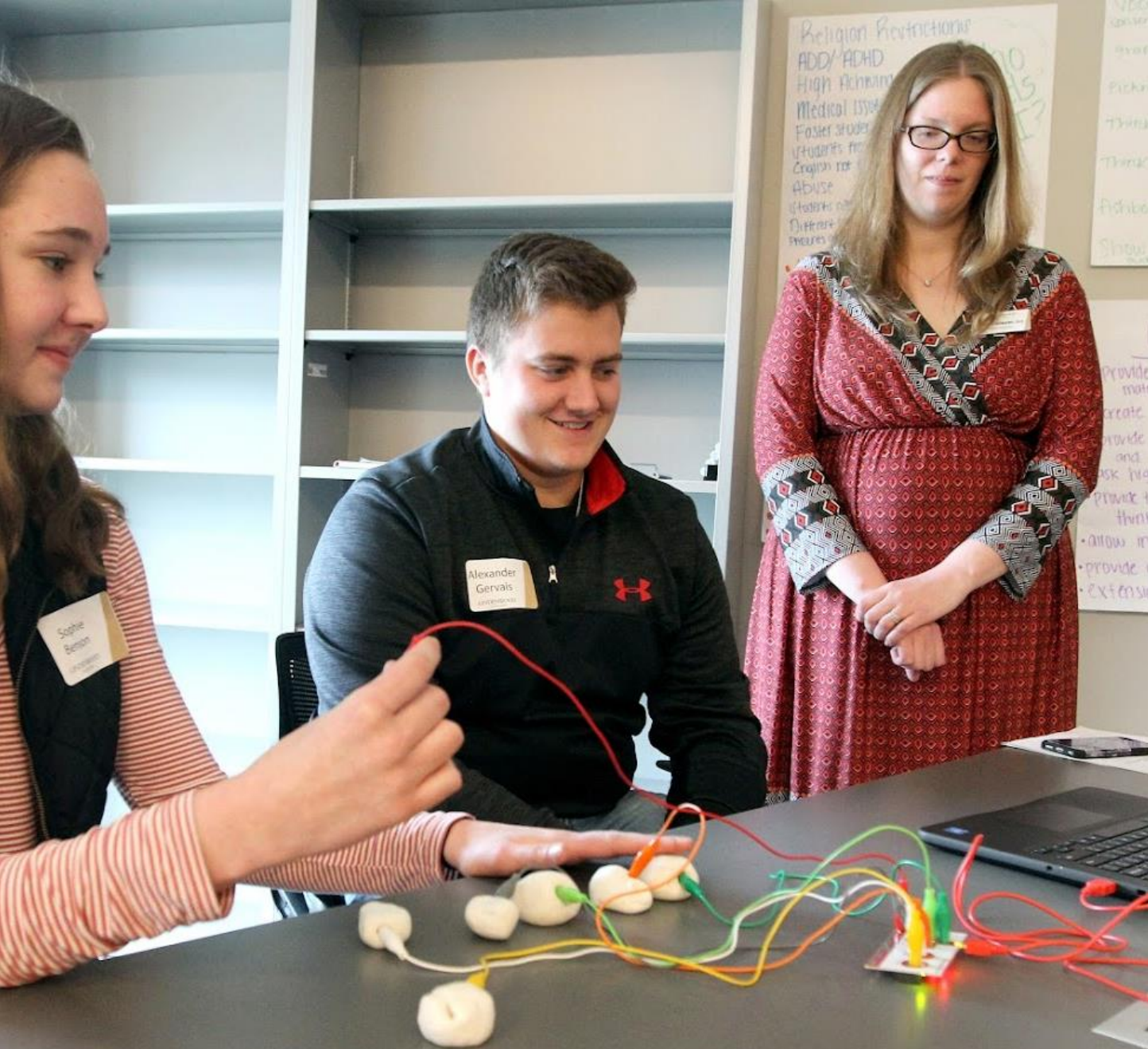
Generative AI in higher education

Key Questions: How does AI affect pedagogy? What are the ethical concerns?
How essential is AI literacy for students?

