AI in Higher Education:
An Overview and Discussion

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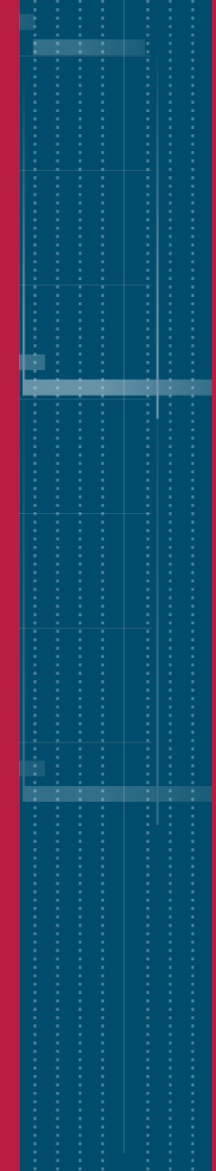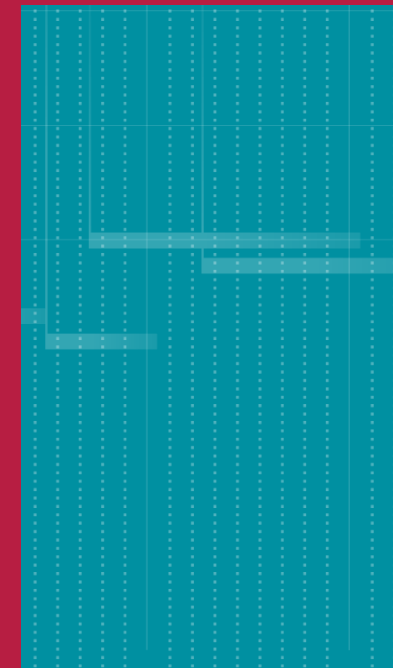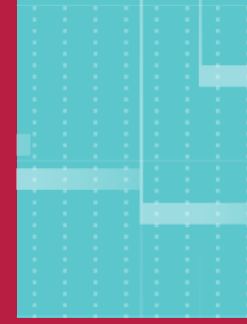*USDLA Public Policy Week, January 2024*

AGENDA

- Introductions

- Overview of AI in Education

- Trustworthy AI Frameworks

- AI Applications in Teaching and Learning

- Academic Integrity

- Discussion

Today's Agenda

- Introductions

- Overview of AI in Education

- Responsible Use of AI (Frameworks)

- AI Applications in Teaching and Learning

- AI and Academic Integrity

- The Need for Institutional AI Policies

- Discussion

OVERVIEW OF AI IN HIGHER EDUCATION

WHAT IS ARTIFICIAL INTELLIGENCE (AI)?

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Artificial intelligence is a machine's ability to perform the cognitive functions we usually associate with human minds.

What is generative AI?

Generative AI is an AI model that generates content in response to a prompt. It's clear that generative-AI tools like ChatGPT and DALL-E (a tool for making AI-generated art) have the potential to change how a range of jobs are performed. The full scope of that impact, though, is still unknown—as are the risks. But there are some questions we can answer—like how generative-AI models are built, what kinds of problems they are best suited to solve, and how they fit into the broader category of AI and machine learning.

https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-ai

SOME USES OF AI IN HIGHER EDUCATION

- Personalized learning

  - Can power adaptive learning approaches for each student

- Efficient administrative tasks

  - Automate menial tasks like scheduling and grading*

- Data-informed insights

  - Analyzing data to provide insights to help improve student outcomes

- Accessibility and inclusivity

  - Customize learning for all learners

- Preparing future skills

  - Engaging and using AI is a key skill for future work

This list is an edited output of ChatGPT

anthology

POTENTIAL DANGERS OF AI

- Bias
  - Understanding on what data the system was trained
  - Does that data have inherent biases?

- Hallucinations
  - Chat systems want to provide you with answers, even if they are wrong
  - Check cited sources for accuracy

- Need for Guardrails
  - Some topics should be off-limits
  - Ex: how to build weapons, kill, etc.

- Ecological
  - AI consumes huge amounts of electricity to run GPUs and to cool them

RESPONSIBLE USE OF AI

- Many AI powered technologies are providing frameworks for its ethical use

- For Anthology, Trustworthy AI Principles are:

- **Fairness:** Minimizing harmful bias in AI systems.
- **Reliability:** Taking measures to ensure the output of AI systems is valid and reliable.
- **Humans in Control:** Ensuring humans ultimately make decisions that have legal or otherwise significant impact.
- **Transparency and Explainability:** Explaining to users when AI systems are used, how the AI systems work, and help users interpret and appropriately use the output of the AI systems.
- **Privacy, Security and Safety:** AI systems should be secure, safe, and privacy friendly.
- **Value alignment:** AI systems should be aligned to human values, in particular those of our clients and users.
- **Accountability:** Ensuring there is clear accountability regarding the trustworthy use of AI systems within Anthology as well as between Anthology, its clients, and its providers of AI systems.

