


Technology Today, Technology Tomorrow: Might Learning Evolutions lead to Learning Revolutions?

Curtis J. Bonk, Professor, Indiana University
cjbonk@indiana.edu
<http://curtbonk.com/>





1



Poll #1. Warm-up question: How are you today?

- A. I feel so great, I could be superwoman and superman.
- B. I feel really good, thank you.
- C. A little tired but still fine and ready to learn from this session.
- D. Not sure yet but I am glad to be here today in this webinar.
- E. Not fully here nor there since I have some personal issues that need to be sorted out.
- F. Overwhelmed and feeling like I am lost in a lost world.
- G. Other.

2

Are we in a technology evolution or a revolution?



3

Talk Overview

1. Technology Yesterday
2. Technology Today (30 ways learning is changing...)
5. Technology Trends of Tomorrow



4

Part 1: Technology Yesterday

Remote learning isn't new: Radio instruction in the 1937 polio epidemic
 Katherine A. Foss, The Conversation
<https://theconversation.com/ama/remote-learning-its-not-new-radio-instruction-in-the-1937-polio-epidemic-453792>



THE CONVERSATION



RELEARNING NEWS



PLATO

Remote learning isn't new: Radio instruction in the 1937 polio epidemic
Katherine A. Foss, The Conversation, October 2020

5

January 15, 2021

Wikipedia is now 20+!

Simon Garfield, Esquire: What We Know And Can Agree On: Wikipedia At 20
https://en.wikipedia.org/wiki/Wikipedia:20th_anniversary
<https://www.esquire.com/uk/culture/a3441278/wikipedia-at-20/>
<https://wikimedia20.pubpub.org/>

What We Know And Can Agree On:
 Wikipedia At 20





6

Fast Forward to 2023...
 "Anyone can now learn anything from anyone at any time."

Learn anything from anyone, anywhere.

Join us! Start learning and discover career choices in your life.

7

Part 2. Technology Today Learning is Changing!

How Online Learning is Changing Classroom Design

8

March 13, 2019
The Career Curriculum Continuum
 Andrew Hermalyn, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/views/2019/03/13/how-universities-can-stay-center-learners-lives-opinion>

MOOCs, YouTube Library, Flipped, Short Courses, Course Shards, Bootcamps, Professional Certificates, Grad & Undergrad Programs

9

February 25, 2020
The 60 Year Curriculum:
 Developing New Educational Models to Serve the Agile Labor Market

Chris Dede, Harvard University, The Evolllution
<https://www.edutopia.com/review-60-year-professional-development-the-60-year-curriculum-developments-the-60-year-professional-development-the-60-year-curriculum>

219: The 60-Year Curriculum with Rovy Bronan
<https://theblinc.com/podcast/219>

10

May 19, 2023
AI in School News

Can GPT-4 and TikTok usher in a new learning frontier?

How schools can respond to ChatGPT with inquiry-based learning

The importance of teaching generative AI

11

May 19, 2023
AI in Higher Ed News


Will advances in AI force a push to oral exams?

Colleges Race to Hire and Build Amid AI 'Gold Rush'

Caught Off Guard by AI


12

July 5, 2024
AI in Education
 Stefanie Panke and Israt Jahan Oeeshi
https://edtechbooks.org/ai_in_education
Educate AI
<https://educ.ai.org/3d-flip-book/educate-ai-magazine-volume-1-issue-2/>



13

May 17, 2023
Workplace AI:
How artificial intelligence will transform the workday
 Casey Noenickx, BBC
<https://www.bbc.com/worklife/article/20230515-workplace-ai-how-artificial-intelligence-will-transform-the-workday>



14

March 7, 2024
UN telecomms agency chief: One third of humanity still offline
<https://news.un.org/en/story/2024/03/1147377>



15

June 7, 2024
AI and the Death of Student Writing
 Lisa Lieberman, Chronicle of Higher Education
<https://www.chronicle.com/article/ai-and-the-death-of-student-writing>



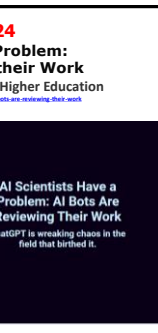
16

June 13, 2024
Professors Ask: Are We Just Grading Robots
 Beth McMurtrie, The Chronicle of Higher Education
<https://www.chronicle.com/article/professors-ask-are-we-just-grading-robots>



17

August 21, 2024
AI Scientists Have a Problem: AI Bots Are Reviewing their Work
 Stephanie M. Lee, The Chronicle of Higher Education
<https://www.chronicle.com/article/ai-scientists-have-a-problem-ai-bots-are-reviewing-their-work>



18

August 6, 2024
There's a Tool to Catch Students Cheating With ChatGPT. OpenAI Hasn't Released It.
 Deepa Setharaman and Matt Barnum, The New York Times
<https://www.nytimes.com/2024/08/06/technology/chatgpt-cheating.html>

19

August 20, 2024
AI pioneers want bots to replace human teachers – here's why that's unlikely
 Annette Vee, The Conversation
<https://theconversation.com/ai-pioneers-want-bots-to-replace-human-teachers-here-why-thats-unlikely-235254>

20

August 14, 2024
Why We Should Normalize Open Disclosure of AI Use
 Chronicle of Higher Education, Marc Watkins
<https://www.chronicle.com/article/why-we-should-normalize-open-disclosure-of-ai-use>

Why We Should Normalize Open Disclosure of AI Use
 It's time we modern faculty student trust through clear, voluntary – not punitive – surveillance.

