Teaching Without Humans: How AI Could Hijack Education

Tuesday, February 6

4:00 PM - 5:00 PM | University Club – Scriptorium Room

Stephen J. Aguilar
Assistant Professor of Education and Associate Director, USC Center for Generative AI and Society
Let’s Level Set
Gartner Hype Cycle of Emerging Technologies

- Peak of Inflated Expectations
- Plateau of Productivity
- Slope of Enlightenment
- Trough of Disillusionment

VISIBILITY

TIME
Can AI “Hijack” Education?
How AI Could Hijack Education
What is AI?

Hijack

What are the implications of “hijacking” education?
What *is* artificial intelligence?
Types of artificial intelligence

Narrow AI (Weak AI)

General AI (Strong AI)

Super Intelligent AI
Narrow AI (Weak AI)

- Performs **narrow** tasks
- Operates in **limited** contexts

- When you think of AI **out in the world**, this is often what you’re thinking about.

Apple Face ID

Open AI’s ChatGPT
Narrow AI currently exists and is being used every day.

Apple Face ID

Open AI’s ChatGPT
General AI (Strong AI)

Want to play chess?

Later—but let’s wear suits.
General AI (Strong AI)

Want to play chess?

Later—but let’s wear suits.

...this seems overly formal.

STOP STACKING PIECES!
General AI (Strong AI)

- General AI can:
  - Understand
  - Learn
  - Apply knowledge in different contexts

When you think of an “AI pal” who has human-like agency, you are probably thinking about general AI.
General AI (Strong AI)

Does not currently exist
Super Intelligent AI
Super Intelligent AI

- Goes **beyond** human intelligence.
- Can perform any task **better** than humans.
- Has cognitive abilities including:
  - Creativity
  - General wisdom
  - Problem-solving
Super Intelligent AI

Does not currently exist
Today’s Talk: Narrow AI (e.g., generative AI)

- Open AI’s ChatGPT (Text/chatbot)
- Midjourney (images)
Generative AI is the new “tech trigger”

The New York Times sues OpenAI and Microsoft for using its stories to train chatbots

FTC Launches Inquiry into Generative AI Investments and Partnerships

Agency Issues 6(b) Orders to Alphabet, Inc., Amazon.com, Inc., Anthropic PBC, Microsoft Corp., and OpenAI, Inc.

January 25, 2024

Tags: Competition | R&D | Technology | Artificial Intelligence | Office of Technology

The Federal Trade Commission announced today that it issued orders to five companies requiring them to provide information regarding recent investments and partnerships involving generative AI companies and major cloud service providers.

The agency’s 6(b) inquiry will scrutinize corporate partnerships and investments with AI providers to build a better internal understanding of these relationships and their impact on the competitive landscape. The compulsory orders were sent to Alphabet, Inc., Amazon.com, Inc., Anthropic PBC, Microsoft Corp., and OpenAI, Inc.

"History shows that new technologies can create new markets and healthy competition. As companies race to develop and monetize AI, we must guard against tactics that foreclose this opportunity," said FTC Chair Lina M. Khan. "Our study will shed light on whether investments and partnerships pursued by dominant companies risk distorting innovation and undermining fair competition."

Opinion: Chat GPT and Me — Artificial Intelligence Can Change Education for Good

by Elia Manassie December 11, 2023

Robots are taking over the world. Not in the way that most think. Not in a science fiction.
What is AI?

Hijack

What are the implications of “hijacking” education?
What can AI Hijack?
Defining “Hijack”

- To steal or commandeer
  - “Hijacking” a vehicle

- To take control of (as if by hijacking)
  - “hijacking” an online account
  - To change the topic or focus of something; “hijacking a conversation”
Defining “Hijack”

**hijack** verb

- **hijack** /ˈhɪ-жək/ (verb)
- hijacked; hijacking; hijacks

- **To steal or commandeere**
  - “Hijacking” a vehicle

- **To take control of (as if by hijacking)**
  - “hijacking” an online account
  - To change the topic or focus of something; “hijacking a conversation”
Why are we so excited and/or scared about AI?

Education vs. Discourse

Is AI hijacking our education system?

Is AI hijacking our discourse about education?
Let’s take a step back
Historical view of “tech triggers”
Educational Technologies

- Writing
- Music
- Books
- Television
Socrates: writing is terrible

I honestly don’t see the appeal

“...it will introduce forgetfulness”

“[those who write] will not practice using their memory...”

“[writing] will enable them to hear many things without being properly taught, and they will imagine that they have come to know much while for the most part they will know nothing.”

Books
Conrad Gessner: So many books!

Active during the 1500s

“Father of bibliography”

Wrote *Bibliotheca universalis*, a collection of roughly 3,000 authors/books
We have reason to fear that the multitude of books which grows every day in a prodigious fashion will make the following centuries fall into a state as barbarous as that of the centuries that followed the fall of the Roman Empire. Unless we try to prevent this danger by separating those books which we must throw out or leave in oblivion from those which one should save and within the latter between what is useful and what is not."
Music
Children “developed the habit of dividing attention between the humdrum preparation of their school assignments and the compelling excitement of the loudspeaker.”
Television
Television: The next greatest teacher (1958)?

Must the TV Technicians Take Over the Colleges?

By ERNEST EARNEST
Temple University

There is a note of panic in much of the discussion about mounting college enrollments. One might think that the prospect of twice the present college population ten years hence might seem good news to educators who have long deplored the cultural limitations of the American people. Instead, the almost unrelieved gloom of the prophets can only be matched by the prophesies of disaster at the time of the first G. I. Bill following World War II. Then, as now, the educational journals and the public prints were filled with discussions of the shortage of instructors, of the lack of facilities, and the baleful effects of overcrowding.

