

## Time to Wake Up from Our Innovative Learning Dreams and Make Smarter Learning a Reality

Curtis J. Bonk, Professor, Indiana University

[cjbonk@indiana.edu](mailto:cjbonk@indiana.edu)  
<http://curtbonk.com/>



1

## Dreams of Smarter Learning... Center for the Advancement of Teaching Temple University, Paul Blaschko



2

## As technology got smarter...

Remote learning isn't new: Radio instruction in the 1937 polio epidemic

<https://theconversation.com/remote-learning-isnt-new-radio-instruction-in-the-1937-polio-epidemic-543792>



3

## And even smarter...

April 20, 2023

## Learning to code isn't enough

Joy Lisi Rankin, MIT Technology Review

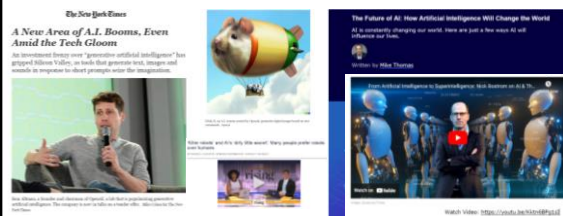
<https://www.technologyreview.com/2023/04/20/1071321/learn-to-code-logic-new-projects-education/>



4

## January 7, 2023 AI in Business and Society News

<https://www.theguardian.com/education/2023/jan/13/ai-in-business-and-society-news>



5

## March 28, 2023 Workplace AI could replace equivalent of 300 million jobs – report

Chris Vallance, BBC

<https://www.bbc.com/news/technology-65102150>

### AI Will Increase Vulnerability of Most Educated Workforce

Share of work that can be automated, by education level of employee

■ Low automation < 10% ■ Medium automation 10-40% ■ High automation > 40%

Master's, PhD or higher (20% of global employment)

Bachelor's degree (21%)

Associate degree (24%)

Some college (27%)

High school diploma or equivalent (24%)

No high school degree (24%)

Source: McKinsey Global Institute analysis. Note: Excludes health care and education.

### Biggest Losers of AI Boom Are Knowledge Workers, McKinsey Says

■ Could add the equivalent of \$2.6 to \$4.4 trillion annually

■ May add 0.6% in annual labor productivity growth for 20 years

By Alexander Tait

June 14, 2023 at 12:01 AM EDT

The worldwide boom in generative artificial intelligence is accelerating productivity and greater job and profound disruption for others, primarily in

according to a new report by consultants McKinsey.

Generative AI will give humans a new "super partner" as a much-needed productivity report.

AI could replace equivalent of 300 million jobs - report

Source: McKinsey Global Institute analysis. Note: Excludes health care and education.

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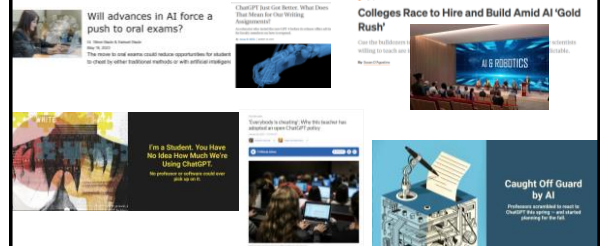
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## May 19, 2023 AI in School News



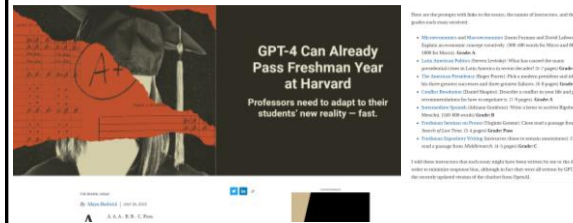
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## May 19, 2023 AI in Higher Ed News



8

## July 26, 2023 GPT-4 Can Already Pass Freshman Year at Harvard Maya Bodnick, The Chronicle of Higher Education <https://www.chronicle.com/article/gpt-4-can-already-pass-freshman-year-at-harvard>