21

March 28, 2023
Workplace AI could replace equivalent of 300 million jobs – report
 Chris Vallance, BBC
<https://www.bbc.com/news/technology-65102150>

AI could replace equivalent of 300 million jobs – report

22

June 14, 2023
Biggest Losers of AI Boom Are Knowledge Workers, McKinsey Says
 Alexandre Tanzi, Bloomberg
<https://www.bloomberq.com/news/articles/2023-06-14/biggest-losers-of-ai-boom-are-knowledge-workers-mckinsey-says>

AI Will Increase Vulnerability of Most Educated Workforce
 Share of work that can be automated, by education level of employees

Education Level	With generative AI	Without generative AI
Master's, PhD, or higher (10% of workforce)	20%	10%
Bachelor's degree (23%)	18%	10%
Associate's degree (15%)	10%	10%
Some college (22%)	10%	10%
High school diploma or equivalent (24%)	10%	10%
No high school diploma (6%)	10%	10%

Biggest Losers of AI Boom Are Knowledge Workers, McKinsey Says
 • Could add the equivalent of \$2.6 to \$4.4 billion annually
 • May add 0.6% in annual labor productivity growth for 20 years

By Alexander Tanzi
 June 14, 2023 at 12:08 AM EDT

The worldwide boom in generative artificial intelligence will usher in an age of accelerated productivity and greater prosperity for some – and profound disruption for others, primarily knowledge workers, according to a new report by consultants McKinsey & Co.

Generative AI will give humans a new “superpower”, and the economy a much-needed productivity injection, said Lauren Vee, a senior partner at the firm and chair of McKinsey Technology, in the report.

23

January 17, 2024
AIs Enrolling as Students in Michigan University's Experiment
 Lauren Coffey, Inside Higher Ed
 Ferris State University (Artificial Intelligence) Ann and Fry will listen in its online courses before making their way to the classroom, ultimately earning Ph.D.s.)
<https://www.insidehighered.com/news/technology/artificial-intelligence/2024/01/17/ai-enrolling-student-michigan-university>

AIs Enrolling as Students in Michigan University's Experiment
 Artificial intelligence now able to enroll in online courses

24

January 11, 2024
The world's first AI powered course taught completely by AI teachers
 Kevin Hogan, eCampus News
<https://www.ecampusnews.com/innovation-insights/2024/01/11/the-worlds-first-ai-powered-course-taught-completely-by-ai-teachers/>




Innovation Insights
The world's first AI-powered course taught completely by AI teachers?

Kevin Hogan
 January 11, 2024
 Otermans Institute has taken a bold step in transforming the educational landscape as its AI-powered teachers are now teaching an entire 9-lesson course

25

November 30, 2023
Over 1,000 Sun Devils enroll in ASU's generative AI training course
<https://tech.asu.edu/features/ASUFacultyCourse>

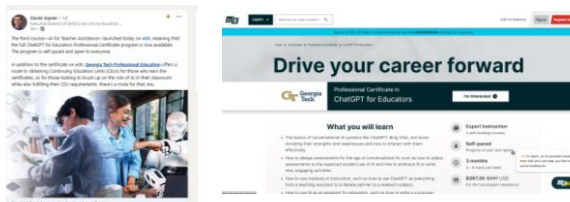


ASU Enterprise Technology

Over 1,000 Sun Devils enroll in ASU's generative AI training course

26

April 19, 2024
Professional Certificate in ChatGPT for Educators
 Georgia Tech
<https://www.edx.org/certificates/professional-certificate/gtc-chatgpt-for-educators>



Drive your career forward
 Professional Certificate in ChatGPT for Educators

What you will learn

- The basic foundations of generative AI (GPT) and how to apply it to your work
- How to use ChatGPT to generate content for your work
- How to use ChatGPT to generate content for your work
- How to use ChatGPT to generate content for your work
- How to use ChatGPT to generate content for your work
- How to use ChatGPT to generate content for your work
- How to use ChatGPT to generate content for your work
- How to use ChatGPT to generate content for your work

27

March 2024
Student affordances to using ChatGPT
 The Educational Affordances and Challenges of ChatGPT: State of the Field
 Helen Crompton and Diane Burke, TechTrends
<https://doi.org/10.1007/s11062-024-00002-9>

Student codes

- 24/7 support and accessibility
- Unlimited access
- Variety of subjects/platforms
- Increased opportunities
- Explain difficult concepts
 - Summaries
 - Provide rationale
- Conversation partner
 - Diverse contexts
 - Customized conversations
- Argument practice
- Personalized feedback and materials
 - Feedback
 - Tailored activities
 - Personalized pacing
 - Personalized materials
 - Recommendations
 - Language assistance

