

**Title:** Public Talk: Derek Muller (Veritasium)

**Speakers:** Derek Muller

**Collection/Series:** Perimeter Presents

**Date:** April 07, 2025 - 7:00 PM

**URL:** <https://pirsa.org/25040081>

**Abstract:**

Perimeter Presents (Format = Public Lecture)



# How Will AI Change Education?

Derek Muller  
April 7, 2025

Two things

Why aren't people learning?



# Brave New Words

How AI Will  
Re|volutionize  
Education (and  
Why That's a  
Good Thing) ☀

Salman Khan

Founder of Khan Academy

"A timely master class for anyone interested in the future  
of learning in the AI era." —Bill Gates



AI BUSINESS

STAY UPDATED

- ML
- NLP
- Data
- Automation
- Verticals
- Responsible AI
- Generative AI
- More

# How AI Is Revolutionizing the World of Education

Artificial intelligence can help teachers become more efficient and allow them to focus on what matters most: teaching their pupils

Ed Watal, Founder and principal of Intellibus  
August 5, 2024

2 Min Read



NICE | ssen

360-Degree AI-Powered CX is here

Learn more

CREATING 360-DEGREE CX AWARENESS WITH PURPOSE-BUILT AI

## Latest News



NOW PLAYING: KEN CH

Forbes

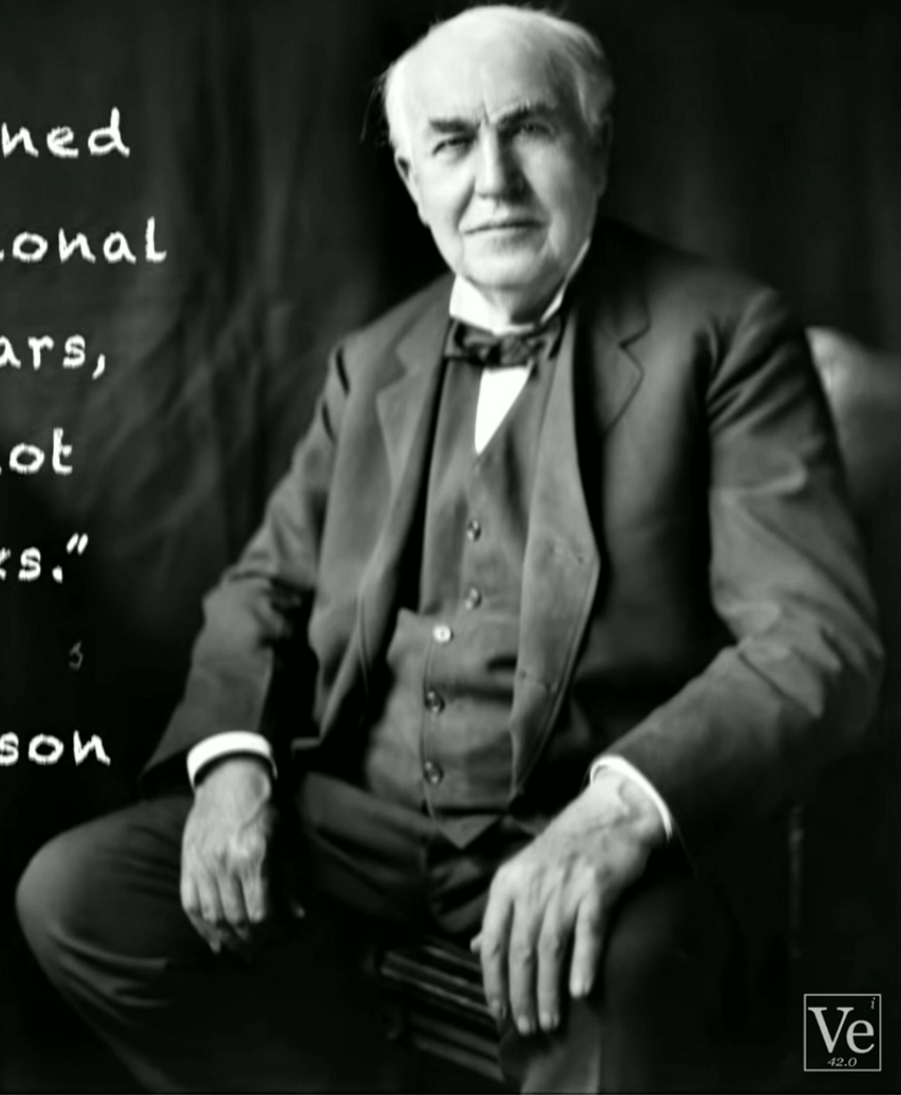
STEVEN BERTONI

Assistant Managing Editor, Founder

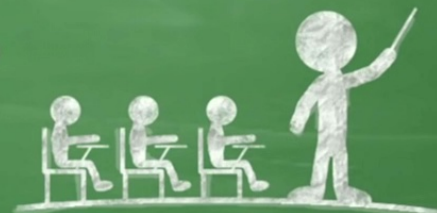
FORBES' FEATURED VII

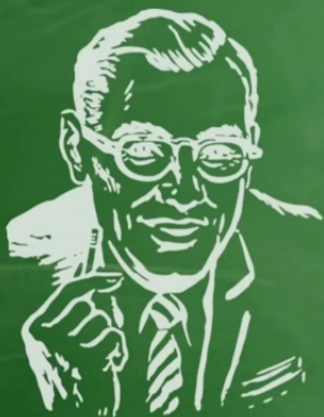
"The motion picture is destined to revolutionize our educational system and that in a few years, it will supplant largely, if not entirely, the use of textbooks."

-Thomas Edison





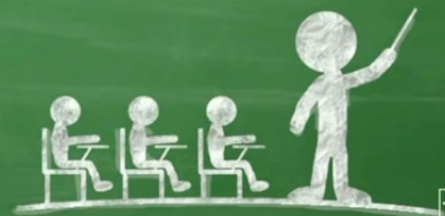
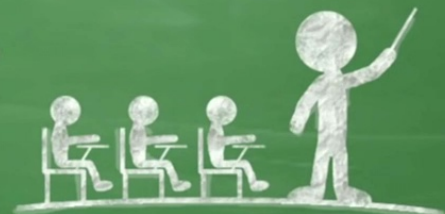




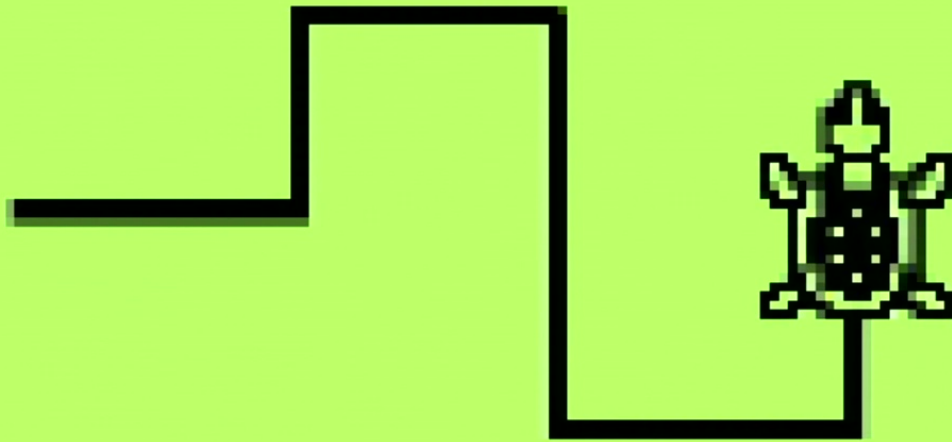
TAF

**ELON MUSK SAYS AI EDUCATION  
WILL BE LIKE HAVING EINSTEIN  
AS A TEACHER FOR EVERY CHILD**

SWIPE FOR MORE



Ve<sup>i</sup>  
42.0





"The use of videodiscs in classroom instruction is increasing every year and promises to revolutionize what will happen in the classroom of tomorrow."

-Semrau & Boyer, 1994







# M

## MASSIVE

There may be  
100,000+  
students in a  
MOOC.

# O

## OPEN

Anyone,  
anywhere  
can register  
for these  
courses.

# O

## ONLINE

Coursework  
is delivered  
entirely over  
the Internet.

# C

## COURSE

MOOCs are  
very similar  
to most online  
college courses.

