# *Generative AI & Higher Education*

# Classroom Integration, Ethical Considerations, & Future Implications

**Dr. James Hutson**

**Lindenwood University**

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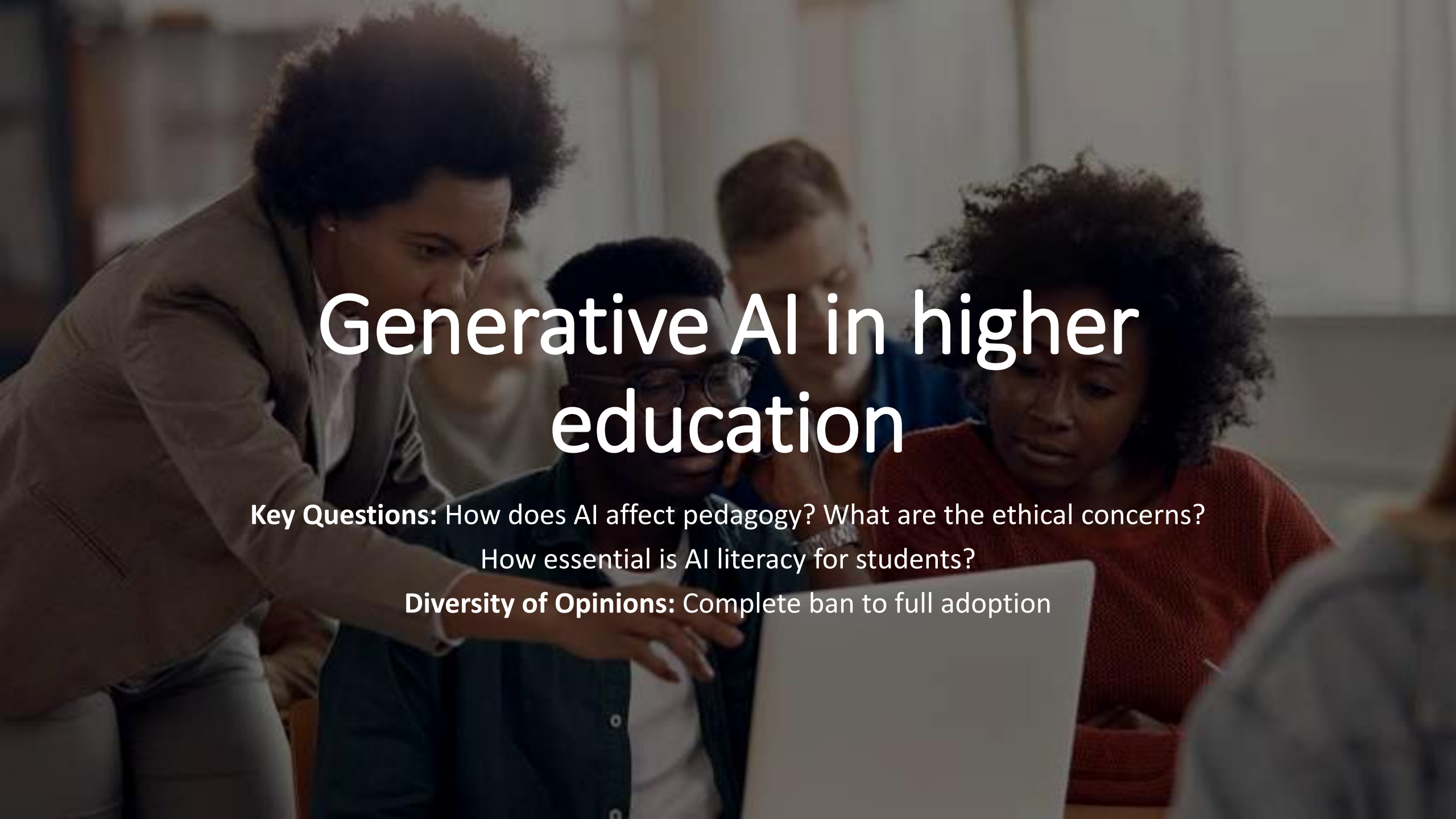
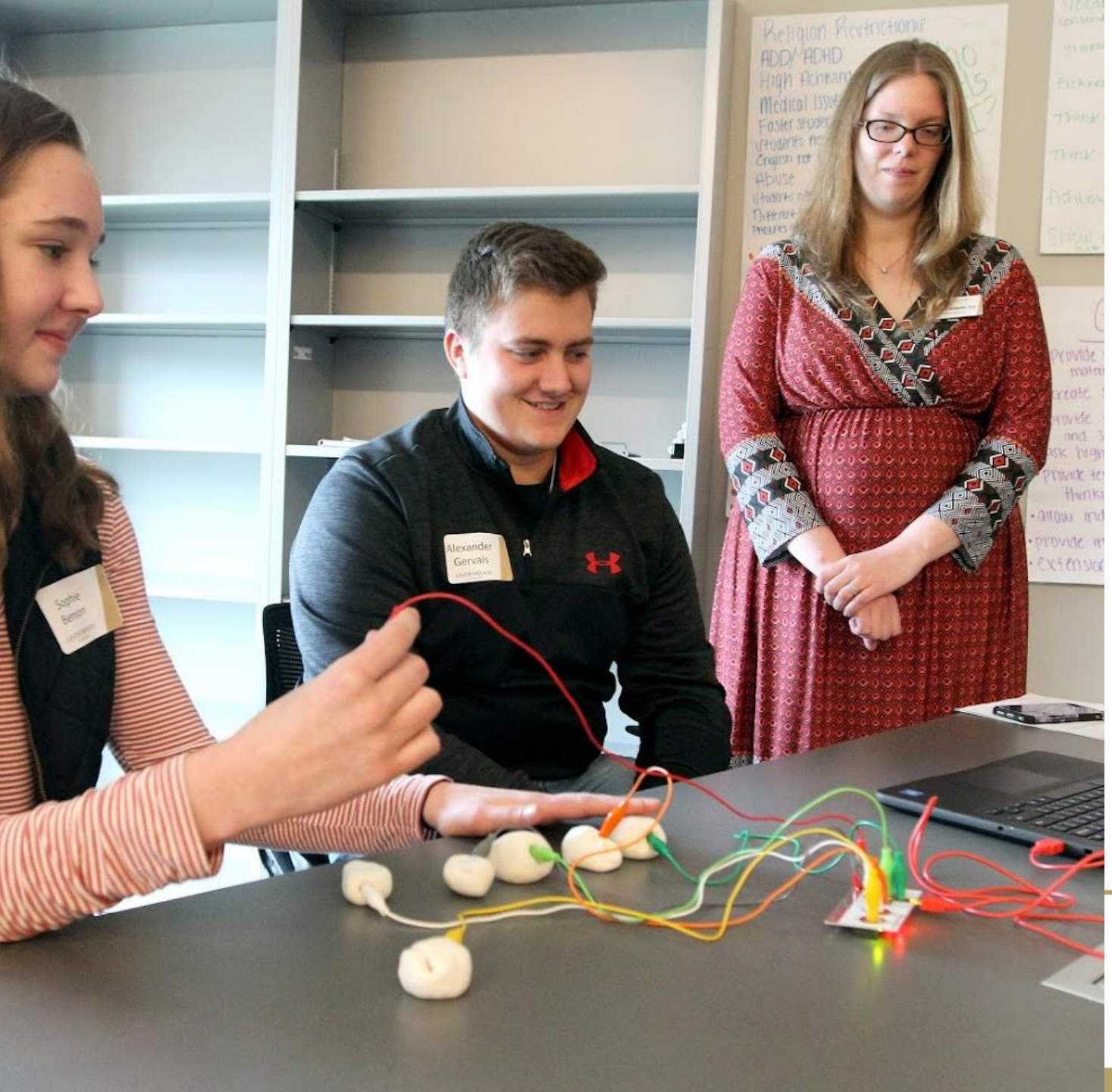