- Writing Support
 - Writing steps
 - Ideas
 - Editing
- Self-assessment
 - Generate outlines
 - Study guides
 - Questions
 - Diagnostic reasoning
 - Detailed responses
- Engagement
 - Facilitate discussions
 - Collaboration
- Facilitate self-determination
 - Sense of control
 - Autonomy over learning
 - Increase efficacy

28

November 13, 2023
Why You Should Rethink Your Resistance to ChatGPT
 Flower Darby, Chronicle of Higher Education
<https://www.chronicle.com/article/why-you-should-rethink-your-resistance-to-chatgpt>




Why You Should Rethink Your Resistance to ChatGPT

How to teach with AI tools to reap that post-faculty concern about what's next?


By Flower Darby

ChatGPT is about as exciting as a Twinkie

With one self-published article, ChatGPT has the attention of educators everywhere. It's not really writing.

29

August 20, 2024
Critical thinking in the digital age of AI: Information literacy is key
 Marc Owen Jones, eCampus News
<https://www.ecampusnews.com/teaching-learning/2024/08/20/critical-thinking-in-the-digital-age-of-ai/>



AI in Education

Critical thinking in the digital age of AI: Information literacy is key

Dr. Marc Owen Jones, Northwestern University in Qatar
 August 20, 2024

With the birth of AI, disinformation has entered a new era, rendering it critical that students possess strong information literacy skills

30

May 24, 2023 AI AI AI

See why AI like ChatGPT has gotten so good, so fast (GPU speed increased)

Pranshu Verma & Kevin Schau, Washington Post

<https://www.washingtonpost.com/business/technology/2023/05/24/ai-ai-ai-gpu-speed-increased/>

GPU cost effectiveness has rapidly increased
This chart shows the median number of operations a GPU can perform per second, divided by the cost of the GPU.

This is a haiku about baseball:

Year	Quote
2018	"It isn't who's going to bat, it's who who doesn't need to bat, he wants the people to who he doing something for wants, rather than because they're being manipulated, they're playing the game"
2019	"Famous Baseball: In the late 19th century the Yankees and his friends had a movement where pitcher Francisco Cabrera came to San Francisco from Texas at the height of what was called the Great Depression."
2023	"It's summer's embrace, bats crack, balls soar through the air, Baseball's timeless grace."

31

May 24, 2023 AI AI AI

See why AI like ChatGPT has gotten so good, so fast

Pranshu Verma & Kevin Schau, Washington Post

<https://www.washingtonpost.com/business/technology/2023/05/24/ai-ai-ai-gpu-speed-increased/>

See why AI like ChatGPT has gotten so good, so fast

A picture of a very clean living room

32

July 4, 2024

Gradually, then Suddenly: Upon the Threshold

Ethan Mollick, One Useful Thing

<https://www.oneusefulthing.org/p/gradually-then-suddenly-upon-the-threshold>

One Useful Thing
Gradually, then Suddenly: Upon the Threshold

April 2022, May 2023, Nov 2022, Dec 2023

33

June 13, 2023

U.S. Department of Educational Technology Artificial Intelligence

<https://tech.ed.gov/>
<https://zoom.us/join/register/WNlAYgSkADnQSS8pckXZVgvw?registration>

Artificial Intelligence and the Future of Teaching and Learning

What is AI?

34

Education 20/20

VISION 20/20
Fulfilling the Promise of Public Education

35

20 New Roles of the Instructor

- Captain
- Course Ambassador
- Consumer Advocate
- Counselor
- Curator
- Cook
- Change Catalyst
- Conductor
- Concierge
- Comedian
- Consultant
- Camping Trip Guide
- Coach
- Community Organizer
- Course Expedition Leader
- Collaborator
- Chemist
- Care Giver
- Cultivator
- Colleague

36



37

Bonk's 20 "Last" Principles of Instruction (LAST = Learning Activation System Template)

<http://traveledman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html>

- Flexibility
- Support and Feedback
- Choice and Options
- Convenience
- Spontaneity
- Nontraditional Learning
- Collegiality
- Organization
- Passion and Inspiration
- Cheerfulness and Optimism
- Sharing
- Relevance and Meaningfulness
- High Expectations
- Purpose and Vision
- Expanded Resources
- Empowerment and Autonomy
- Human Connectedness
- Cognitive Apprenticeship
- Trial and Error (i.e., it is ok to fail)
- #20 ???

38

30+ Ways Learning is Changing: The Mega Trends

39

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

40

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

41

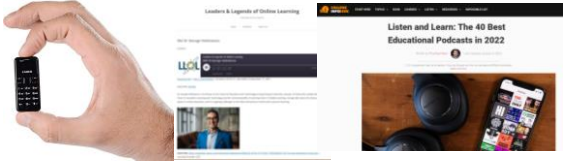
August 27, 2023 Learning is More Social R511 Fall 2023 in Padlet: Introductions: Getting to Know One Another

<https://padlet.com/mhucinar/r511-fall-2023-getting-to-know-one-another-whyhg7azqgkfnm>

42

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

<https://onlinelearningtrends.com/podcast/06-2-dr-george-veletianos/>
 In this episode, Open Polytechnic of New Zealand Executive Director Dr. Mark Nichols chats with Dr. George Veletianos, 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.