Diversity of Opinions: Complete ban to full adoption

Our Studies Across Disciplines

- Investigation of the use of GAI in English, Art and Design, Education, Business across 5 institutions, 80+ researchers
- **In Press:**
 - 4 books, 3 chapters, 14 articles
- **Published:**
 - 2 chapters, 17 articles





Disruptive EdTech

- **Invention of Writing (c. 3400 BCE):** The birth of written communication, marking a pivotal moment in human history and education.
- **Printing Press (1440):** Johannes Gutenberg's invention that revolutionized the dissemination of information and made books accessible to the masses.
- **Chalkboard (1801):** The invention of the blackboard allowed teachers to visually share information with students, facilitating group learning.
- **Photography (1839):** The invention of photography paved the way for visual documentation, enhancing educational materials with images.
- **Calculator (1642):** Blaise Pascal's invention of the mechanical calculator revolutionized mathematics and simplified complex calculations.
- **Word Processors (1960s):** Word processors revolutionized the way people create, edit, and share written documents, making writing more efficient.
- **Google (1998):** Google revolutionized the way we search for information, making it easier for students and educators to find relevant resources.
- **Wikipedia (2001):** The free online encyclopedia revolutionized access to knowledge, becoming a go-to resource for students and educators alike.
- **YouTube (2005):** The video-sharing platform enabled educators to create and share educational content, giving rise to a new form of learning.
- **Massive Open Online Courses (MOOCs) (2008):** MOOCs democratized education by providing free, high-quality courses from top institutions to anyone with internet access.
- **Grammarly (2009):** This AI-driven writing assistant improved the quality of written communication by offering real-time grammar and spell-checking.
- **AI-driven Tutoring Systems (2010s):** AI-powered tutors like Carnegie Learning's MATHia provided personalized learning experiences for students.





Speed of Disruption

- **Computers and Word Processing:** Adoption in late 1980s to early 1990s
- **Internet and Google:** Mid to late 1990s
- **Wikipedia:** Founded in 2001
- **Social Media:** Surge in late 2000s
- **Learning Management Systems (LMS):** Adoption in mid-2010s
- **Global Pandemic:** 2020 onwards
- **Generative AI Content Creation:** Emergence in early 2020s - Poses questions on academic integrity; forces reconsideration of pedagogical methods

Not only the scale of change
but the speed

A woman with dark curly hair, wearing a yellow sweater, is sitting at a desk and looking at a laptop. She has her right hand on her forehead, suggesting stress or frustration. The background is a blurred indoor setting with a window.

Educator Whiplash

How to stay current with all of this change?



Past the Inflection Point

- Generative Pre-Trained Transformers (GPT) & Large Language Models (LLM)
- Fastest adoption of tech in history
- Integrated into all search engines, social media, academic research databases
- In Microsoft Office (Word)!!
- The way we create content now
- Fundamental change in education