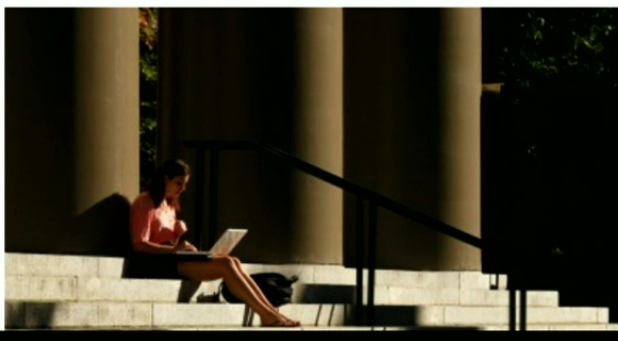
## BUSINESS

# The Big Idea That Can Education: 'MOOC'

Massive open online courses combine the technology -- online interactive learning

LAURA MCKENNA MAY 11, 2012

*Massive open online courses combine the best of college with the best of technology -- online interactive learning. efficient, effective education?*



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from [The Water's Edge](#)

# Will MOOCs Revolutionize Higher Education?

Post by James M. Lindsay

September 20, 2012 3:38 pm (EST)



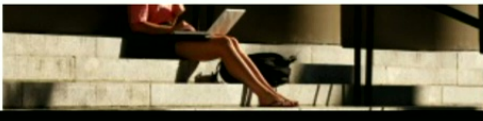
Students outside of Widener Library at Harvard University, one of several offering massive open online courses. (Brian Snyder/ courtesy Reuter.



## The Phenomenon of Revolutionizing Educ Age



**Aman Kumar Singh (SEO Expert)**  
Senior SEO Expert at Infopro Learning



NATIONAL

## The Online Education Revolution Drifts Off Course

DECEMBER 31, 2013 · 4:46 PM ET

HEARD ON ALL THINGS CONSIDERED

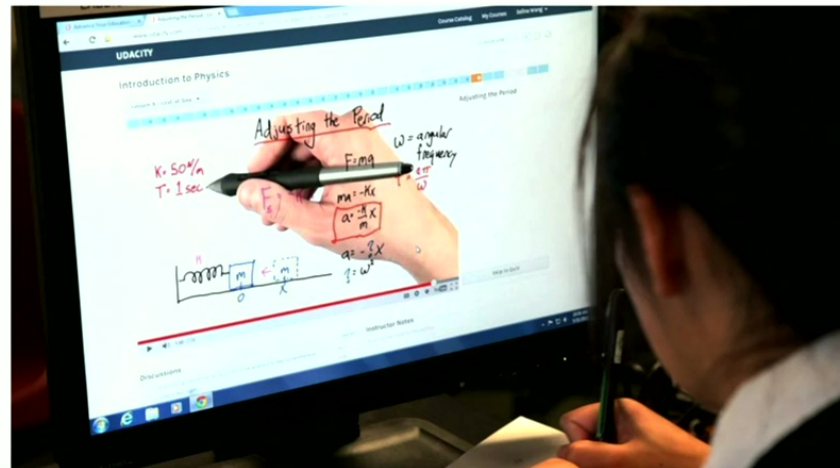
By Eric Westervelt



7-Minute Listen

+ PLAYLIST

TRANSCRIPT



1

283





# Why MOOCs won't revolutionize higher ed

July 8, 2013



By [Valerie Strauss](#)



( <a href="http://www.freeimages.com/photo/1237883">v )

Here is a new piece from Stanford University's Larry Cuban about the latest "revolution" in education: Massive Open Online Courses, known as MOOCs, which, as he explains here, isn't likely to be as revolutionary as advocates hope. [Cuban](#), a high school social studies teacher for 14

years and a district superintendent (seven years in Arlington, VA), is professor emeritus of education at Stanford University, where he has

## 'revolution' May Not Be as Some Had Imagined



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Trump Webinar Series

New Legal Landscape

# Why MOOCs won't revolutionize higher ed

July 8, 2013



By Valerie Strauss



( <a href="http://www.freeimages.com/photo/1237883 )

years and a district superintendent professor emeritus of education at



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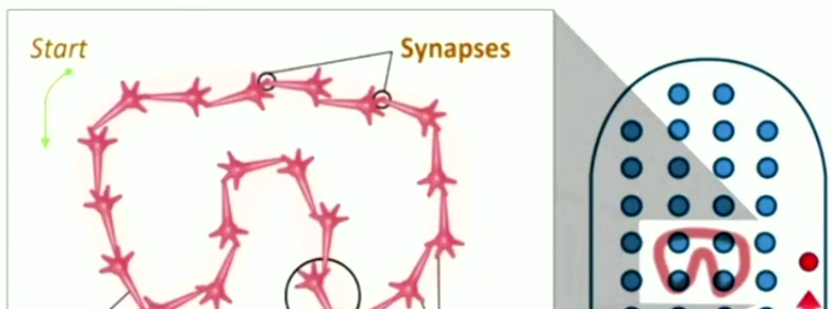
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DIGITAL LEARNING