43

February 16, 2024
Learning is More Hands-On
Make and Code

<https://www.microsoft.com/en-us/makecode>




44

February 1, 2024
Learning is More Immersive
Friday 5: Virtual Field Trip
Same Bowman, eSchool News

VR experiences can improve inclusion and boost diversity in STEM by giving all students the opportunity to see climate science in action

<https://www.eschoolnews.com/digital-learning/2024/02/01/virtual-field-trips-climate-curriculum/>



Friday 5: Virtual field trips

Virtual Field Trips
 Laura Inocente
 April 26, 2024
 Virtual field trips can often help make tough concepts more engaging and easier to understand

45

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 metaversity includes an immersive solar system.



46

October 31, 2023
Learning is More Immersive

Visible Body Courseware | Interactive 3D Science Content Meets Course Management

Robb Kneebone robb.kneebone@visiblebody.com
<https://www.youtube.com/watch?v=hVZLjABn-PRk>
 Nick Riley ariley@visiblebody.com
<https://www.visiblebody.com/>




47

September 25, 2024
Learning is More Immersive

We tried Meta's AR glasses with Mark Zuckerberg

<https://www.youtube.com/watch?v=mpKKcQWnTus>



Meta's New AR Glasses

48

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



Figure 3. An example of a display studio.

49


February 15, 2023
Learning is More Collaborative
Strong Schools, Afghani Women Asian University of Women
<https://jamsbooks.com/schools/>
<https://ci.uxmnl.181121/Download/Strong-Schools-1674592042.pdf>



50

[Soro](#)

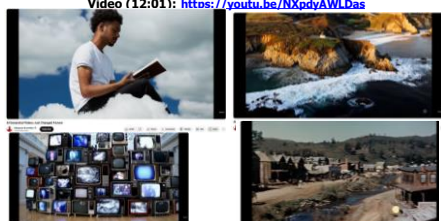
February 20, 2024
Learning is More Visual
Sora: Finally, An AI Video Generator
 Video (3:34): <https://youtu.be/IBx3xW1ua-E>



51

[Soro](#)


February 15, 2024
Learning is More Visual
AI Generated Videos Just Changed Forever
 Video (12:01): <https://youtu.be/NXpdyAWLDas>



52


[Cats in Cathedral](#)

February 16, 2024
Learning is More Visual
A video star is born: OpenAI's Sora stuns with AI act
<https://economictimes.indiatimes.com/tech/technology/a-video-star-is-born-openais-sora-stuns-with-ai-act/articleshow/112755966.cms?from=story-first>
 "a giant cathedral is completely filled with cats. there are cats everywhere you look. a man enters the cathedral and bows before the giant cat king sitting on a throne." Video generated by Sora."



53

February 16, 2024
Learning is More Visual
OpenAI's Video Generator Sora Is Stunning and Utterly Terrifying
Tony Ho Tron, The Daily Beast
<https://www.thedailybeast.com/openai-video-generator-sora-is-stunning-and-utterly-terrifying>



54

February 16, 2024
Learning is More Visual
OpenAI's Video Generator Sora Is Stunning and Utterly Terrifying
 Tony Ho Tron, The Daily Beast
<https://www.thedailybeast.com/openais-video-generator-sora-is-stunning-and-utterly-terrifying>



Photo: Photorealistic claymation video of two woolly mammoths battling each other as they eat inside a top of a cliff.

55

February 16, 2024
Learning is More Visual
OpenAI's Video Generator Sora Is Stunning and Utterly Terrifying
 Tony Ho Tron, The Daily Beast
<https://www.thedailybeast.com/openais-video-generator-sora-is-stunning-and-utterly-terrifying>




Photo: Photorealistic claymation video of two woolly mammoths battling each other as they eat inside a top of a cliff.

56

February 16, 2024
Learning is More Visual
OpenAI's Video Generator Sora Is Stunning and Utterly Terrifying
 Tony Ho Tron, The Daily Beast
<https://www.thedailybeast.com/openais-video-generator-sora-is-stunning-and-utterly-terrifying>




Photo: Animated scene features a close-up of a short fluffy creature kneeling beside a melting and candle. The art style is 3D and realistic, with a focus on lighting and texture. The mood of the lighting is one of wonder and curiosity, as the creature gazes at the flame with wide eyes and open mouth. Its pose and expression convey a sense of innocence and playfulness, as if it is exploring the world around it for the first time. The use of warm colors and dramatic lighting further enhances the cozy atmosphere of the image.