 DALL-E 2

stability.ai

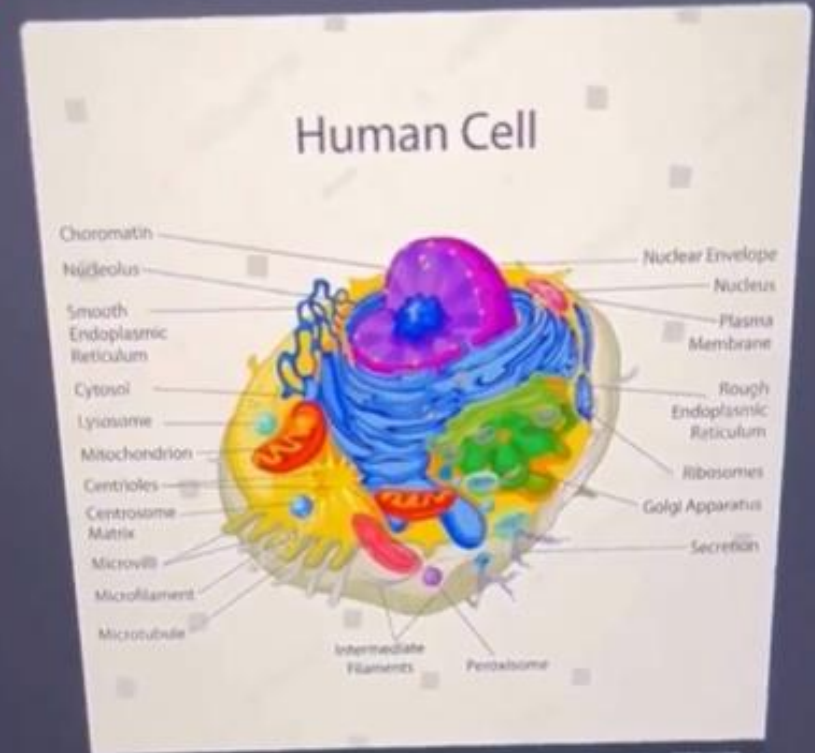
Text-to-image AI-
Multimodal is here!

Teachers and students will now be able to:

- Create slide content with bespoke images in one prompt
- Use voice to prompt, which can support non-native English speakers and those with special needs find value in the tool
- Get feedback on a photo, drawing, or mind map to drive improvements
- Generate diagrams for complex topics to support student learning
- Create visual quizzes for students, where students draw an answer and ChatGPT provides feedback
- Learn more about their environment by asking ChatGPT to analyze photos of flora or fauna and get fun facts, descriptions, and names

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GPT-4 Vision is now your **tutor**
for **learning anything** 🤖



shutterstock

I'm a 9th grade biology student and I'm really struggling in school.

Can you help me understand this?



Of course! Let's break down the parts of the cell shown in the image:

1. **Nucleus:** This is the cell's control center, containing genetic material (DNA) and directing cellular activities.