# Generative AI in higher education

**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

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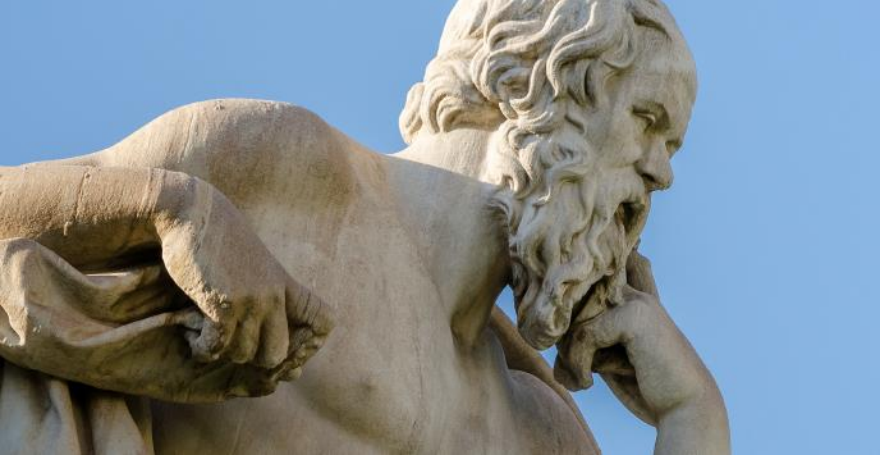