OpenAI

57

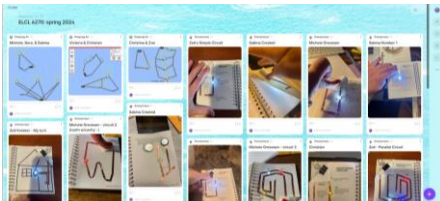
March 21, 2021
Learning is More Digitally Rich
 ELCL 6270: Teaching Physical Science with the STEAM Approach
 Heejung An, William Paterson University
Hands-on, Minds-on, Hearts-on, Social-on: A Collaborative Maker Project Integrating Arts in a Synchronous Online Environment for Teachers
<https://link.springer.com/article/10.1007/s11528-022-00740-x>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



ELCL 6270: Teaching Physical Science with the STEAM Approach


58

February 20, 2024
Learning is More Digitally Rich
 Heejung An, ELCL 6270: spring 2024
 William Paterson University
Hands-on, Minds-on, Hearts-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
<https://doi.org/10.1007/s11528-022-00740-x>



59

February 26, 2024
Tinkering, Making, Sharing, and Reflecting:
A Model for Online Collaborative Project-Based Learning
 Heejung An and Woonhee Sung, EDUCAUSE Review
<https://er.educause.edu/articles/2024/2/tinkering-making-sharing-and-reflecting-a-model-for-online-collaborative-project-based-learning>



EDUCAUSE
 Label Channels Multimedia Editors' Pick
 Cybersecurity as a C
 Thinking, Making, Sharing, and Reflecting Model for Online Learning
 Heejung An and Woonhee Sung, EDUCAUSE Review, 2024

60

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/>

61

SMILE Used Around the World

TIP Conference - Dr. Paul Kim, Trends of AI in Education and New Competencies for the Future

62

Example of asking a Level 1 question (i.e., remembering) and system feedback in the Ask.SMILE system

Ask a question
With the help of GPT-3.5, your question will be evaluated on a scale from Level 1 to Level 5 aligned to Bloom's Taxonomy. What are salt crystals?

What question
This is a level 1 question as it requires simple recall and comprehension of information. The question asks for a definition or description of salt crystals, which can be assessed by providing basic knowledge or research on the topic.

63

September 18, 2024
Generative AI as a Coach to Help Students Enhance Proficiency in Question Formulation: It's Time to SMILE
 (Kim, Wang, & Bonk, in review)

Table 3: Cross-tabulation of Average Level and First Level of User Questions Generated

First Level	Average Question Level					Total
	1	2	3	4	5	
1	486	208	176	45	0	915
2	13	247	110	78	1	449
3	0	29	152	58	0	239
4	0	23	39	242	14	318
5	0	15	76	117	430	638
Total	499	522	553	540	445	2559

64

March 8, 2024
Paul Kim, Stanford
 Cal State Fresno, TIP Conference - Dr. Paul Kim: Trends of AI in Education and New Competencies for the Future
 Video (1:17:03)
<https://www.youtube.com/watch?v=DsUEhxlNku8>
 Keynote ("Trends of AI in Education and New Competencies for the Future") at the Fresno State University event, Exploring Ethical Uses of AI.

65

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


66

October 20, 2022
Learning is More Online
 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-emergency-remote-instruction-led-to-shift-in-university-identity/>
<https://www.insidehighered.com/news/2022/10/20/stanford-report-emergency-remote-instruction-led-to-shift-in-university-identity>



67

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>




68

November 4, 2022
Learning is More Synchronous
 Synchronous hybrid English class for rural Chinese students



69

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>



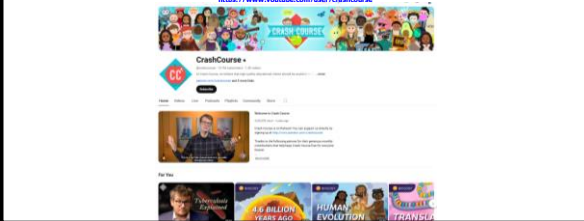
70

August 3, 2024
Learning is More Video-based...
 Preview: US History to 1865 | Study Hall
 YouTube-iversity, ASU
 Susan D'Agostino, Inside Higher Ed
<https://www.insidehighered.com/news/2023/01/25/arizona-state-turns-youtube-reach-learners-margins>
https://www.youtube.com/watch?v=7y0oDkxwJkI&list=PL4D580Gd0d0Ct_0J2T564c4_andr6L_A



71

2024
Learning is More Video-based...
Crash Course
<https://www.youtube.com/user/crashcourse>



72

2024
Learning is More Video-based...
Study Hall
<https://www.youtube.com/@studyhall>

73

July 25, 2024
Learning is More Video-based...
Arizona State U. Takes to YouTube to Offer a Low-Risk Taste of College
Luna Liberte, The Chronicle of Higher Education
<https://www.youtube.com/@studyhall>

Arizona State U. Takes to YouTube to Offer a Low-Risk Taste of College

74

Learning is More Video-based...
Silver Lining for Learning
<https://silverliningforlearning.org/>
<https://www.youtube.com/channel/UC9XEsh89qr1pmVWpQT-aA/live>

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

Episode 139 | Is it Time to Lead or About Time We LED?: Learning Experience Design & Personalized Learning