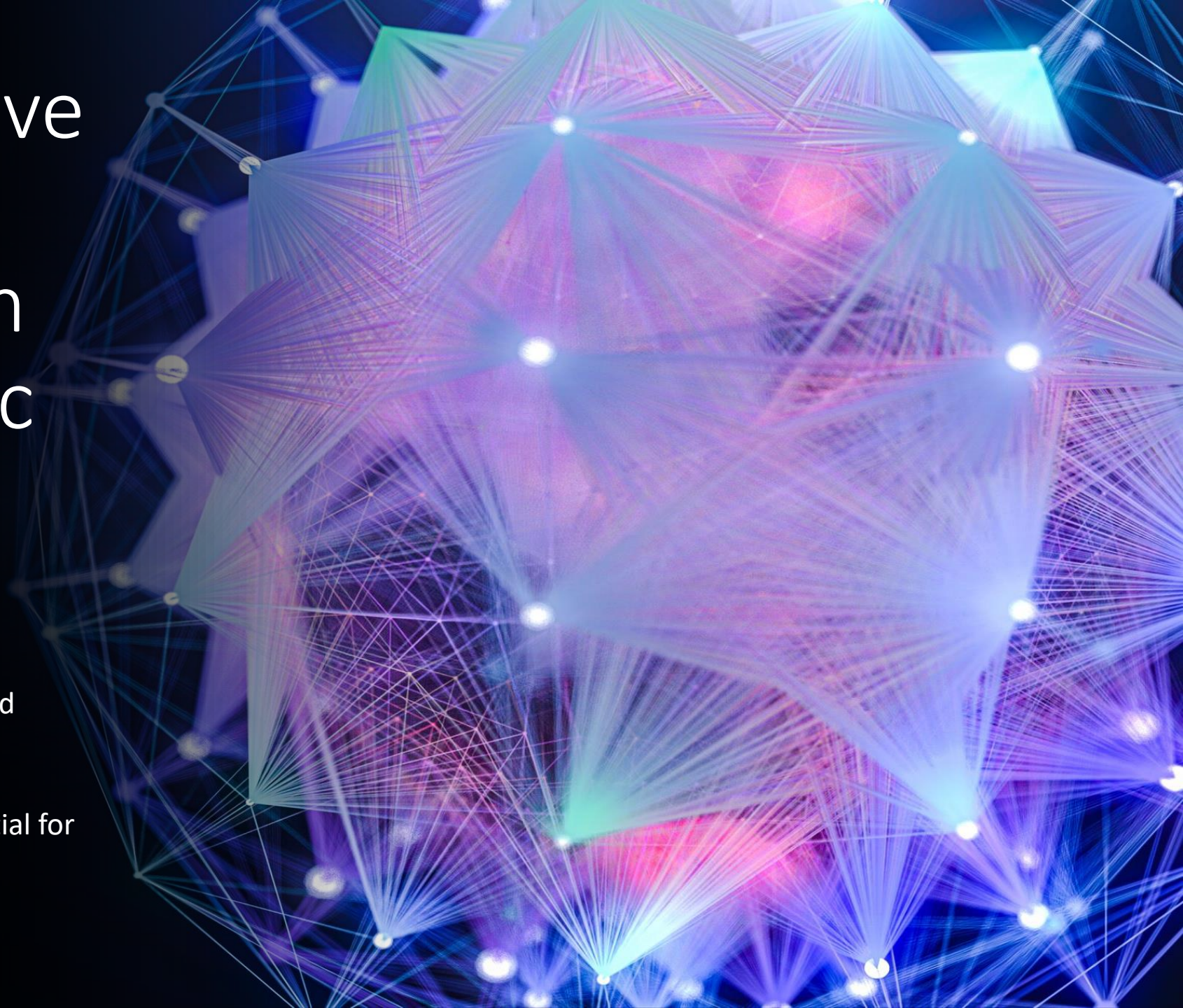
Send a message

ChatGPT may produce inaccurate information about people, places, or things.

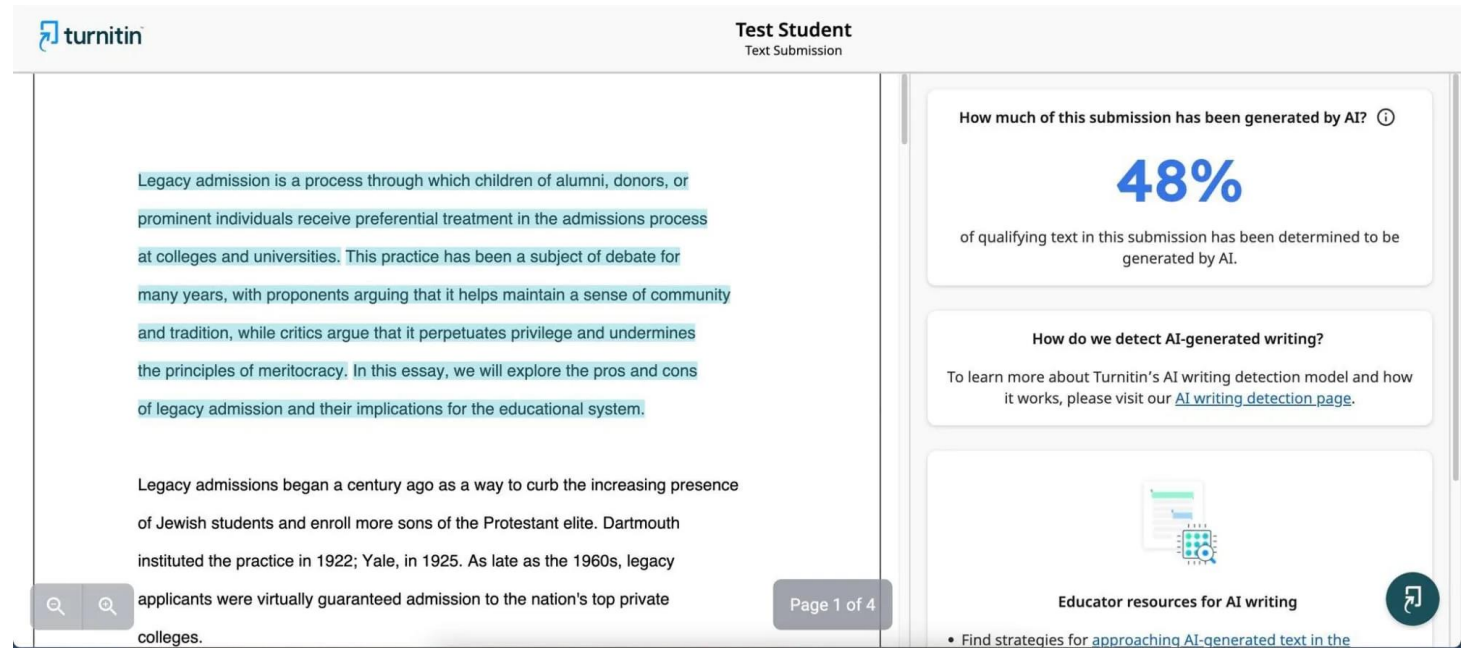
The Imperative for AI Integration in the Academic Sphere