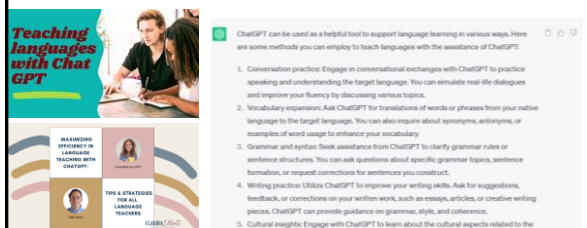
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## May 25, 2023 Generative AI: Impact on Higher Education Ray Schroeder, UPCEA Senior Fellow <https://sites.google.com/view/unhprentai>



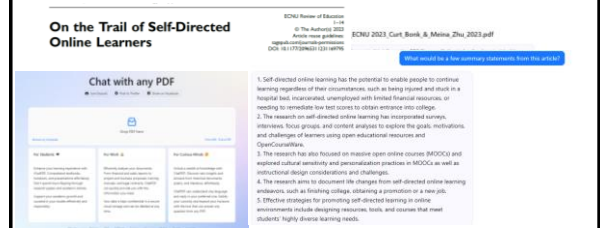
10

## May 25, 2023 Teach Languages with ChatGPT <https://chat.openai.com/>



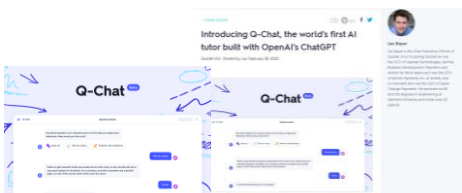
11

## May 25, 2023 Chat with any PDF <https://www.chatpdf.com/>



12

**February 28, 2023**  
**Intelligent Assessment and Tutoring**  
 Introducing Q-Chat, the world's first AI tutor built with OpenAI's ChatGPT, Lex Bayer, Quizlet  
<https://quizlet.com/blog/meet-q-chat>



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**May 25, 2023**  
**Chat with heypi, especially good for social/emotional/burnout support**  
<https://heypi.com/talk>

Talk to Pi,  
your personal AI

they flew from Las Vegas to Indianapolis

Oh wow! That's a bit of a flight. But totally worth it to spend time with family, right? 🌟 Did they stay with you, or at a hotel?

With me


Oh, even better! Spending lots of quality time together. Sounds like a lovely visit 🌟 How long did they stay with you for?

2 nights

Awesw, that's such a lovely amount of time! Long enough to catch up, have some quality time, and not quite so long that you're sick of each other by the end 🌟 Did you all do anything fun together while they were visiting?

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**May 24, 2023 AI AI AI**  
**See why AI like ChatGPT has gotten so good, so fast (bigger and better datasets, GPU Speed)**  
 Pranshu Verma & Kevin Schaul, Washington Post



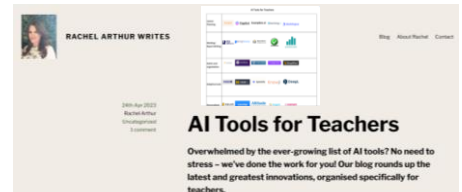
15

**April 22, 2023**  
**In UNESCO "Quick Start Guide to ChatGPT and AI in Higher Education"**  
[https://www.unesco.org/en/quick-start-guide-to-chatgpt-and-artificial-intelligence-in-higher-education-quick-start-guide\\_HJ\\_FTMA-af](https://www.unesco.org/en/quick-start-guide-to-chatgpt-and-artificial-intelligence-in-higher-education-quick-start-guide_HJ_FTMA-af)