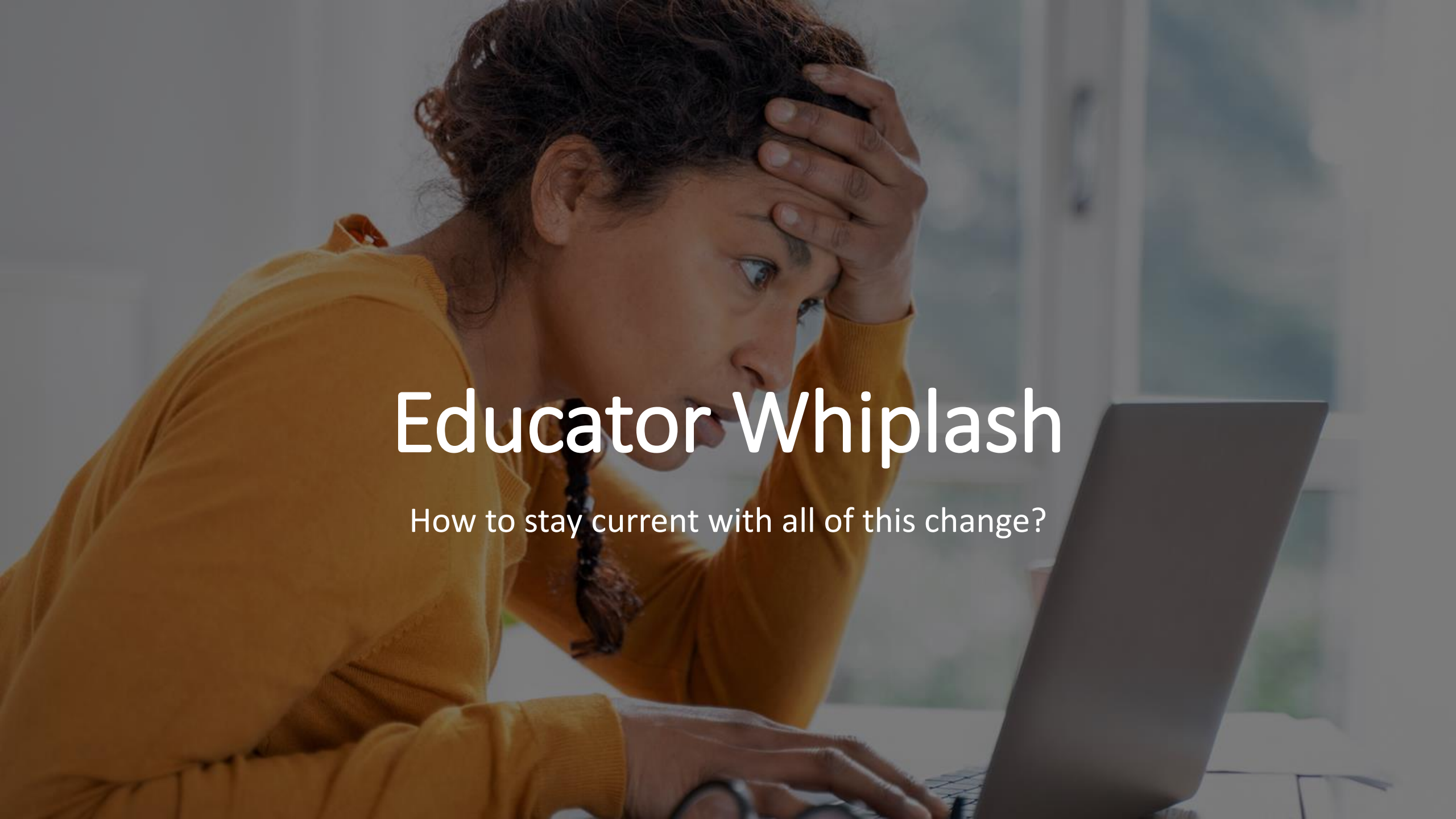
# Disruptive EdTech

- **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



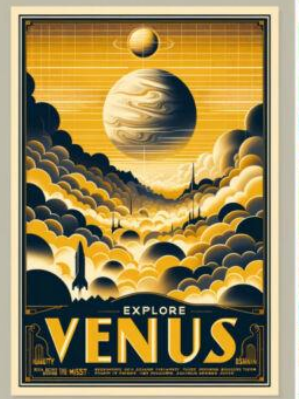
# Educator Whiplash

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