Revolutionary Potential: Automated summarization, research synthesis, problem-solving

Employment Opportunities: Essential for students' future job prospects



Ethical Concerns: AI as an Instrument for Academic Dishonesty



The screenshot displays the Turnitin 'Test Student' Text Submission interface. The main text area contains a paragraph about legacy admissions, with several sentences highlighted in blue to indicate AI-generated content. The right sidebar shows a large '48%' detection rate, a link to 'How do we detect AI-generated writing?', and a section for 'Educator resources for AI writing'.

turnitin

Test Student
Text Submission

Legacy admission is a process through which children of alumni, donors, or prominent individuals receive preferential treatment in the admissions process at colleges and universities. This practice has been a subject of debate for many years, with proponents arguing that it helps maintain a sense of community and tradition, while critics argue that it perpetuates privilege and undermines the principles of meritocracy. In this essay, we will explore the pros and cons of legacy admission and their implications for the educational system.

Legacy admissions began a century ago as a way to curb the increasing presence of Jewish students and enroll more sons of the Protestant elite. Dartmouth instituted the practice in 1922; Yale, in 1925. As late as the 1960s, legacy applicants were virtually guaranteed admission to the nation's top private colleges.

Page 1 of 4


How much of this submission has been generated by AI? ⓘ

48%

of qualifying text in this submission has been determined to be generated by AI.

How do we detect AI-generated writing?

To learn more about Turnitin's AI writing detection model and how it works, please visit our [AI writing detection page](#).



Educator resources for AI writing

• Find strategies for [approaching AI-generated text in the](#)

- **Potential Misuse:** Plagiarism and academic integrity compromise
- **Anti-AI Tools:** Turnitin as a controversial solution
- **Disproportionate Impact:** False positives affecting international students and non-native English speakers; Detects all kinds of AI, including Grammarly



AI-Proofing the Classroom: Strategies for Ethical & Effective Assignments

- **Multi-Part Assignments:** Incorporate multiple stages requiring periodic student-teacher interaction
- **Open-Ended Questions:** Encourage critical thinking and unique responses less susceptible to AI-generated content
- **Oral Examinations:** Employ verbal assessments to evaluate comprehension and original thought
- **Reflective Components:** Integrate journals or reflective essays that necessitate personal insights
- **Peer Review Mechanisms:** Leverage student assessments to deter AI-generated submissions
- **Dynamic Assessments:** Utilize real-time, in-class assignments that limit opportunities for AI assistance
- **Real-World Application:** Assign projects that require practical implementation, moving beyond theoretical analysis