75

November 12, 2023
Learning is More Video-based...
Pictory
<https://video.pictory.ai/1699816452918/20231112193620090yUhgJNLZR0pp0X>
<https://app.pictory.ai/>

76

August 24, 2022
Learning is More Global
Online Does Not Mean Isolated
Maha Bali, George Station, & Mia Zamora, Inside Higher Ed
<https://www.insidehighered.com/sites/2022/08/24/building-community-online-conferences-events-opinion>

Online Does Not Mean Isolated

77

July 27, 2023
Learning is More Immediate ...Science in the News
46,000-Year-Old Worm Possibly Revived from Siberian Permafrost
Meghan Bartels, Scientific American
<https://www.scientificamerican.com/article/46-000-year-old-worm-possibly-revived-from-siberian-permafrost/>

46,000-Year-Old Worm Possibly Revived from Siberian Permafrost

78

December 24, 2022
Learning is Informal
Will AI change the future of language learning? | ChatGPT
 Grace Guo, Mandarin Chinese, Tom Gally Japanese
<https://www.youtube.com/watch?v=WNfmUG6bVbE>

79

June 17, 2023, YouTubers using ChatGPT
How to MAXIMIZE the use of ChatGPT's current functions to learn Chinese in 2023 (The Ultimate Guide)
 ShuoshuoChinese 说说中文
<https://www.youtube.com/watch?v=TzFepHKifGo>

80

August 12, 2024
Learning is More Open
The Impact of MIT OpenCourseWare
 2023-2024, Academic Year
<https://www.ocw.mit.edu/ocw/2023-24/impact-of-ocw/>

On the OCW publication: **65** new publications in OCW this year

2,539 MIT OpenCourseWare courses

447* MIT OpenCourseWare courses

Open Learning

81

December 17, 2022
Learning is Open
Computer Classes for Rural African Schools
Nelly Cheboi, CNN Hero Award (TechLit Africa--Kenya)
 LinkedIn: <https://www.linkedin.com/in/nelly-cheboi>
 Facebook: <https://www.facebook.com/kosicheboi>

82

February 4, 2022
Learning is More Free and Open
California 2-Year Colleges to Begin \$115M OER Experiment
 Suzanne Smalley, Inside Higher Ed (results in better grades, lower costs)
<https://www.insidehighered.com/news/2022/02/04/california-moves-toward-115-million-oer-experiment>
<https://www.insidehighered.com/news/2022/02/04/california-moves-toward-115-million-oer-experiment>
 The grant program concluded in 2019 and it is anticipated that the 23 community colleges produced 34 Zero Textbook Cost degrees or certificates, saving 23,373 students approximately \$42,912,238 in textbook costs resulting in an 85% ROI (return on investment) from the original \$5 million invested by the CA Community College Chancellor's Office.

California 2-Year Colleges to Begin \$115M OER Experiment

Newsom calls textbooks "rocket," proposes money to create free ones

83

Introducing the TEC-VARIETY Model
<http://tec-variety.com/>
<http://tec-variety.com/TEC-VARIETY-Chinese.pdf>
 Free book available: <http://hdl.handle.net/11599/4481>

Tone/Climate
Encouragement, Feedback
Curiosity

Variety
Autonomy
Relevance
Interactive
Engagement
Tension
Yields Products

Motivating and Supporting Online

84

September 2022
Learning is More Free and Open
Commonwealth of Learning

Khoo, E., & Bonk, C. J. (2022). *Motivating and Supporting Online Learners*. Burnaby, BC, Canada: Commonwealth of Learning. *Free book available:*
<http://hdl.handle.net/11559/4481> and free course available:
<https://colcommons.org/wslcom/course/details/8>; <https://www.cohce.org/>



Motivating and Supporting Online Learners

85

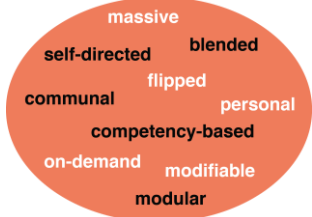
Special Issue on Online Learning Research

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: <http://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)



86


How Learning is Changing:
Mega Trend #3. Customization



87

June 26, 2024
Learning is More On Demand
Hologram in this hospital allows doctors to 'teleport' to meet patients

A newly installed holographic display in Crescent Regional Hospital in Lancaster, Texas, is allowing doctors to meet with patients in real-time and helping them reduce travel time. **CNN affiliate WFAA has more.**
CNN
<https://www.cnn.com/2024/06/26/us/realtime-hologram-wfaa-doctors-patients-remote-visit-aha-congress/index>




88

Learning is More On Demand
AI Tutor Pro, Contact North
<https://www.aitutorpro.ca/>



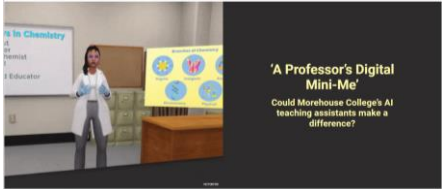
89

Learning is More On Demand
AI Teaching Assistant Pro, Contact North
<https://www.aiteachingassistantpro.ca/>



90

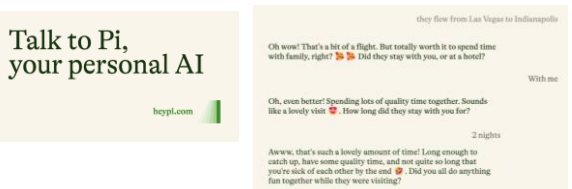
July 10, 2024
Learning is More On Demand
'A Professor's Digital Mini-Me'
 Alex Walters, The Chronicle of Higher Education
<https://www.chronicle.com/article/a-professors-digital-mini-me>



'A Professor's Digital Mini-Me'
 Could Morehouse College's AI teaching assistants make a difference?