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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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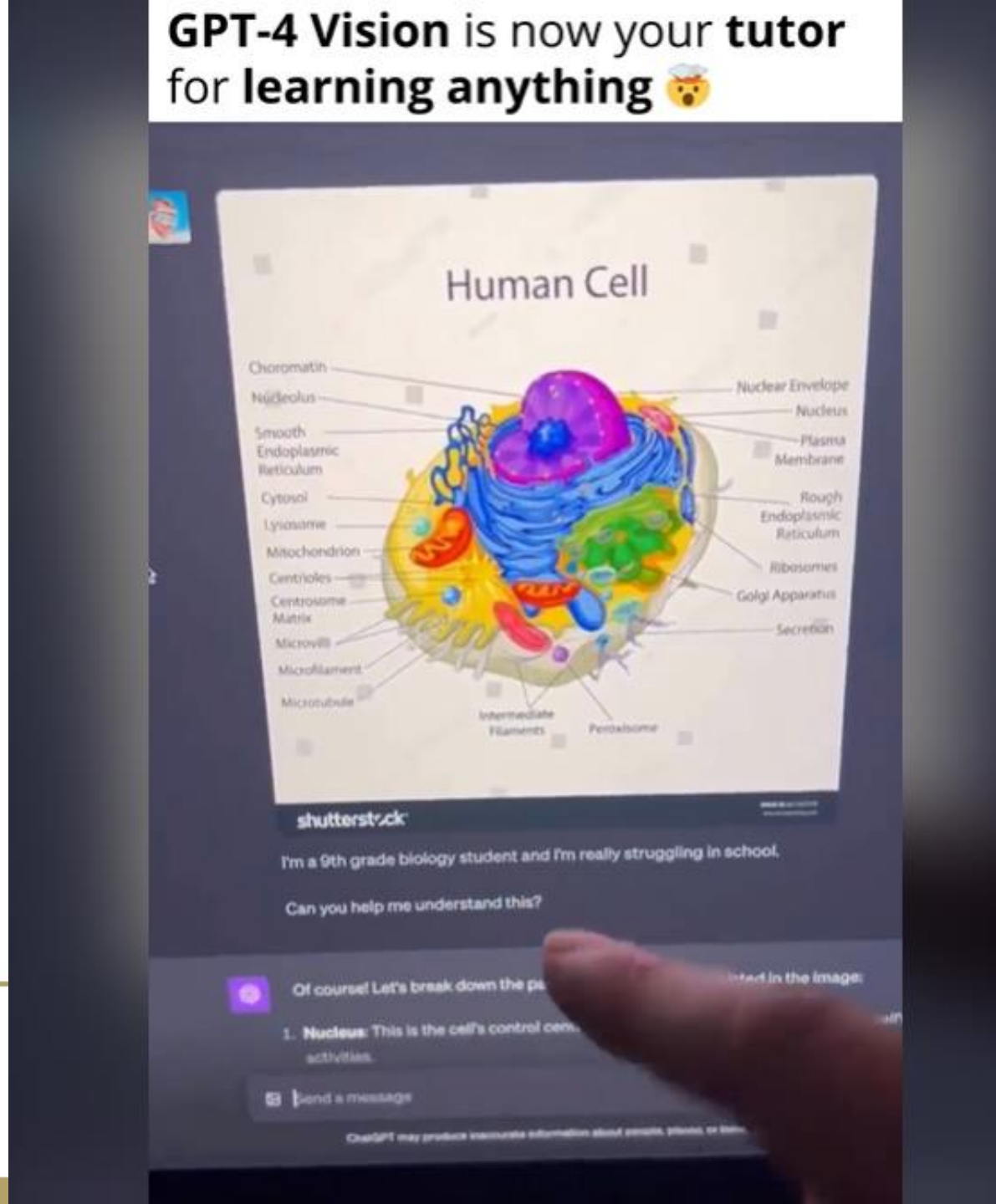
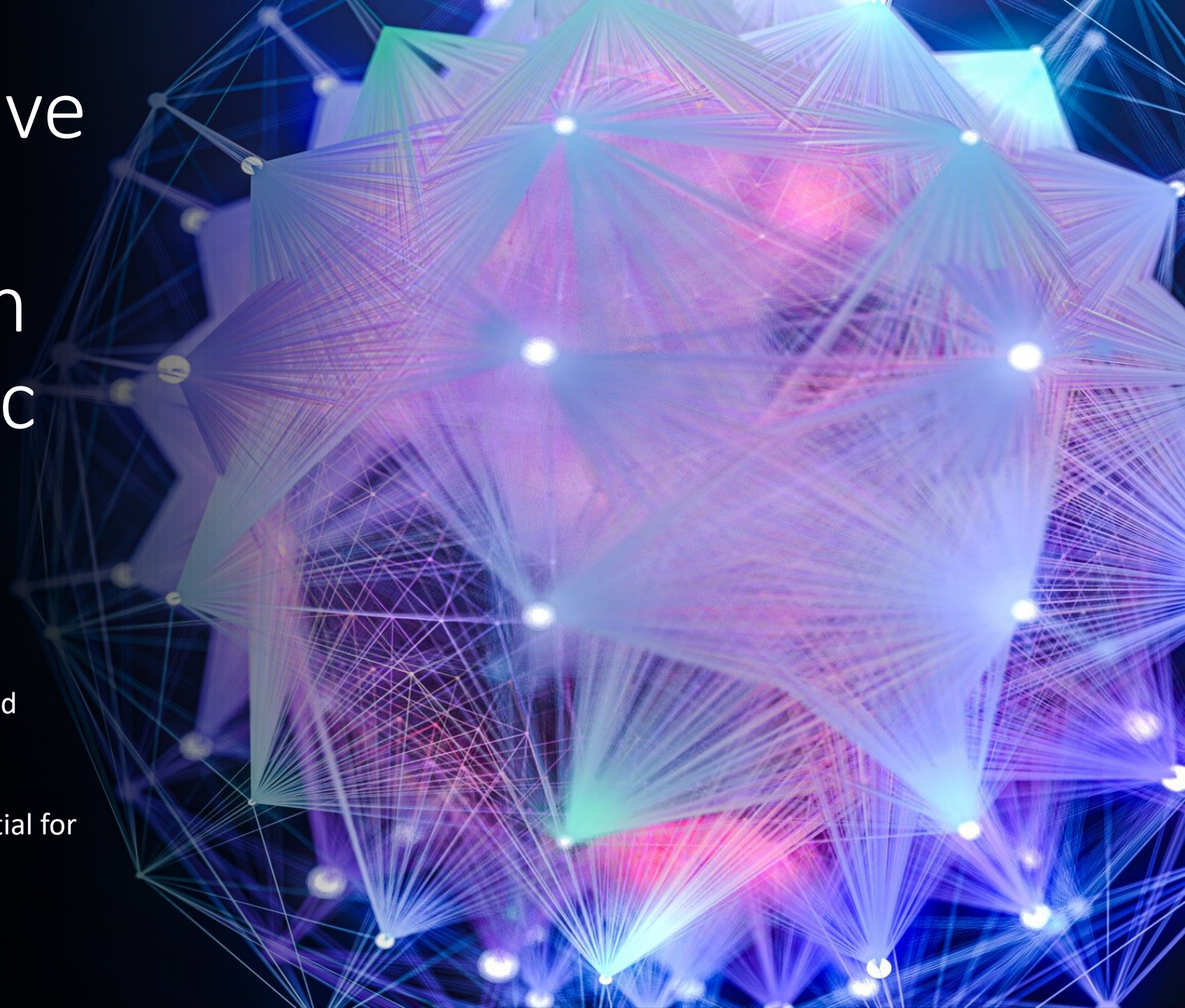