## What if MOOCs Revolutionize Education After All?

By Jeffrey R. Young Jul 25, 2017





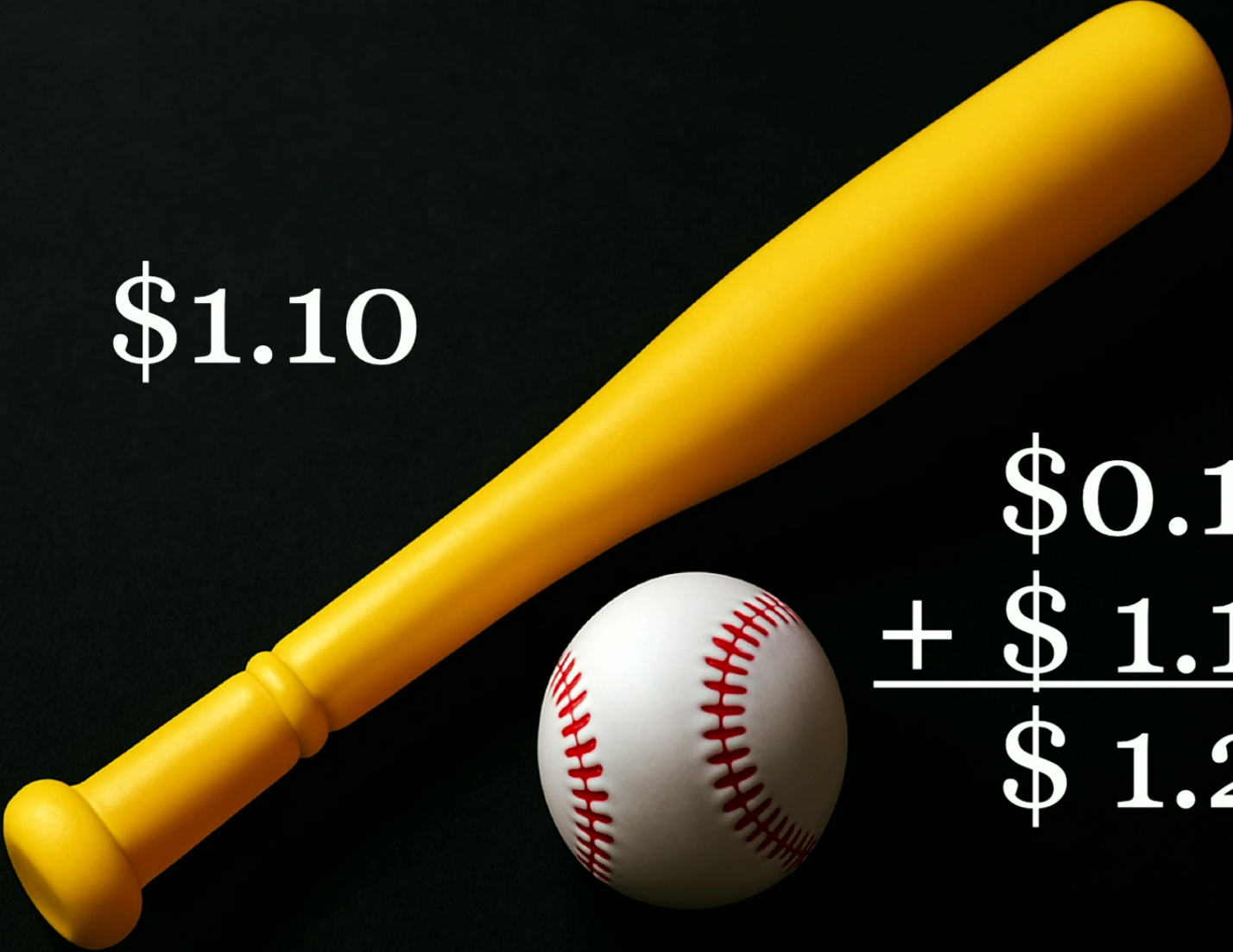
# Why didn't these revolutions eventuate?