91

May 25, 2023
Learning is More On Demand
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

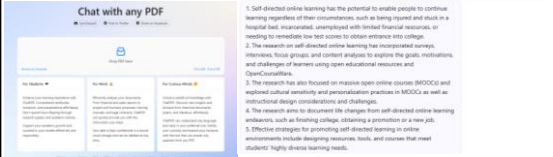
Awww, that's such a lovely amount of time! Long enough to catch up, have some quality time, and not quite so long that you're sick of each other by the end. 🤗 Did you all do anything fun together while they were visiting?

92

May 25, 2023
Learning is More On Demand
Chat with any PDF
<https://www.chatpdf.com/>

On the Trail of Self-Directed Online Learners

RONN Foster of Education Week | 11.06.23
 At The July 2023 EDUCAUSE conference, I met with...
<https://www.edweek.org/technology/2023/07/11/chatpdf-is-a-game-changer-for-self-directed-online-learners>



1. Self-directed online learning has the potential to enable people to continue learning regardless of their circumstances, such as being injured and stuck in a hospital bed, marginalized, unemployed with limited financial resources, or needing to immediately low test scores to obtain entrance into college.

2. The research on self-directed online learning has concentrated on entry, retention, social growth, and content analysis to explore the goals, motivations, and challenges of learners using open educational resources and OpenCourseWare.

3. The research has also focused on massive open online courses (MOOCs) and explored cultural learning and personalization practices in MOOCs as well as instructional design considerations and challenges.

4. The research aims to document life changes from self-directed online learning experiences, such as finding college, obtaining a promotion or a new job.

5. Effective strategies for promoting self-directed learning in online environments include developing resources, tools, and courses that meet students' highly diverse learning needs.

93

June 24, 2024
Learning is More Modifiable
Floating schools:
Adaptive and Mobile Learning Environments



Climate change is exacerbating flooding in waterlogged Bangladesh. Already, hundreds of schools get wiped out during the monsoon season. Mohammed Rezaan builds floating schools, healthcare facilities and libraries. "If 20 percent of the land goes under water, which may happen in the next 10 to 20 years, where will these people go? We don't have enough space, enough land. People have to live on the water in some way."

https://www.youtube.com/watch?v=hLyKNcd_NI
<https://www.getsmart.com/2024/06/24/floating-innovative-adaptive-and-mobile-learning-environments/>



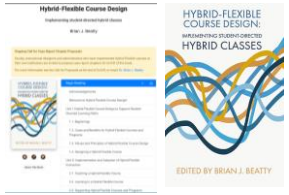

94

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/news-notre-dame-on-blend-of-live-and-remote-learning/>

95

June 17, 2021
Learning is More Blended
Free Book: Hybrid-Flexible Course Design (HyFlex Teaching)
<https://edtechbooks.org/hyflex>

96

Learning is More Self-Directed

The LMS Market is Quickly Losing Ground

Carol Leaman, CLO

<https://www.openlearning.com/>
<https://www.openlearning.com/>

97

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>

98

Wanted:

Billions of Self-Directed Learners

<https://www.goopenmasters.in/article/training-development/the-use-of-self-directed-learning-to-a-new-role-and-strategy-24348>

99

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

100

January 31, 2023

Learning is More Modifiable

Mosaic Active Learning Classrooms at IU

Mosaic

101

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 stereotype with a daily, synchronous online remote education debate topics that often aren't discussed in schools—things like "Will the Fed be able to control inflation?"

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

WSJ OPINION

102

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/>



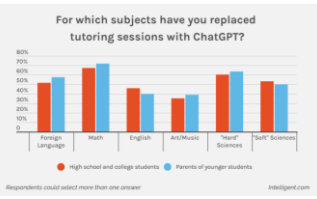
In general, do you believe studying with a tutor or studying with ChatGPT is more effective?

Group	ChatGPT is more effective	Tutors are more effective
High school and college students	~85%	~15%
Parents of younger students	~10%	~90%

103

May 15, 2023
New survey Finds Students are Replacing Human Tutors with ChatGPT
 Intelligent

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




When asked why they have chosen to replace tutoring sessions with ChatGPT, respondents offered the following:


- "Kids love it, it's cheap."
- "My children prefer to use the software for oral practice, and the results are much better."
- "Because ChatGPT is better able to know what I need, what my weaknesses are, and what I need to strengthen."
- "Because ChatGPT can not only save on study expenses, but also save on time."