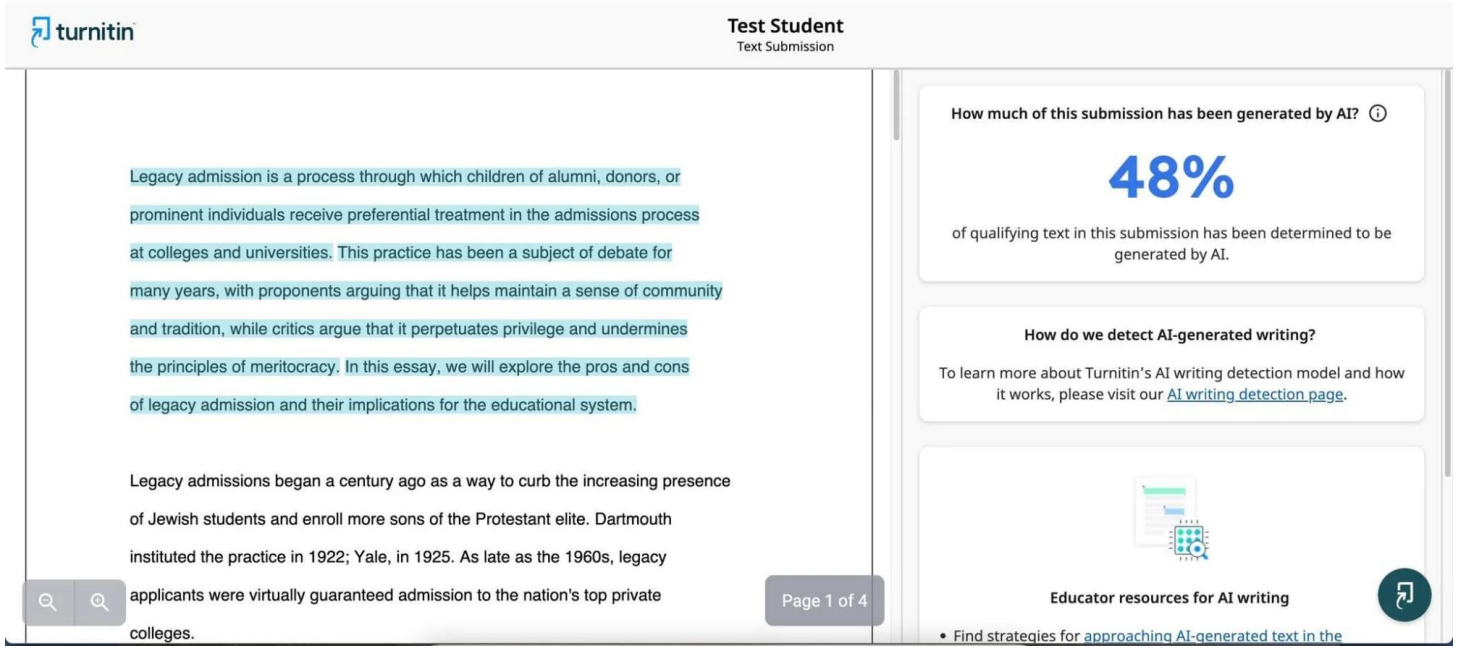
# The Imperative for AI Integration in the Academic Sphere