Role <sup>a</sup>	Description	Example of implementation
<b>Possibility engine</b>	AI generates alternative ways of expressing an idea	Students write queries in ChatGPT and use the Regenerate response function to examine alternative responses
<b>Secretive opponent</b>	AI acts as an opponent to develop and argument	Students enter prompts into ChatGPT following the structure of a conversation or debate. Teachers can ask students to use ChatGPT to prepare for discussions
<b>Collaboration coach</b>	AI helps groups to research and solve problems together	Working in groups, students use ChatGPT to find out information to complete tasks and assignments
<b>Guide on the side</b>	AI acts as a guide to navigate physical and conceptual spaces	Teachers use ChatGPT to generate content for classes/tours (e.g. discussion questions) and advice on how to support students in learning specific concepts
<b>Personal tutor</b>	AI tutors each student and gives immediate feedback on progress	ChatGPT provides personalized feedback to students based on information provided by students or teachers (e.g. test scores)

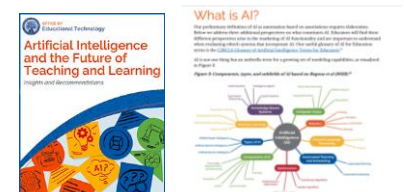
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**April 24, 2023**  
**AI Tools for Teachers**  
 Rachel Arthur  
<https://rachelarthurwrites.com/2023/04/24/ai-tools-for-teachers/>



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**June 13, 2023**  
**U.S. Department of Educational Technology**  
**Artificial Intelligence**  
<https://tech.ed.gov/artificial-intelligence-and-learning/>  
[https://zoom.us/webinar/register/WN\\_AYgSkAdnQSS8pckTJZvgnw#/registration](https://zoom.us/webinar/register/WN_AYgSkAdnQSS8pckTJZvgnw#/registration)

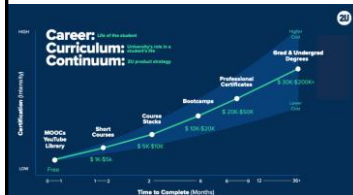


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## The Career Curriculum Continuum

Andrew Hermalyn, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/article/2021/02/23/inside-highered-career-curriculum-continuum>



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**February 25, 2020**

## The 60 Year Curriculum:

Developing New Educational Models to Serve the Agile Labor Market

Chris Dede, Harvard University, The Evollution

219: The 60-Year Curriculum with Rovy Branon

<https://evolution.com/program-planning/a-time-for-learning-experience-designers-2/>

The 60 Year Curriculum:  
Developing New Educational  
Models to Serve the Agile Labor  
Market



Learning for a Lifetime

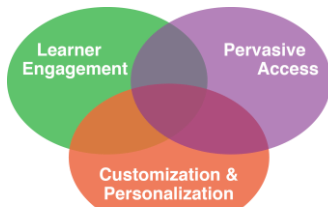


219: The 60-Year Curriculum with Rovy Branon



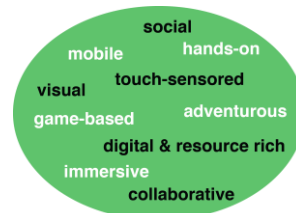
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## 30+ Ways Learning is Changing: The Mega Trends



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## How Learning is Changing: Mega Trend #1. Learner Engagement



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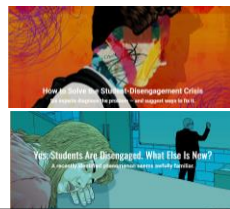
## November 3, 2022 Still Struggling With Engagement? You're Not Alone

Beth McMurtrie, The Chronicle of Higher Education

<https://www.chronicle.com/newsletter/teaching/2022-11-03>

Still Struggling With Engagement? You're Not Alone.

