## The Generative Al Mirror: The Five Pathologies of EdTech Discourse About New Technologies

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Webinar

Glenda Morgan & Phil Hill

6 September 2023



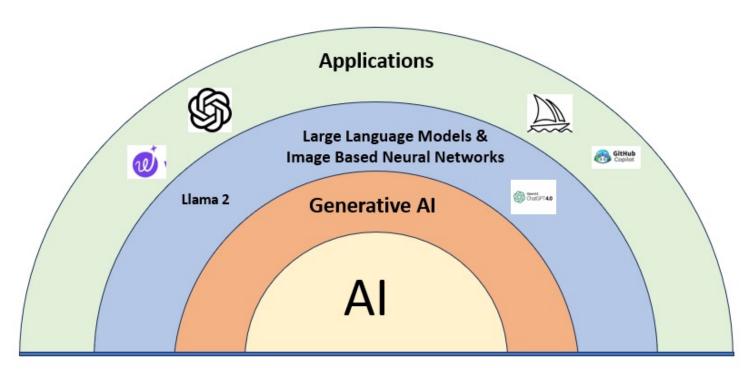
#### There is a lot of hype about Al

"more profound than fire or electricity or anything we have done in the past."

Sundar Pichai, Google CEO



#### What is generative Al?





### Generative AI has been evolving at a rapid pace

#### Timeline of major LLM developments since lunch of ChatGPT



- 1 Nov 30, 2022: OpenAl's ChatGPT, powered by GPT-3.5 (an improved version of its 2020 GPT-3 release), becomes the first widely used textgenerating product, gaining a record 100 million users in 2 months
- 2 Dec 12: Cohere releases the first LLM that supports more than 100 languages, making it available on its enterprise Al platform
- 3 Dec 26: LLMs such as Google's Med-PaLM are trained for specific use cases and domains, such as clinical knowledge

- 4 Feb 2, 2023: Amazon's multimodal-CoT model incorporates "chain-of-thought prompting," in which the model explains its reasoning, and outperforms GPT-3.5 on several benchmarks
- 5 Feb 24: As a smaller model, Meta's LLaMA is more efficient to use than some other models but continues to perform well on some tasks compared with other models
- 6 Feb 27: Microsoft introduces Kosmos-1, a multimodal LLM that can respond to image and audio prompts in addition to natural language

- 7 Mar 7: Salesforce announces Einstein GPT (leveraging OpenAl's models), the first generative Al technology for customer relationship management
- 8 Mar 13: OpenAl releases GPT-4, which offers significant improvements in accuracy and hallucinations mitigation, claiming 40% improvement vs GPT-3.5
- 9 Mar 14: Anthropic introduces Claude, an Al assistant trained using a method called "constitutional Al," which aims to reduce the likelihood of harmful outputs

- 40 Mar 16: Microsoft announces the integration of GPT-4 into its Office 365 suite, potentially enabling broad productivity increases
- 11 Mar 21: Google releases Bard, an AI chatbot based on the LaMDA family of LLMs
- 12 Mar 30: Bloomberg announces a LLM trained on financial data to support natural-language tasks in the financial industry
- 13 Apr 13: Amazon announces Bedrock, the first fully managed service that makes models available via API from multiple providers in addition to Amazon's own Titan LLMs



#### Five Pathologies

- A preoccupation with trendiness
- Exaggerated results
- Technology solutionism
- Learning as the only approach to change
- Moral panics



### 1. A preoccupation with trendiness

EdTech is a bandwagon driven sector





#### From bandwagon to bandwagon

**MOOCs** 



Active Learning Classrooms



Learning Analytics



VR/AR



**Generative Al** 





#### Generative AI as a Deep Agent of Chaos for Higher Education (separate registration is required)

**Presenters: Bryan Alexander** 

**Delivery Format:** Preconference Workshop



WCET - WICHE Cooperative for Educational Technologi...

+ Follow

The biggest topic in #highered news is #artificialintelligence and what impact #AI will have on #students, #instructors, and the #education field at large. This week on

#### Generative AI in College and Departmental Administration

Generative AI can be an important assistant in promoting excellence in the role of

#### Higher Education Leaders Explore Impact of Generative Al

ChatGPT

Dr. Adam Fein

By Annie Galvin Teich · Aug 29, 2023 08:20am

University of North Texas

Dr. Steven Crawford

#### **Biden Admin's Budget Could Jump-Start Ed** Research on ChatGPT

A recent budget proposal from the Biden administration to increase federal support for education research efforts could lead to an 'ARPA-Ed' and the discovery of new use cases for Al-driven tools like ChatGPT.



#### GPT/'Generative' AI Edtech Landscape

iead.

Last updated 1/9/23





### Every vendor is adding a generative Al tool

### Edtech companies jump on generative AI bandwagon

A slew of edtech companies — edX and Coursera — have announced plans to incorporate generative AI into their products.