In this atmosphere of alarm, all sorts of panaceas are being suggested by administrators and foundations. Americans tend to assume that any problem can be solved by a new pill, serum, or ingenious gadget. Thus, closed circuit television for the classroom has been seized upon as the most hopeful solution for the expected shortage of teachers. The Fund for the Advancement of Education has financed experiments with TV at several universities. At least 80 colleges are trying it out.

The danger of educational TV is twofold. On the one hand, it may lead education into unexpected and undesirable channels; on the other, this seemingly easy solution of the teacher shortage may prevent a genuine re-examination of our system of higher education.
1. New technologies evoke feelings of excitement, fear, and invite predictions.

2. When technologies become ubiquitous, they become mundane.

3. Yet, when they become mundane, by definition, they grow more useful.
How can we parse new technology?
Heidegger's Ontology

MARTIN HEIDEGGER

BEING AND TIME

A translation of SEIN UND ZEIT by John Macquarie and Edward Robinson
Ready-to-hand vs. present-at-hand

Ready-to-hand

“I know how to use this and can use it without thinking.”

Present-at-hand

“I can’t use this because it’s broken, or I don’t know what it is.”
Ready-to-hand: Tools as extensions of self

Martin Heidegger, 1927
Present-at-hand: Tools as salient and noticeable

What is this thing???
Present-at-hand: Tools as salient and noticeable

One I know! This is an apple butter paddle. We used one like this with a giant copper kettle to make apple butter out of applesauce over a fire outside. One person has to be constantly stirring the kettle with this to keep it from burning to the bottom as it cooks down.
Norman’s Perceived Affordances
Digital technologies are similar, but have complex perceived affordances that are often nested.
Let’s return to older educational technologies

- Writing
- Music
- Books
- Television
We exaggerate their importance

On average, we are *not good* at predicting how good—or bad—specific technologies will be for learning.

This is because we often ignore the *sociotechnical system* where educational technologies operate.

I guess I’m *not* clairvoyant.
The “Sociotechnical” System
The “Sociotechnical” System

- Technology
- Context
- People
The “Sociotechnical” System

Technology

Context

People
Research Questions:

1. Is there a statistically significant relationship between reported participation in live instruction and reported student engagement?

2. What are the barriers to distance learning faced by low-income K–12 students?
Live instruction predicted more assignment completion.

Every additional live-instruction hour predicted a 20% increase in the likelihood of all assignments completed.
The “Sociotechnical” System

Technology

Context

People
Why are we so excited and/or scared about AI?

Education vs. Discourse

Is AI hijacking our education system?

Is AI hijacking our discourse about education?
Is AI hijacking our education system?
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Is AI hijacking our education system?

No.

• AI is simply a new (powerful) tool.
  – AI tools are *being used*. This is not the same as AI “taking over” or threatening education.
  – We are still sorting out AI’s true *affordances*.
  – AI’s best use case is still *unclear*. 
Is AI hijacking our discourse about education?
Opinion: I’m co-teaching my college class with ChatGPT. Will it upstage me?

Is AI hijacking our discourse about education?
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Is AI hijacking our discourse about education?
Is AI hijacking our discourse about education?
Yes.

- We are near the top of the hype cycle
  - AI is *simply another tool*.
  - AI will eventually be *integrated* into our current educational system.
  - Once it is, *we won’t notice it*.
  - As all other tools, things will get *better* for some and *worse* for others, while many will see *few changes*.
Let’s reframe—and ask questions
Recall our hype cycle...

- Peak of Inflated Expectations
- Plateau of Productivity
- Slope of Enlightenment
- Trough of Disillusionment
- Technology Trigger

We are here
“I’m excited about the possibilities new technology offers, but I know that things can and will go wrong. Unexpected things will happen until real use-cases are established and proven.”

The tempered optimist seeks to close this gap quickly to detect and maximize the actual potential of new (edtech) tools.
Why Ethics and Co-Design Matter

How we frame our goals for AI matters.

– **Ethics**: elevating our core assumptions.
– **Co-designing** new tools *with* not *for*.
The Trolley problem
Deontology
Ethical/moral actions driven by **following rules/duties**

Consequentialism
Ethical/moral actions driven by **consequences of actions**

The Trolley problem
Deontology

Ethical/moral actions driven by following rules/duties

The Trolly problem

No action.
“I will not cause a death.”
Consequentialism

Ethical/moral actions driven by consequences of actions

The Trolley problem

Pull lever.
“I will sacrifice one to save many.”
### Ethics + AI

#### Deontology
Ethical/moral actions driven by **following rules/duties**

Generative AI should be designed and deployed in ways that *respect human autonomy*. This can involve clear opt-in/opt-out features, **transparency** about how the AI is making decisions, and options for human review or override of AI decisions.

#### Consequentialism
Ethical/moral actions driven by **consequences of actions**

Generative AI can increase productivity by **automating routine tasks**, answering questions, offering suggestions, and more.

This can lead to *improved efficiency* in various sectors such as business, healthcare, education, and others.
Women exhibited a notably higher score in rating several deontological ethical propositions, such as *Respect for Autonomy* and *Privacy as a Right*, relative to men.

- Surveyed (n=248) K12 teachers
  - Ethics
  - Comfort with AI technologies

- Self-Efficacy and Anxiety were statistically significant across both consequentialist and deontological perspectives, indicating a broader theme regarding the psychological relationship individuals have with technology.
AI is a (new) tool.
Let’s use and build it together.
THANK YOU FOR COMING!

JOIN US AT OUR NEXT EVENT!

“Shouldn’t we call that ‘life’?”
Creativity in the Age of AI

Josh Kun
USC Vice Provost for the Arts,
USC Annenberg Professor and Chair
in Cross-Cultural Communication

Tuesday, February 20, 2024 | 4:00 PM

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