By Beth McMurtrie



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**July 15, 2023**

## A Time for Learning Experience Designers, Niels Floor, The Netherlands

<https://evolution.com/program-planning/a-time-for-learning-experience-designers-2/>

Episode 158 - Building Design Capacity for  
Online and Digital Education at Scale



Episode 158 - Building Design Capacity for  
Online and Digital Education at Scale



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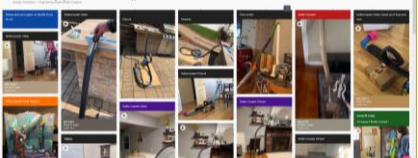
**June 15, 2022**  
**Learning is More Mobile**  
**Leaders & Legends of Online Learning,**  
**Dr. Mark Nichols' Podcast**

<https://onlinelearninglegends.com/podcast/062-dr-george-veletsianos/>  
 In this episode, Open Polytechnic of New Zealand Executive Director Dr. Mark Nichols chats with **Dr. George Veletsianos, Royal Roads University in Victoria, British Columbia**. George talks about his history and research in online education, and his ongoing challenges to the false dichotomy of online and in-person learning.



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**March 21, 2021**  
**Learning is More Digitally Rich**  
**ELCL 6270: Teaching Physical Science with the STEAM Approach**  
**Heejung An, William Paterson University**  
**Hands-on, Minds-on, Social-on: A Collaborative Maker Project Integrating Arts in a Synchronous Online Environment for Teachers**  
<https://link.springer.com/article/10.1007/s11528-022-00740-x>  
 Based on the Thinking, Making, Sharing, and Reflecting (TMSR) model



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**June 6, 2022**  
**Learning is More Game-based**  
**How teachers use Wordle—and other games—for next-level engagement**  
**Laura Ascione, eSchool News**  
<https://www.eschoolnews.com/2022/06/06/how-teachers-use-wordle-for-next-level-engagement/2/>



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**July 11, 2023**  
**Learning is More Immersive**  
**'Metaversities' Face Virtual Learning's Financial Realities**  
**Lauren Coffey, Inside Higher Ed**  
<https://www.insidehighered.com/news/tech-innovation/teaching-learning/2023/07/11/metaversities-face-virtual-learning-financial-realities>  
**Anatomy and biology courses use the metaverse to immerse students in the subject matter.**  
**New Mexico State University's metaverse includes an immersive solar system.**



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**April 18, 2023**  
**Learning is More Immersive**  
**Holograms in Higher Education are Boosting Student Engagement**  
**Susan Fortane, Fierce Education**  
<https://www.fierceeducation.com/technology/holograms-higher-education-are-boosting-student-engagement>



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**February 15, 2023**  
**Learning is More Collaborative**  
**Strong Schools, Afghani Women**  
**Asian University of Women**



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## How Learning is Changing: Mega Trend #2. Pervasive Access



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## October 20, 2022 Stanford Report Says Emergency Remote Instruction Led to 'Shift' in University's Identity

Jeffrey Young, EdSurge

<https://www.edsurge.com/news/2022-10-20/stanford-report-says-emergency-remote-instruction-led-to-shift-in-university-identity>  
<https://www.stanford.edu/news/academic/2022/10/20/stanford-report-says-emergency-remote-instruction-led-to-shift-in-university-identity>


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## October 14, 2022 Learning is More Online

A Surge in Young Undergrads, Fully Online  
Susan D'Agostino, Inside Higher Ed

<https://www.insidehighered.com/news/2022/10/14/more-traditional-age-students-enroll-fully-online-universities>

These online classes can help you  
earn money from home: Digital  
marketing, video production, coding

A Surge in Young Undergrads, Fully Online  
Susan D'Agostino, Inside Higher Ed



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## November 4, 2022

### Learning is More Synchronous

Synchronous hybrid English class for rural Chinese students



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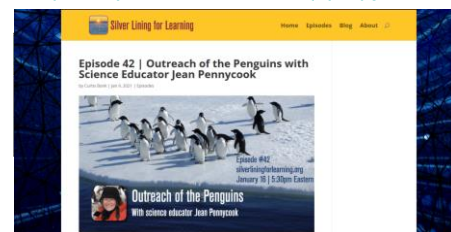
## January 25, 2023 Learning is More Video-based...