BY LINDSAY MCKENZIE • JULY 31, 2023













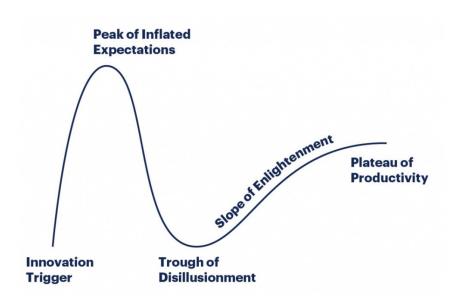








#### No sustained attention can be problematic



To move along the cycle, you need sustained attention & working through difficulties

Gartner Hype Cycle



#### 2. Exaggerated results

We think of it like a robot tutor in the sky that can semi-read your mind and figure out what your strengths and weaknesses are, down to the percentile.

"We can take the combined data power of millions of students — all the people who are just like you — [who] had to learn a particular concept before, that you have to learn today — to find the best pieces of content, proven most effective for people just like you, and give that to you every single time.



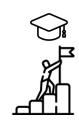
### We see exaggerated results in EdTech a great deal

Learning **Analytics** 



SUNY ASAP Program **Course Signals** 

Student Success



Co-Remediation at CUNY

**MOOCs** 



**ASU Thunderbird** MOOC

Problems with data analysis:

Small N's: The need for success:

Uncritical reporting



## It's early days but we are already seeing exaggerated claims about generative Al

- Transformation
- Ease
- Effectiveness
- Personalization & impact



### The problem with exaggerating results

- We minimize the difficulty & complexity
- We don't learn from mistakes, and so never get better
- We buy products we shouldn't
- Models with problems are replicated



#### 3. Technology solutionism

Technology solutionism ...refers to the tendency to view technology as the primary or sole solution to complex problems, often without considering the broader causes, and implications of such solutions.

It involves the belief that technology can provide quick fixes and panaceas for a wide range of issues.

**ChatGPT** 



### Tech solutionism is rife in EdTech, and not just from vendors



Student Success



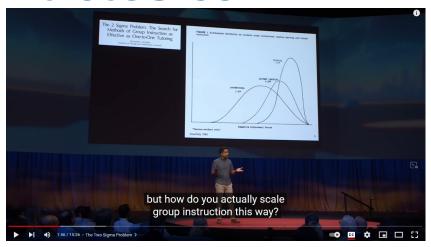
**LMS** 



Academic Integrity



## Technology solutionism has taken an early & firm hold on AI EdTech discourse



How AI Could Save (Not Destroy) Education | Sal Khan | TED

- Personalization: Cost & scale
- Enrollment: Development of hyper-personalized marketing and recruitment strategies.
- Retention: chatbots & predictive analytics
- Integrity: Al as a response to Al plagiarism

https://www.youtube.com/watch?v=hJP5GqnTrNo



GenAI chatbots could be used to help students get direct, instantaneous answers to questions on core advising topics using one centralized tool.



### 4. Learning as the only valid application

But is it having an impact on learning?

Edtech is about transforming teaching and learning

But applications of technology not directly related to learning are important

- Student experience
- Time & convenience
- Social & teaching presence

And usage does flow from one type of usage to the other



#### **Emphasizing learning in Al**

#### **Vendor Applications**

Heavily focused on the learning aspect

- Summaries
- Tutors
- Course design
- Explanations
- Role play

Brenna discusses the tension between using AI for efficiency and for learning.

#### **BRENNA CLARKE GRAY - 31ST AUGUST 2023**

Brenna discusses the tension between using Al for efficiency and for learning. For example, are we using it to improve accessibility for a diverse population or to save on labour costs?

#### Brenna's key questions are:

- 1 Is the problem that we think we're solving with AI a problem of efficiencies, or of learning?
- 2 Who is harmed by the technology and how, and who benefits. Is it marginalised learners, or is it some for-profit EdTech company?
- 3 How are we living our values in the institution?

Image credit: Jon Fulton



https://www.monash.edu/learning-teaching/teachhq/Teaching-practices/artificial-intelligence/10-minute-chats-on-generative-ai



### The problem with an exclusive focus on learning

- Administration & efficiency provides a safer space to experiment
- Usage tends to flow from one to the other
- Teaching is complex & the tools aren't quite there



The example of the telephone



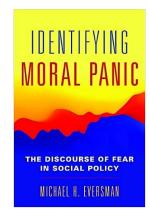
#### 5. Moral panic

A moral panic is a widespread feeling of fear, often an irrational one, that something threatens the values, traditions, practices & future interests, or well-being of a community or sector by arousing social concern over an issue.