# Why didn't these revolutions eventuate?

- The inertia of educational institutions
- Technological hype
- Didn't have the capabilities of AI
- Something else?





\$1.10

$$\begin{array}{r} \$0.10 \\ + \$1.10 \\ \hline \$1.20 \end{array}$$

THINKING,  
FAST AND SLOW



DANIEL  
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

## **The Magical Number Seven, Plus or Minus Two Some Limits on Our Capacity for Processing Information**

**George A. Miller**  
Harvard University

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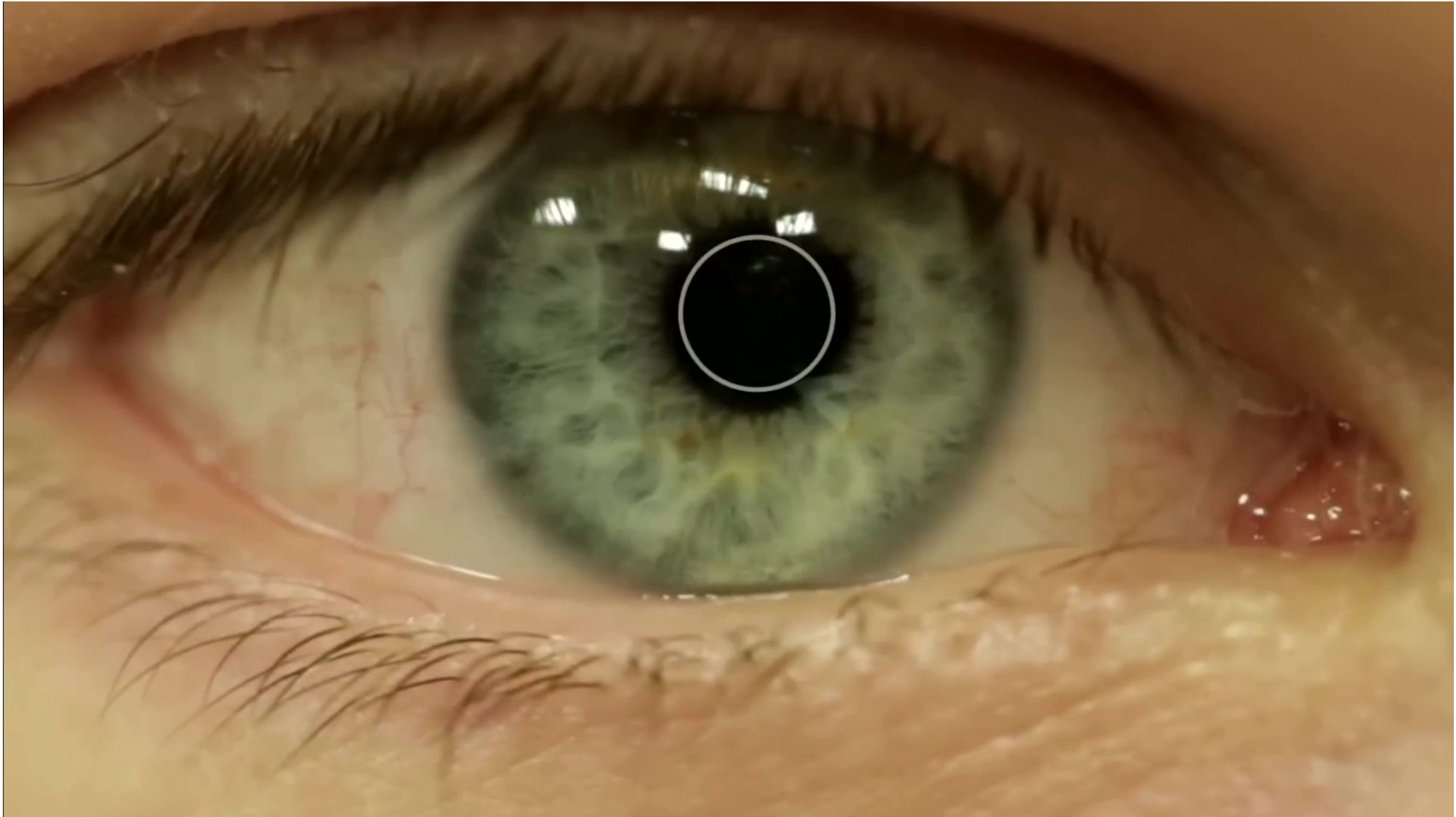
This paper was first read as an Invited Address before the Eastern Psychological Association in Philadelphia on April 15, 1955. Preparation of the paper was supported by the Harvard Psycho-Acoustic Laboratory under Contract N5ori-76 between Harvard University and the Office of Naval Research, U.S. Navy (Project NR 142-201, Report PNR-174). Reproduction for any purpose of the U.S. Government is permitted.