YouTube-iversity, ASU  
Susan D'Agostino, Inside Higher Ed

<https://www.insidehighered.com/news/2023/01/25/arizona-state-turns-youtube-reach-learners-margins>


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## Learning is More Video-based... Silver Lining for Learning

[https://www.youtube.com/channel/UC9Xesh89qr1pmVpQt\\_aA/live](https://www.youtube.com/channel/UC9Xesh89qr1pmVpQt_aA/live)


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### Introducing the TEC-VARIETY Model

<http://tec-variety.com/>  
<http://tec-variety.com/TEC-VARIETY-Chinese.pdf>  
 Free book available: <http://hdl.handle.net/11999/4481>

**Tone/Climate**  
**Encouragement, Feedback**  
**Curiosity**


**Variety**  
**Autonomy**  
**Relevance**  
**Interactive**  
**Engagement**  
**Tension**  
**Yields Products**

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### Special Issue on Online Learning Research

Martin, F., Dennen, V. P., & Bonk, C. J. (Eds.) (2023). **Special Issue: Systematic Reviews of Research on Online Learning.**  
*Online Learning Journal*, 27(1). DOI: <https://dx.doi.org/10.24059/olj.v27i1.3887>  
 Entire issue with cover: <http://www.publicationshare.com/34>  
 EdTechBooks: DOI: [10.24059/olj.v27i1.3887](https://doi.org/10.24059/olj.v27i1.3887)

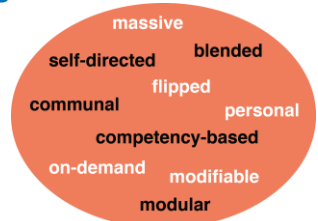


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### How Learning is Changing: Mega Trend #3. Customization



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### June 6, 2022

#### Learning is More Blended

Why Notre Dame is boldly pushing ahead on blend of live and remote learning  
 Chris Burt, University Business  
<https://universitybusiness.com/why-notre-dame-is-boldly-pushing-ahead-on-blend-of-live-and-remote-learning/>

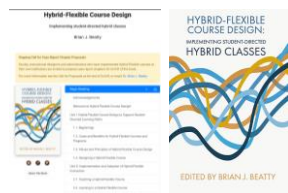




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### June 17, 2021

#### Learning is More Blended

Free Book: Hybrid-Flexible Course Design (HyFlex Teaching)  
<https://edtechbooks.org/hyflex>

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### Learning is More Self-Directed

#### The LMS Market is Quickly Losing Ground

Carol Leaman, CLO  
<https://www.openlearning.com/>  
<https://www.openlearning.com/>

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### Learning is More Self-Directed

#### Language Lessons Online

e.g., BBC Learning English, Duolingo, Babbel, SpanishPod, etc.  
 (Zixi Li & Curt Bonk, 2023 published, Duolingo Research)  
<http://www.bbc.co.uk/learningenglish>

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### Wanted:

#### Billions of Self-Directed Learners

<https://www.prospermasters.in/article/training-development/the-era-of-self-directed-learning-for-new-role-and-strategy-24348>

51

### Benefits of Self-Directed Learners

<https://discoverpraxis.com/reasons-not-to-go-to-college/>

#### THE BENEFITS OF SELF-DIRECTED LEARNING

- ✓ Teaches you to take initiative and create value
- ✓ Builds self-confidence
- ✓ Teaches perseverance and flexibility
- ✓ Kindles intrinsic motivation
- ✓ Promotes self-awareness
- ✓ Helps you find a career you find personally fulfilling
- ✓ Allows you to learn skills more holistically
- ✓ Teaches social skills
- ✓ Lets you explore a wider range of interests
- ✓ Gives you the practical experience to execute what you've learned

**PRAXIS**

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**May 21, 2023 & June 13, 2022 (Khan World School)**  
**Learning is More Personalized**  
 Behind Khan Academy And Arizona State University's Khan World School Launch, Michael B. Horn, Forbes

<https://www.forbes.com/sites/michaelhorn/2022/06/13/behind-khan-academy-and-arizona-state-universitys-khan-world-school-launch/>

At present, the Khan World School is drawing interest from students around the world. The school will be free for students in Arizona by taking advantage of ASU's charter school. But for those facilities where it isn't a public option, Khan said that they will be able to offer the school for less than \$10,000.