**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




- **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 Grammerly

# 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

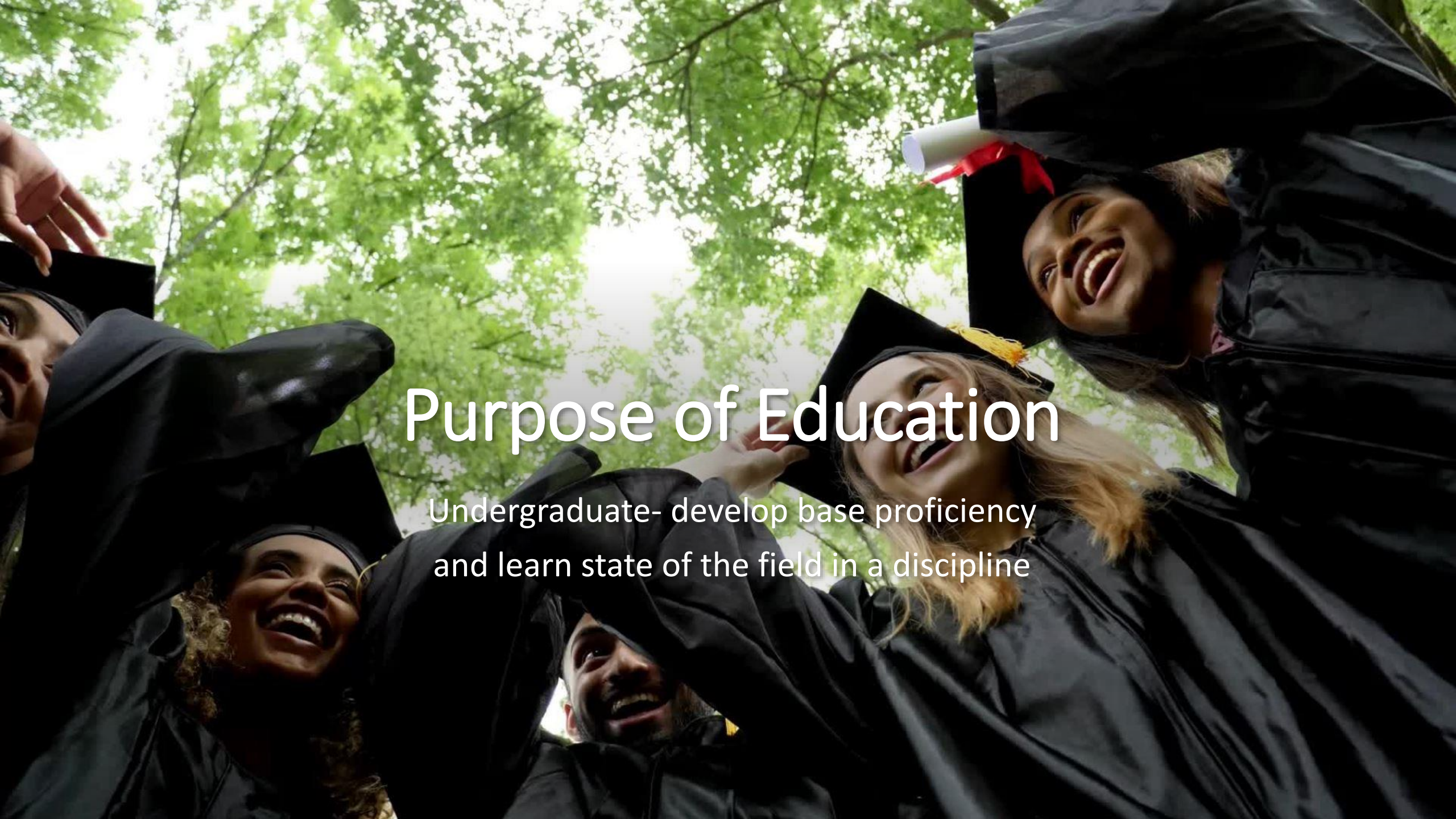
# 3 Indicators of AI Adoption

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

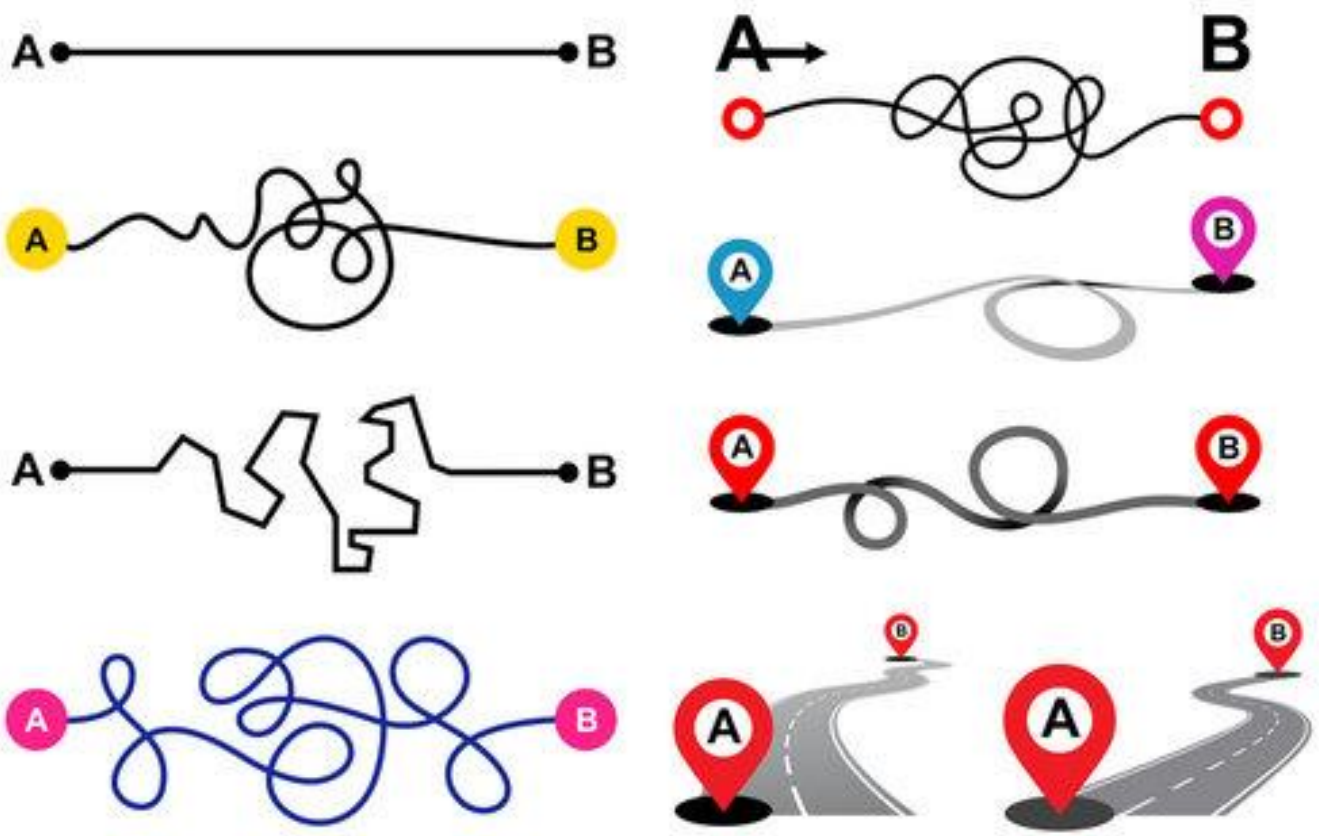
Undergraduate- develop base proficiency and learn state of the field in a discipline