Received: May 4, 1955

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My problem is that I have been persecuted by an integer. For seven years this number has followed me around, has intruded in my most private data, and has assaulted me from the pages of our most public journals. This number assumes a variety of disguises, being sometimes a little larger and sometimes a little smaller than usual, but never changing so much as to be unrecognizable. The persistence with which this number plagues me is far more than a random accident. There is, to quote a famous senator, a design behind it, some pattern governing its appearances. Either there really is something unusual about the

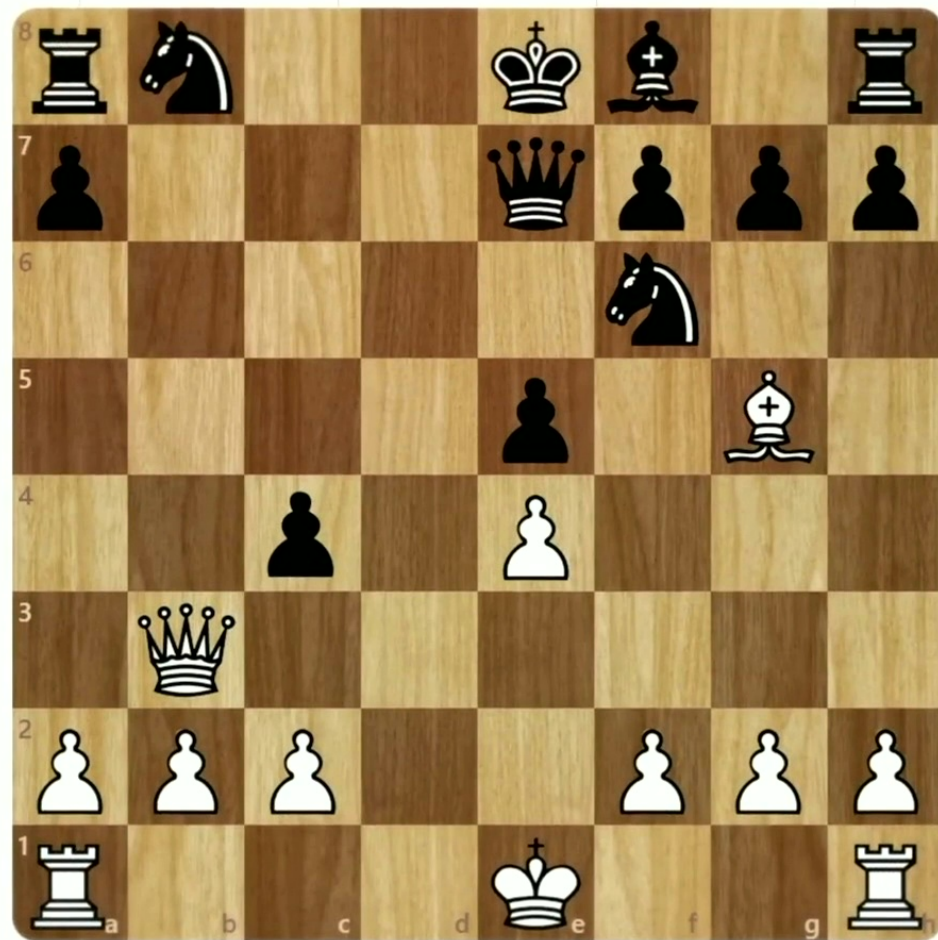
5 4 9 1



# Cognitive Load / Mental Effort

- Intrinsic
- Extraneous
- Germane



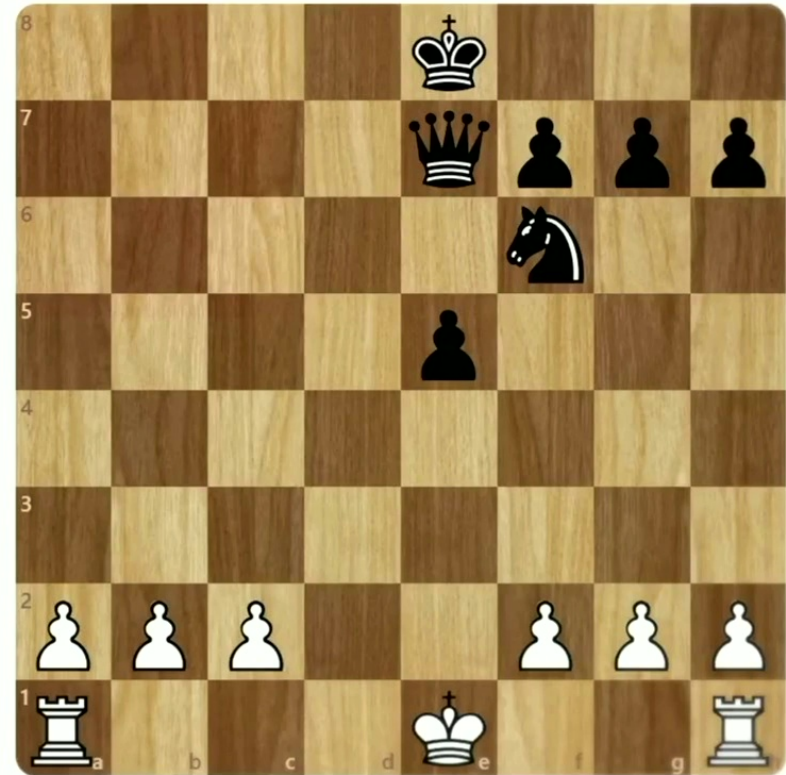


# Beginner





# Master



5 4 9 1

1 9 4 5

words

Chunking  $\Sigma \vec{F} = m \vec{a}$

1 9 4 5

$$i\hbar \frac{\partial \Psi}{\partial t} = -\frac{\hbar^2}{2m} \frac{\partial^2 \Psi}{\partial x^2} + V \Psi$$