The Khan World School is aiming to tackle that shortage with a daily, asynchronous learning where students debate topics that often aren't discussed in schools—things like "Will the Fed be able to control inflation?"

#### Learning for everyone, everywhere

AI's Education Revolution  
 Khan Academy is using ChatGPT to bring one-on-one teaching to scale.

By Andy Chen  
 May 21, 2023 1:12 pm ET

**WSJ OPINION**

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**August 20, 2019**  
**ASU develops world's first adaptive-learning biology degree, ASU News**

<https://www.asu.edu/news/2019/08/20/asu-develops-worlds-first-adaptive-learning-biology-degree>

Fipping the classroom increased performance and persistence. "Beckett Stiermer and I got an ovation at the end of the junior-level major's course, Evolution — Biology 245, and also at the end of the class on zombies... The results of the first effort were impressive.

"In its first semester, we saw student pass rates, in a nonmajors' Biology 100 course called The Living World, improve by 24% and dropout rates reduce by 90%..."

**ASU News**

ASU develops world's first adaptive learning biology degree

School of Life Sciences leads effort to transform undergraduate science education

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**June 16, 2021**

## Learning is More Personalized AI voice actors sound more human than ever—and they're ready to hire

Karen Hao, MIT Technology Review

Video (4:43): <https://www.youtube.com/watch?v=7yJbBa5FO13s>  
Audio (4 examples): <http://curtbonk.com/aivoice2.html>



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**December 12, 2021**

## Learning is More On Demand Cocohub: Bots, with a human touch

Chatting with Chatbots and Text Buddies

Lindsay McKenzie, Inside Higher Ed

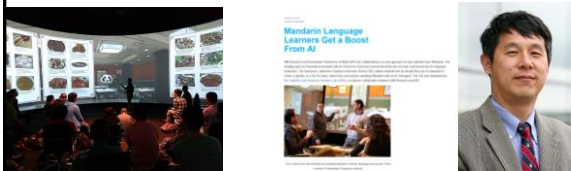
<https://www.insidehighered.com/news/2015/09/06/expression-chatbots-higher-ed>  
<https://www.wired.com/story/2015/11/01/ai-voice-actors-sound-like-real-people/>



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## Learning is More On Demand Interactive Agents and Tutors Pushing the Boundaries of Learning with AI

Lindsay McKenzie, Inside Higher Ed  
<https://www.insidehighered.com/digital-learning/article/2018/04/16/interactive-agents-replace-tutors-higher-ed-teaching-and-learning>  
<https://www.dailymail.com/US/ai-research-2018-06-10/interactive-agents-replace-tutors>  
<https://www.youtube.com/watch?v=7yJbBa5FO13s>  
<https://curtbonk.com/mandarin.html>



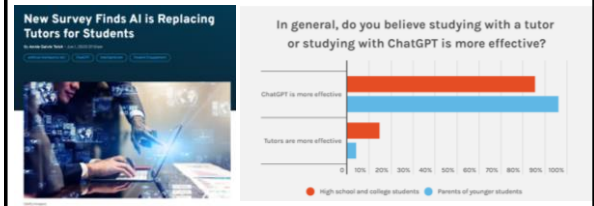
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**June 1, 2023**

## New survey Finds AI is Replacing Tutors for Students

Annie Galvin Telch, Fierce Education

<https://www.fierceeducation.com/technology/new-survey-finds-ai-replacing-tutors-students-/>



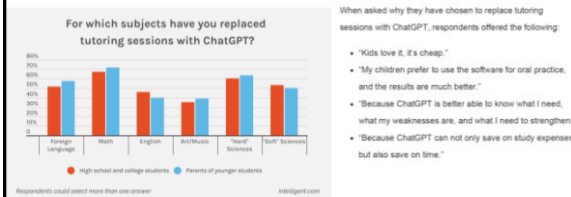
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**May 15, 2023**