SOME AI APPLICATIONS IN TEACHING, LEARNING, AND RESEARCH

- There are hundreds and hundreds of tools available

- It can be overwhelming!

- So, I asked ChatGPT to provide some suggestions

BU What are some good AI powered tools for faculty?

There are several AI-powered tools that can greatly benefit faculty members in various aspects of their teaching, research, and administrative duties. Here are some examples:

1. **Grade and Assignment Automation:**
   - Gradescope: Streamlines grading of assignments, quizzes, and exams using AI-assisted grading and feedback.
   - Turnitin: Offers plagiarism detection and originality checking for assignments, ensuring academic integrity.

2. **Personalized Learning and Content Creation:**
   - Smart Sparrow: Creates adaptive learning experiences by personalizing content and assessments based on student performance.
   - ScribeSense: Converts recorded lectures into interactive transcripts, making content more accessible and engaging.

3. **Virtual Teaching Assistants and Chatbots:**
   - IBM Watson Assistant: Enables the creation of AI-powered chatbots that can answer common student queries and provide support.
   - Ada Support: Provides AI-driven chatbots for automating student interactions and providing instant assistance.
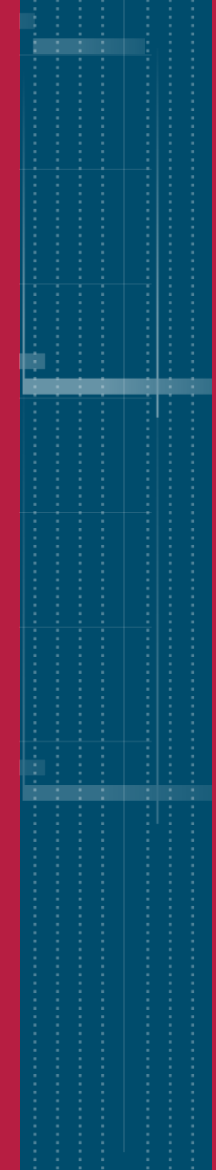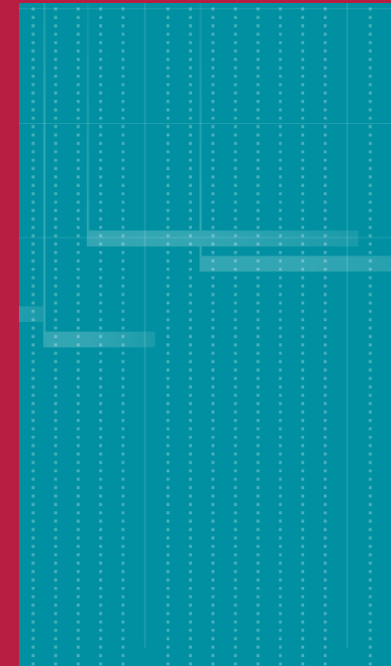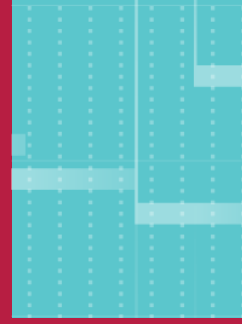
4. **Research and Literature Review:**
   - Iris.ai: Utilizes AI to assist researchers in discovering relevant academic papers, speeding up literature reviews.
   - SciNote: Aids in organizing research data, facilitating collaboration, and automating data analysis.

5. **Data Analysis and Visualization:**
   - Tableau: Empowers faculty to create interactive data visualizations and gain insights from complex datasets.
   - RapidMiner: Offers AI-driven data analytics for research, helping uncover patterns and

AI AND ACADEMIC INTEGRITY

AI is already being used in education to provide personalized learning experiences, grade papers, and even teach classes. While there are concerns about student use of AI, the potential upside of AI tools to help teachers balance their workloads and accelerate student engagement is huge.

https://www.forbes.com/sites/greatspeculations/2023/06/22/ready-or-not-disruptive-ai-is-here-to-stay

ALEX WILLIAMSON FOR THE CHRONICLE

I'm a Student. You Have No Idea How Much We're Using ChatGPT.

No professor or software could ever pick up on it.

https://www.chronicle.com/article/im-a-student-you-have-no-idea-how-much-were-using-chatgpt

TIME TO ADAPT

- Remember calculators?

- Use it, play with it!