Actors such as the media but also individuals play a role in

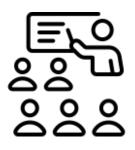
fostering and exacerbating moral pain





Cohen

### Moral panic has a long history in EdTech







Blackboards

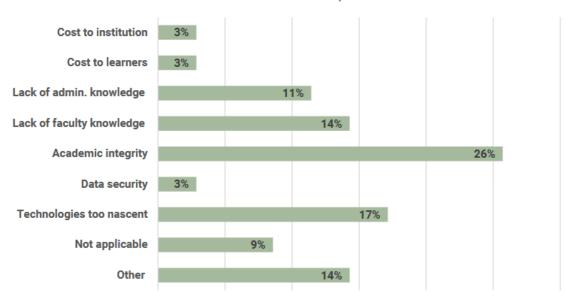
Plagiarism

Online Learning



## But AI has unleashed a massive amount of moral panic around cheating

Reasons Institution Opted Not to use Al





### Though moral panic does seem to subside with familiarity

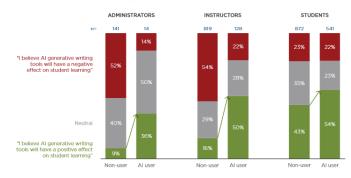
Top 10 Challenges for Instructors in Higher Education
(2022-2023)

| Rank |  | 2022 faculty |   | 2023 faculty |
|------|--|--------------|---|--------------|
| 1    | Providing timely feedback to students            | 36%          | Preventing student cheating   | 43%          |
| 2    | Identifying high-quality instructional materials | 25%          | Providing timely feedback for students                                  | 32%          |
| 3    | Providing enough practice for students           | 23%          | Scaffolding content for all student levels                              | 32%          |
| 4    | Efficiently grading materials                    | 23%          | Managing student access to or<br>cost of instructional materials        | 29%          |
| (5)  | Adjusting content/levels to learner needs        | 21%          | Developing original course materials                                    | 22%          |
| 6    | Decreasing cost of instructional materials       | 18%          | Identifying high quality instructional materials                        | 21%          |
| 7    | Increasing student collaboration                 | 17%          | Technical difficulties with digital assessment tools                    | 20%          |
| 3    | Customizing course materials                     | 17%          | Assessing student skills and/or progress                                | 18%          |
| 9    | Increasing assignment completion rates           | 15%          | Lack of support with analyzing<br>assessment data to inform instruction | 10%          |
| 10   | Preventing student cheating                      | 15%          | Other   | 6%           |

Notes: 2022 survey question: "Which instructional challenges are top priorities for you to address in this course? Please choose up to three," instructor n=2,955, 2023 survey question: "Which of the following are your greatest instructional challenges? Select top three," instructor n=1,748 sources. Time for Class 2022 and 2023 surveys, Thore Pentiners analysis

https://campustechnology.com/articles/2023/07/12/time-for-class-2023-report-shows-number-one-faculty-concern-preventing-student-cheating-via-ai.aspx

#### Beliefs about generative AI writing tools' impact on student learning, responses as of March 2023



https://tytonpartners.com/app/uploads/2023/06/Time-for-Class-2023-Report Final.pdf



### The problem with moral panic in EdTech

- It works against understanding root causes
- It closes down alternatives
- It creates an us versus them mindset that is not conducive to learning
- It rules out change



### What you should be focusing on instead



#### Issues you should be tracking

- How generative AI is changing the marketplace
- How vendors have integrated it and what guardrails they used to do so
- Embedded Al
- Smaller language models
- Price



# What you should be doing to avoid the five pathologies

### Start developing policies about generative Al

It's always about the policy.

Morgan's Iron Laws of EdTech

Date Issued: August 11, 2023

#### **UK ADVANCE**

Fall 2023 Guidelines and Recommendations

for Generative AI in Instructional Contexts

https://advance.uky.edu/sites/default/files/2023-08/2023.08.11 ADVANCEfacultyguidelines.pdf

- University of Toronto
- Wilfred Laurier University
- Harvard University

Al Observatory

Lance Eaton's Syllabus Collection



#### Focus on the student experience



https://unsplash.com/photos/-2vD8IIhdnw

- This will allow you to take a more holistic view and avoid the 5 pathologies
- Will help you focus on solving real problems
- Focus on efficiency & learning



#### Do pilots, but measure impact & learn

- Limited duration & an evaluation plan
- Think about what didn't work, and learn from that
- Vendors are going to disappear, plan accordingly

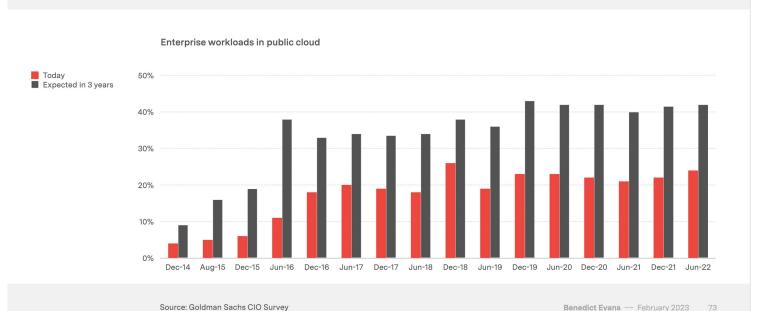




#### Parting thought: Remember, you are in it for the long haul

#### The future can take a long time

The cloud might seem like an old and boring idea, but it's still only a quarter of enterprise workloads





#### Phil Hill & Associates

We partner with higher ed institutions, organizations, and companies on all things educational technology. From understanding the most effective uses of EdTech to addressing strategic and mission-related questions – we want to help you make the best decisions possible.

https://philhillaa.com/



phil@philhillaa.com
morgan@philhillaa.com

#### **Select Bibliography**

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