## New survey Finds Students are Replacing Human Tutors with ChatGPT

Intelligent

<https://www.intelligent.com/new-survey-finds-students-are-replacing-human-tutors-with-chatgpt/>



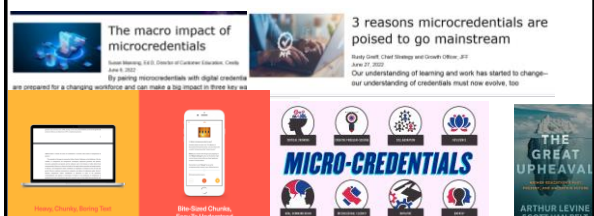
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**June 6 and 27, 2022**

## Microcredentials and Certificates

Susan Manning, Ed.D, Director of Customer Education, Credly, eSchool News

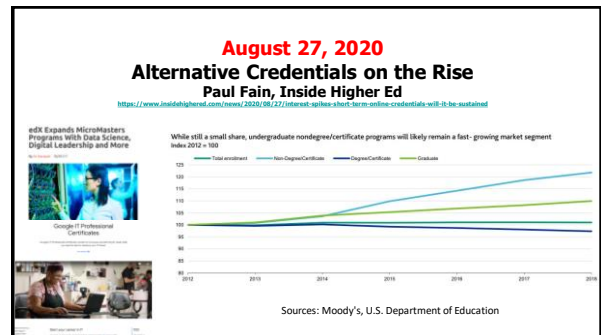
<https://www.eschoolnews.com/2022/06/06/the-macro-impact-of-microcredentials/>  
<https://www.growwle.com/about>



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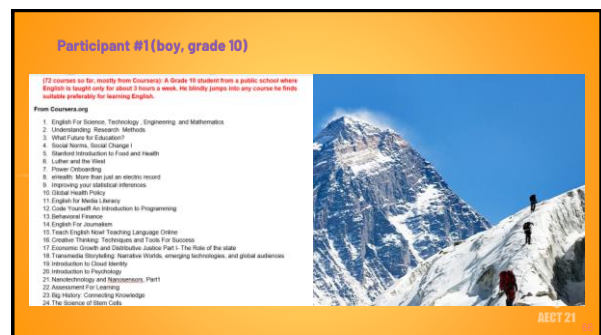
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**June 6, 2023 (Code in Place)**  
**How to 'democratize education':**  
**Stanford's free online course gains 30,000 students in 3 years**  
 (30,000 students, 120+ countries, 3,000 volunteer teachers)  
<https://news.stanford.edu/2023/06/22/tenous-stanford-coding-course-free-online/>  
 Alcino Donadel, University Business  
<https://universitybusiness.com/how-to-democratize-education-stanford-free-online-course-gains-30000-students-in-3-years/>


How to 'democratize education': Stanford's free online course gains 30,000 students in 3 years

When it comes to high-earning potential, degrees in data and computer science are among the hottest assets a bachelor's student can own. Specifically, a computer science degree from Stanford is the sixth best for high pay, according to the HBS Group and College Board.

As prestigious and exclusive as degrees from Stanford may be, that hasn't stopped two professors from creating 'Code in Place,' an online program free of charge and open to the public to learn the basics of programming. After the program closed after students on financial aid couldn't keep up on college costs, the second batch began.

Between Stanford's coding course needs to expand because of demand for it online learning.