# 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

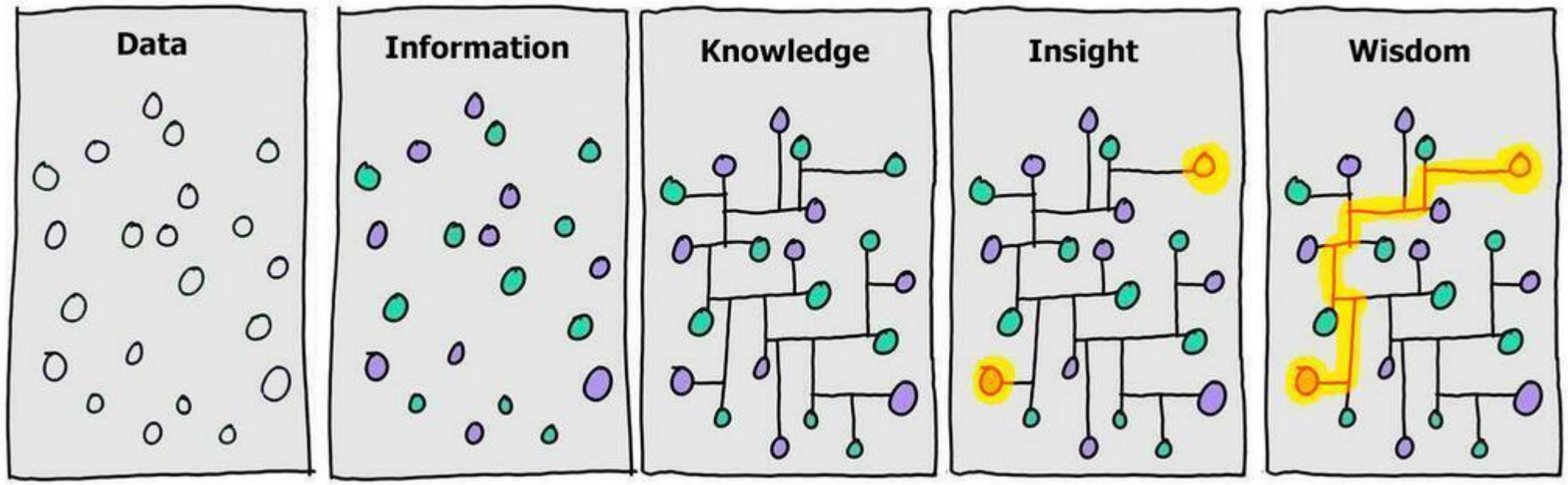
- Critically engaging with and evaluating what's between A-B
- Critical and creative thinking
- Digital and information (AI) literacy
- Learn how to learn
- Backwards course design



# Future-Proofing Students



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



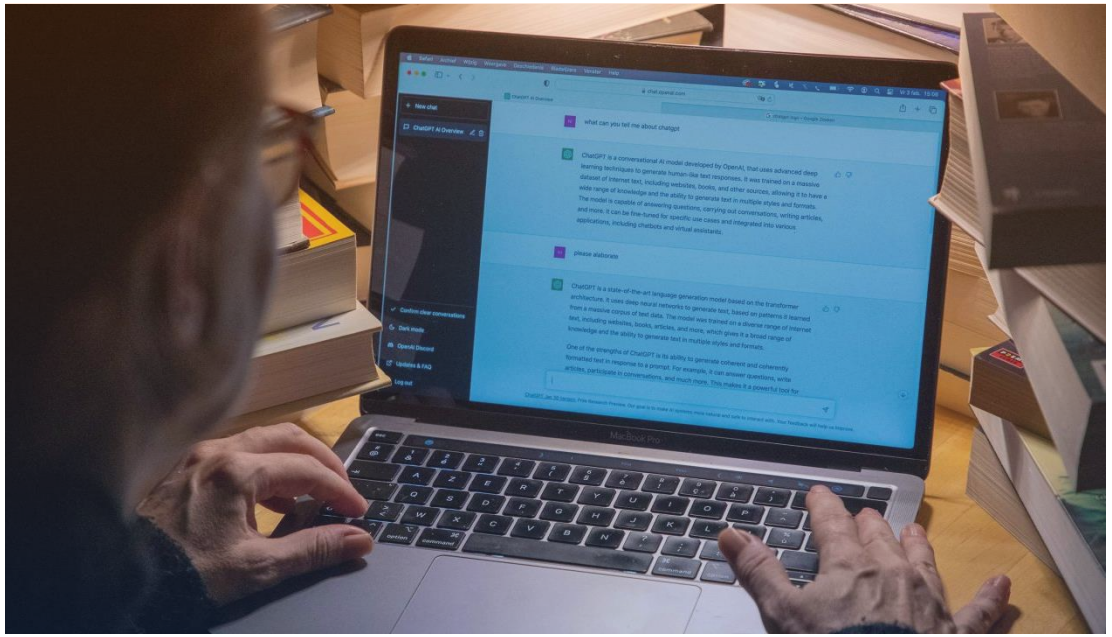
# Faculty Shift in Postsecondary Education