- Avoid an Arms Race

  - AI detection tools have an alarming false positive rate

- We must adapt our pedagogy and our assessment strategies

- Integrate ChatGPT into your assignments

  - Create iterative processes

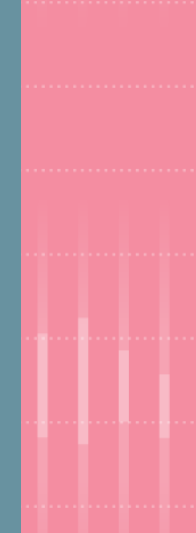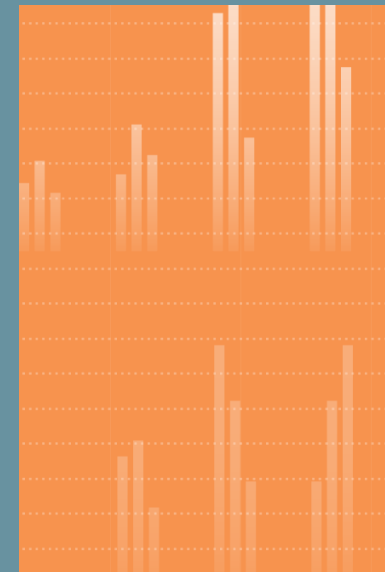- Teach prompt creation

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- **Teach prompt creation**

PROMPTING GENERATIVE AI FOR TEACHING AND LEARNING

- It is essential to include directional words. For example, "discuss", "compare", "design" or "evaluate" allows the AI to understand what action you would like it to perform.
- Specific content-related words can drastically improve your output. For instance, instead of "develop a workshop", "develop a first-year workshop delivered online for mature-aged students".
- The greater the contextual information you provide, the better the output, so aim to include as many limiting words as possible, such as "Northern Territory" and "Australian University".
- An acting word explaining what you would like the AI to act like is essential. For example, "act like a quality assurance manager" allows input generated with a quality assurance frame in mind.
- The audience is critical, so include something like "write in a formal, third-person tone for an academic audience".
- The output style is something you should consider. Whether you want an email, dot points, a report or an essay, you will need to clarify the output style you would like to see.
- In some cases, evidence will be required to substantiate claims AI makes, and for these moments where a reference is needed, ask the AI to "find references, evidence or literature" with "in-text references" on XYZ.
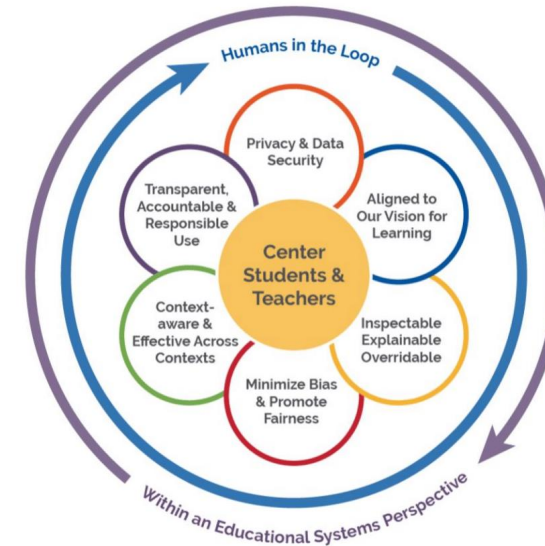
THE NEED FOR AI POLICIES

FEDERAL REGULATORY IMPLICATIONS

"As more and more faculty are experimenting with AI in their classes, institutions need to be increasingly careful that they are in compliance with federal regulations governing regular and substantive interaction (RSI) and Title IV financial aid eligibility."

Van Davis, WCET

Figure 14: Recommendation for desired qualities of AI tools and systems in education

"As more stakeholders are introduced to these technologies, the desire for and scale of adoption are likely to accelerate. Institutions must establish appropriate staffing and governance structures to support the use of these technologies and consider which particular use cases align with their needs and comfort levels."

- The use of AI in higher education is beyond the point of no return
- First-hand use changes beliefs about potential value of generative AI and the need for regulation

Supporting Instruction and Learning Through Artificial Intelligence

A Survey of Institutional Practices & Policies

Judith Sebesta
Principal, Sebesta Education Consulting LLC

Van L. Davis
Chief Strategy Officer, WCET

wcet

https://wcet.wiche.edu/wp-content/uploads/sites/11/2023/07/AI-Survey-In-Depth-Analysis-Report-Summer-2023.pdf

MASTERING AI POLICIES: A FRAMEWORK FOR INSTITUTIONAL ALIGNMENT

A very recent blog detailing the need for institution-wide policies regarding the use (or not) of AI, going beyond teaching and learning

Anthology's Education and Research Center
AI Policy Framework

- Stakeholder identification and meetings
- Defining institutional position on generative AI
- Understanding existing policy environment
- Program and policy development
- Implementation

Discussion