(Clockwise from left) Stanford faculty Chris Pasch and Mehroon Sattami and senior lecturer Julie Zemanian will teach 'Code in Place,' a free online intro to coding course that is being offered for the second time since the coronavirus pandemic began. (Image credit: Andrew Brinkman)





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**January 20, 2022**  
**Arizona State University Announces Effort To Educate 100 Million Students Worldwide**  
 Michael T. Nietzel, Forbes  
<https://www.forbes.com/sites/michael-nietzel/2022/01/20/asu-announces-effort-to-educate-100-million-students-worldwide/>  
 Video (2:07): [https://vimeo.com/66798747?embedded=true&source=vimeo\\_logo&owner=13433234](https://vimeo.com/66798747?embedded=true&source=vimeo_logo&owner=13433234)  
<https://thunderbird.asu.edu/lifelong-learning/100-million-learners>

Arizona State University Announces Effort To Educate 100 Million Students Worldwide

- Global Leadership in the Fourth Industrial Revolution
- Customer Experience and Digital Marketing in a Global World
- Global Entrepreneurship and Sustainable Business
- Data Analytics and Digital Transformation in a Global World
- Global Financial Accounting






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**MOOC books (2020) and (2015)**

MOOCs and OPEN EDUCATION IN THE GLOBAL SOUTH: Challenges, Successes, and Opportunities

MOOCs and Open Education: AROUND THE WORLD


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**30+ Ways Learning is Changing:**  
**Recapping the Three Mega Trends:**  
**Engagement, Access, and Customization**




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**A Dozen Questions for Smart Learning Environment Educators and Researchers...**



71

**Dreams of Smarter Learning...**

**1. What professional development opportunities are available for teachers to effectively utilize the smart learning environment?**



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### Dreams of Smarter Learning...

2. What types of data are collected and analyzed within the smart learning environment to inform instructional decisions?



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### Dreams of Smarter Learning...

3. How will questions of learner engagement shift as learning becomes more immersive, massive, open, blended, visually-based, and online?



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### Dreams of Smarter Learning...

4. What means of automatic translation will exist in a decade? How much will you rely on it each day to function with international collaborators and documents in other languages?



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### Dreams of Smarter Learning...

5. How can educational agents and chatbots, OER, robots, immersive worlds, etc., effectively be embedded in society to continue to foster learning as people increasingly live to age 80 or 90 or 100 or beyond?



76

### Dreams of Smarter Learning...

6. What will the definition of "smart" be in 5 or 10 years? How about 20 years? 50 years? 100 years? Beyond?



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### Dreams of Smarter Learning...

7. How much data is too much data? Will instructors have information filtering and restriction devices embedded in their learner information dashboards? And, if so, will they be allowed to use them?



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### Dreams of Smarter Learning...

8. How will we know or recognize when we have arrived at a smarter stage in the evolution of learning environments? What will each signal tell us and what will be the signals at each stage?



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### Dreams of Smarter Learning...

9. Is machine centered pedagogy now being cloaked under the disguise of personalizing learning?



80

### Dreams of Smarter Learning...

10. Will teacher training programs need to be revamped to teach teachers how to adjust their strategies and approaches based on vast as well as minute individual differences?



81

### Dreams of Smarter Learning...

11. How smart must a learner be to take advantage of SLEs? Is there a threshold level of metacognitive skill required? Who will research and fashion SLEs for learners at different developmental levels or stages?



82

### Dreams of Smarter Learning...

12. What will this conference look like and emphasize in 5, 10, 20, or 50 years? i.e., Where will this field of SLEs make the greatest contributions to society?



83

## Are we getting smarter...?



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**We are entering a jumping off point...**

(South China Normal University)



86

**Things are heating up!**



87

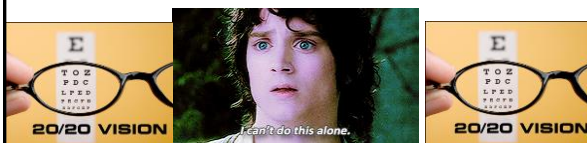
**The Learning Revolution is coming within reach!**



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**Remember...**  
**"I cannot do this alone."**

"I cannot do this alone."  
"I cannot do this alone."  
"I cannot do this alone."



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**Any Questions or Comments?**

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