Shifting from imparting information to facilitating learning

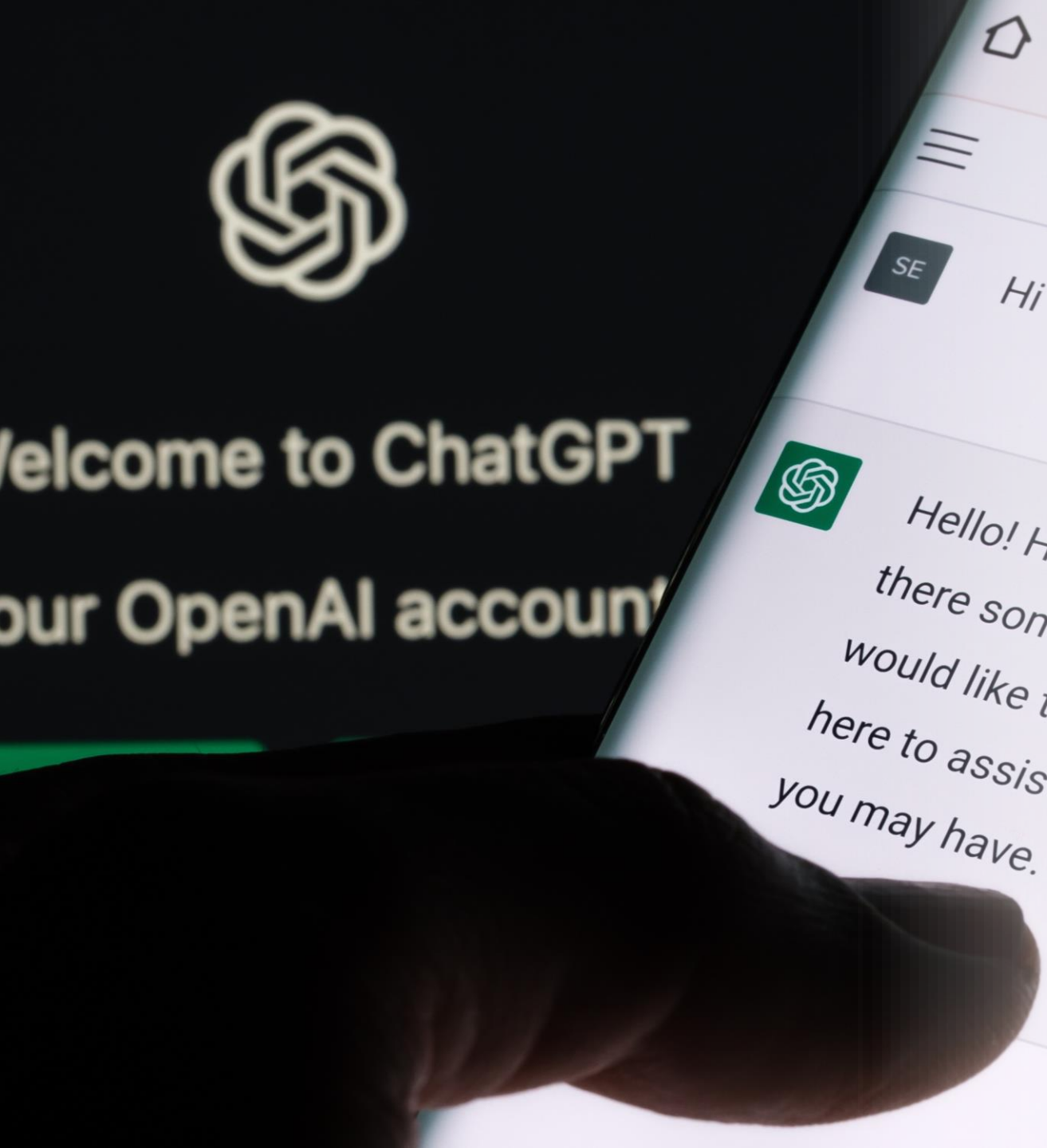
Active learning environments

(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!




# 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



- 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

# 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

# Contact


## James Hutson

Jhutson@lindenwood.edu

636-949-4863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