104

June 6 and 27, 2022
Learning is More Modular
Microcredentials and Certificates
 Susan Manning, Ed.D, Director of Customer Education, Credly, eSchool News
<https://www.ecampusnews.com/2022/06/06/the-macro-impact-of-microcredentials/>
<https://learn.ganowbe.com/about>




3 reasons microcredentials are poised to go mainstream



105

August 3, 2023
Learning is More Modular
Stacking Certificates and Degrees
 Lindsay Dougherty, Inside Higher Ed
<https://www.ecampusnews.com/2022/12/26/closing-the-skills-gap-with-microcredentials>




Preferred education option (six months)

Option	Percentage
Skills training	37%
Nondegree credential	29%
Associate degree	12%
Bachelor's degree	16%
Graduate degree	10%

106

August 27, 2020
Learning is More Modular
Alternative Credentials on the Rise
 Paul Fain, Inside Higher Ed
<https://www.insidehighered.com/news/2020/08/27/interest-spike-short-term-online-credentials-will-it-be-sustained>



While still a small share, undergraduate nondegree/certificate programs will likely remain a fast-growing market segment index 2012 = 100

Year	Short-term Certificate	Non-Degree Certificate	Degree Certificate	Certificate
2012	100	100	100	100
2013	105	105	105	105
2014	110	110	110	110
2015	115	115	115	115
2016	120	120	120	120
2017	125	125	125	125
2018	130	130	130	130

Sources: Moody's, U.S. Department of Education

107

December 14, 2021
Learning is More Massive
A Decade of MOOCs: A Review of MOOC Stats and Trends in 2021
 Dhawal Shah, Class Central
<https://www.classcentral.com/report/mooc-stats-and-trends-2021/>



Number of courses

Year	Number of Courses
2012	~10
2013	~20
2014	~40
2015	~70
2016	~100
2017	~130
2018	~160
2019	~190
2020	~220
2021	~250
2022	~280

108

February 1, 2021
Learning is More Massive
Yale is offering its highly popular 'happiness' course to high school students for free
 By Marika Gerken, CNN
<https://www.cnn.com/2021/02/01/us/yale-happiness-course-trnd-wellness/index.html>
(3.4 million enrolled, 28,500 reviews)

Yale is offering its highly popular 'happiness' course to high school students for free

3 things I loved about The Science of Well-Being, the free online version of Yale's most popular class ever

109

Baman Kumar Ghimire and Bishwa Raj Gautam, 2020
Greetings from Nepal, Baman Kumar Ghimire
 Teacher, Motherland Secondary School, Pokhara
 I held a workshop in a school about 70 students of age 13-15. I was excited to learn that in less than 8 months 78 students of age 10-15 from that school completed at least a MOOC.

110

Participant #1(boy, grade 10)

(72 courses so far, mostly from Coursera. A Grade 10 student from a public school where English is taught only for about 3 hours a week. He blends games into any course he finds suitable preferably for learning English.

From Coursera.org

1. English For Science, Technology, Engineering and Mathematics
2. Understanding research methods
3. What Future For Education?
4. Social Norms, Social Change?
5. Stanford Introduction to Food and Health
6. Letter and the World
7. Power Onboarding
8. Health: More than just an elective record
9. Improving your statistical inferences
10. Global Health Policy
11. English for Marika Library
12. Code: Visual An Introduction to Programming
13. Behavioral Finance
14. English for Americans
15. Teach English Now! Teaching Language Online
16. Creative Thinking: Techniques and Tools For Success
17. Economic Growth and Distribution Justice Part 1: The Role of the state
18. Transmedia Storytelling: Narrative Worlds, emerging technologies, and digital audiences
19. Introduction to Global Identity
20. Introduction to Psychology
21. Nanotechnology and Nanoparticles, Part I
22. Assessment Part Learning
23. Big History: Connecting Knowledge
24. The Science of Sleep Cycle

RECT 21

111

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/2023/03/23/famous-stanford-online-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

(Clockwise from left) Stanford faculty Chris Piech and Mehran Sahami and senior lecturer Julie Zaretskiy 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 Brinkhoff)

112

January 20, 2022
Arizona State University Announces Effort To Educate 100 Million Students Worldwide
 Michael T. Nietzel, Forbes
 Video (2:07): https://vimeo.com/667987472?m=embed&utm_source=vimeo_log&owner=13433234
<https://dunderbird.asu.edu/life-long-learning/100-million-learners>

- 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

113

MOOC books (2020) and (2015)

114

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

115



116

Part 3. Technology Tomorrow

http://www.huffpost.com/entry/macie-boutin/education-for-the-future-learn_b_164927356.html

117

Poll: Is this an Evolution or Revolution?

118

We are entering a jumping off point...

(South China Normal University)

119

Things are heating up!

120

The Learning Revolution is coming within reach!



121

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

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



122

Closing questions...?



123

Any Questions or Comments?

Slides at: TrainingShare.com (go to "Archived Talks")

Papers: PublicationShare.com

Free book: <http://tec-variety.com/>

Email: cjbonk@indiana.edu



124