But faculty not the only ones resistant to AI adoption

Student Resistance to Generative AI

- **Empirical Findings:** Multiple studies across disciplines indicate varying degrees of student resistance
- **Emotional Reactions:**
 - "It's creepy"
 - "It's soulless"
- **Ethical Concerns:**
 - "It feels wrong"
 - "It's stealing from actual creatives"
- **Perceived Impersonality:**
 - Lack of human touch in feedback and interaction
- **Trust Deficit:**
 - Reluctance to rely on machine-generated insights
- **Academic Authenticity:**
 - Concerns about undermining original thought and creativity



3 Indicators of AI Adoption



1. Fear of being replaced
2. Identity loss
3. Perceived expertise

'AI Guilt' Phenomenon

Belief that value associated with hard work/ effort

- Students generating content
- Faculty automating feedback



Purpose of Education

Undergraduate- develop base proficiency
and learn state of the field in a discipline

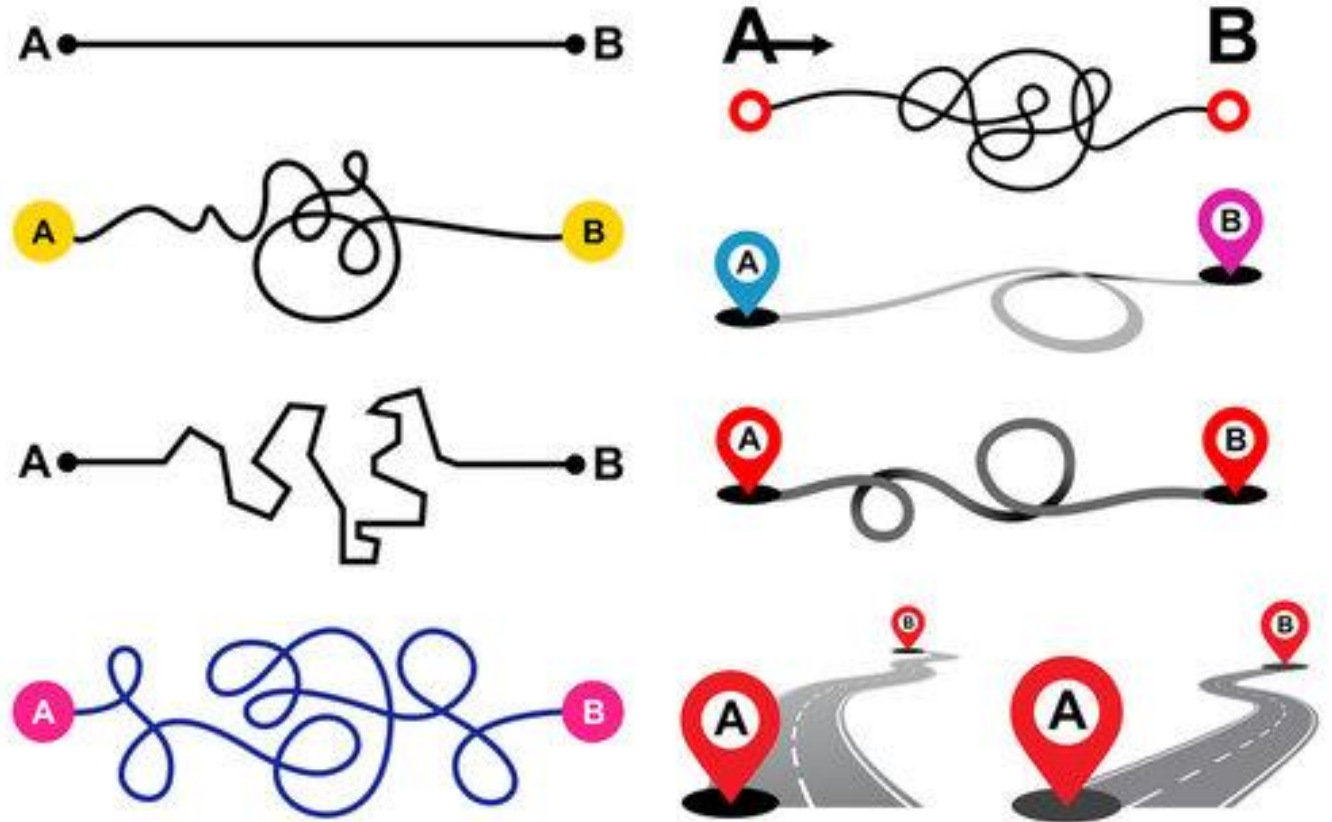
Time on Task

- École 42 a teacher-less coding school in Paris
- AI learner pathways reduce time to gain skills by 48%
- Rote memorization decreases in value
- ChatGPT boosts productivity 40% (minimum)
- What skills are left?



Metacognition is Key

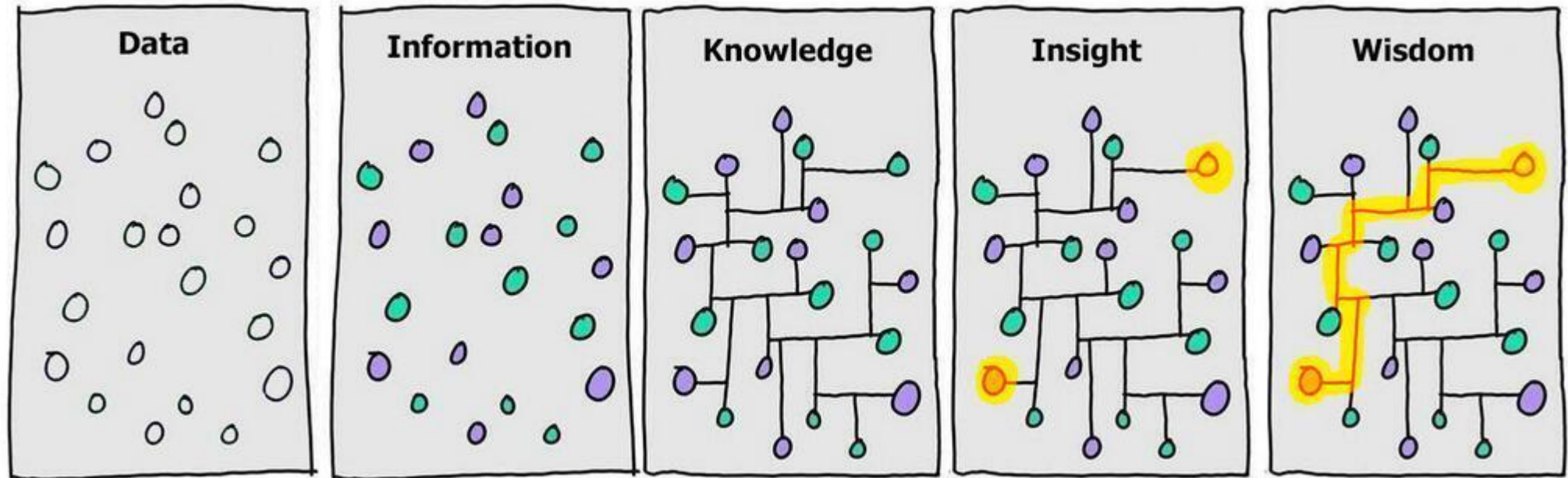
- Critically engaging with and evaluating what's between A-B
- Critical and creative thinking
- Digital and information (AI) literacy
- Learn how to learn
- Backwards course design