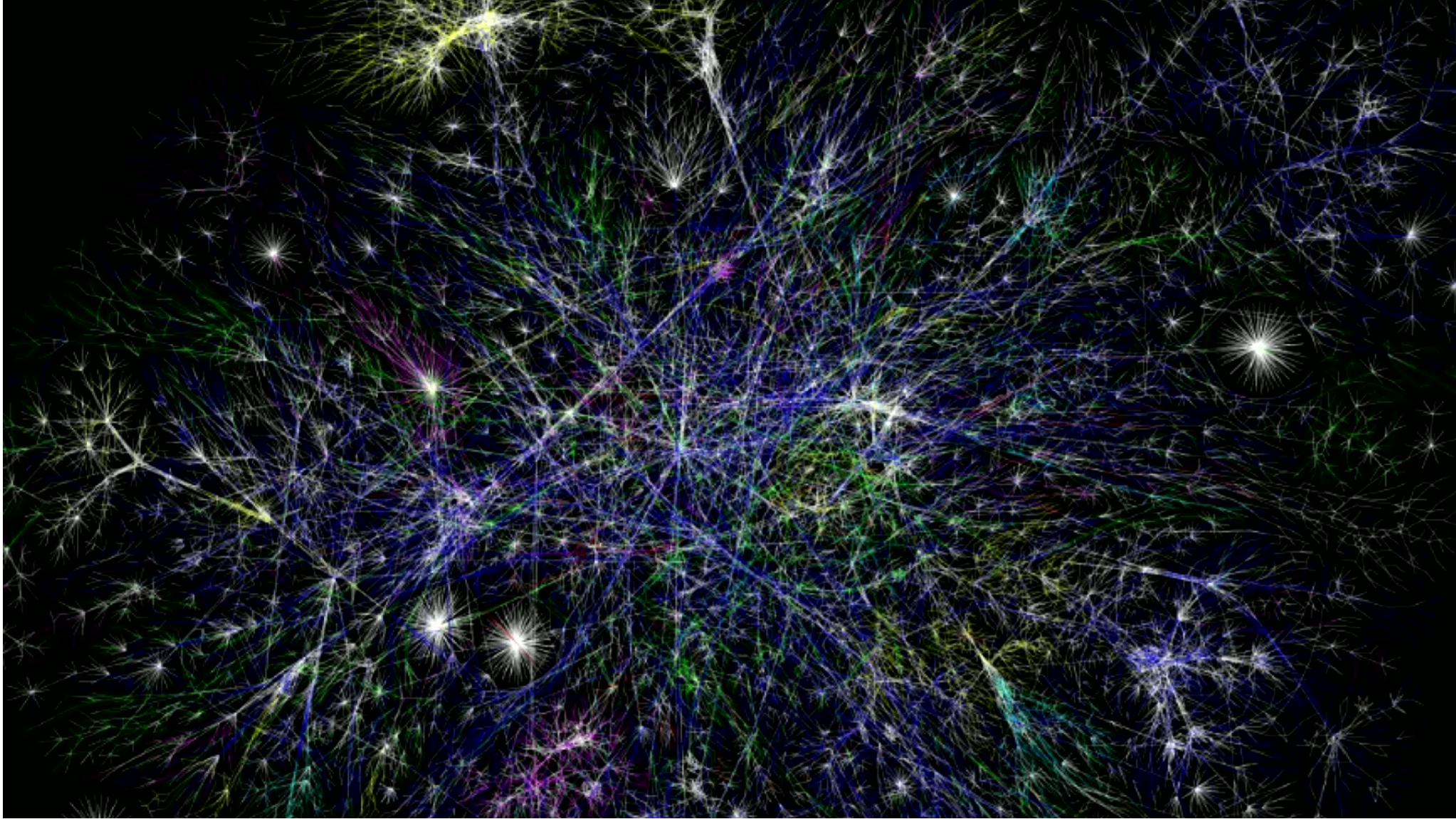
words

Can you “learn how to think”?



There is no general thinking skill



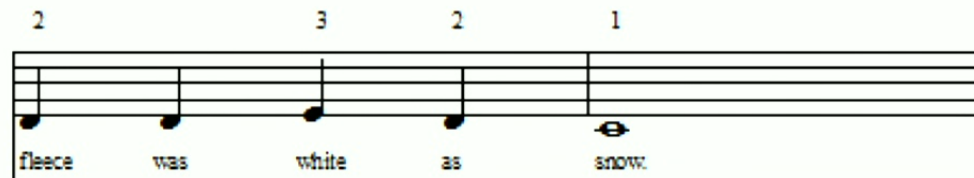




# 1. Eliminate extraneous cognitive load

## 2. Limit intrinsic cognitive load

## Mary Had a Little Lamb



Discovery learning can be dangerous

For each set, first examine the problem on the left. Next help the students finish the two incomplete problems. Finally, complete the similar problem on the right.

**SET 1** Solve each equation.

Denise solved this problem correctly. Here is her work:

$$\begin{aligned} 3(4x + 7) &= 15 \\ 3(4x+7) &= 15 \\ \div 3 \quad \div 3 & \\ 4x + 7 &= 5 \\ -7 \quad -7 & \\ 4x &= -2 \\ \div 4 \quad \div 4 & \\ x &= -\frac{1}{2} \end{aligned}$$

Mark started to solve this problem, but got stuck. Help him finish the problem.

$$\begin{aligned} 4(3x + 9) &= 12 \\ 4(3x+9) &= 12 \\ \div 4 \quad \div 4 & \\ 3x + 9 &= 3 \\ -9 \quad -9 & \\ 3x &= -6 \end{aligned}$$

Shakirah started to solve this problem, but got stuck. Help her finish the problem.

$$\begin{aligned} 2(6x + 2) &= 16 \\ 2(6x+2) &= 16 \\ \div 2 \quad \div 2 & \\ 6x + 2 &= 8 \end{aligned}$$

 **Your Turn:**

$$3(2x + 7) = 9$$



3. Repeat effortful practice until mastery

3. Repeat effortful practice until mastery

## 4. Increase germane cognitive load

\$1.10

90%

35%



# The role of AI



# The role of AI

- Provide timely feedback
- Reduce effortful practice

Why aren't people learning?  
Why haven't education revolutions  
materialised?