Future-Proofing Students

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Can get information via Google/YouTube, but not power skills and framework for wisdom



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Faculty Shift in Postsecondary Education

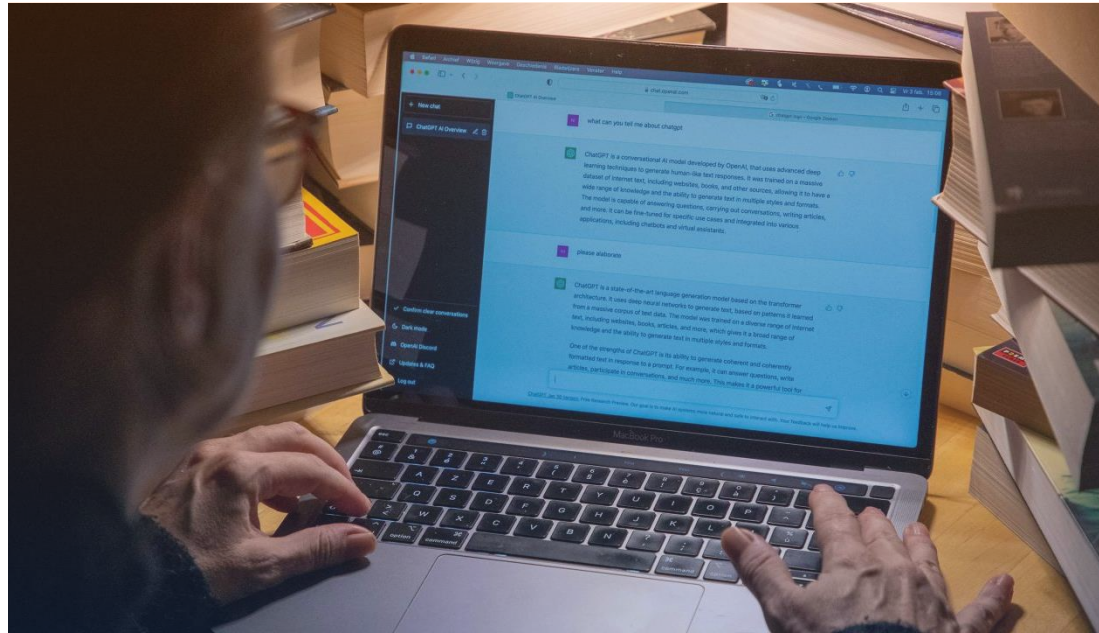
Shifting from imparting information to facilitating learning

Active learning environments

(Students need to adjust, too!)



Good News!



- Free tech!
- Incredibly easy and fast to learn
- Modeled on conversational interactions
- Plenty of existing resources for educators
- Best advice: Play around!



Welcome to ChatGPT
your OpenAI account



chat.openai.co



SE

Hi



Hello! How can I help you today?
If there is something you need help with,
I would like to learn more about it and
here to assist you with any questions
you may have.

Using AI for Teaching

- Answering Student Questions 24/7
- Generating Lesson Plans
- Create syllabi
- Grading Assistance
- Language Learning Support
- Research and Information Retrieval
- Generating Rubrics

Future-Proofing Students

- Transition from “sage on the stage” to student-centric, active learning methodology
- Generative LLM make the transfer of information instantaneous and personalized
- Content/ learning automated
- Making sense of relationships, patterns with critical and creative thinking key
- Metacognition primary outcome for a college degree



Student-centric Learning

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- Future uncertain
- Discipline-specific skills unknown
- Future job market impact of AI unknown
- Re-center the student
- Focus on “humanic” skills
- Provide mentoring
- Psycho-social development



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Recommendations

- Can't stop students from using
- Explain why they can't for certain assignments
- Don't "sweep under the rug"
- Talk about AI
- Have submit 'chat' with final
- Human educators remain critical
- How we teach changes, though

References

[Artificial Intelligence Studies](#)



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