


Talk Overview

1. The Evolution of Learning Technology
2. Education 20/20 and the Role of the Instructor
3. First and Last Principles of Instruction
4. Megatrends of Learning: Engagement, Access, and Customization (30 ways that learning is changing...)
5. Future Trends and Ideas

A graphic titled "PERSONALIZATION" in a blue box. Below the title are several circular icons representing different concepts: a lightbulb, a gear, a person, a network of dots, a book, a play button, a speech bubble, a magnifying glass, a person with a gear, a person with a lightbulb, a person with a gear, a person with a lightbulb, a person with a gear, a person with a lightbulb. At the bottom are four stylized human figures in various colors (brown, blue, green, red) representing diverse learners.

April 30, 2017

Education 1.0

‘Those Jobs Are Gone’

Steve Kolowich, The Chronicle of Higher Education

<http://www.chronicle.com/Article/Six-to-Sixty-a-Downside-to-22295>

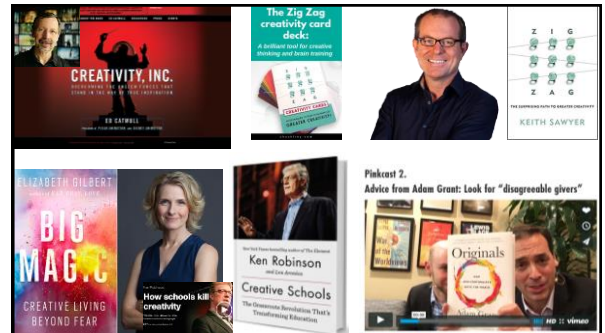
‘Those Jobs Are Gone’
By Steve Kolowich | APRIL 27, 2017 | 4:00PM

A **60-second video** released last week by the Office of the President of the University of Illinois at Chicago, featuring the office’s group of 60-year-old women, is making its way between columns and screens, being reposted on Facebook, being shared on Twitter, and being tweeted, but almost being lost to the Internet’s forgetfulness.

There is a lot to be gained, and the video is a gift, for employers, and the video is brilliant.

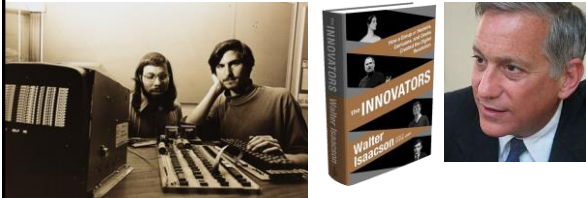
Ms. Wilkins, a research scientist at the Neuroscience Institute of The University of Illinois at Chicago, has been collecting data on the capabilities of women for years. She is a member of the Society for the Study of Women in the Workplace, and she is a member of the Society for the Study of Women in the Workplace.

PHOTO COURTESY OF THE UNIVERSITY OF ILLINOIS AT CHICAGO



The Innovators:
How a group of hackers, geniuses, and geeks
created the digital revolution. New York: Simon
& Schuster.
Walter Isaacson (2014)

<http://books.amazon.com/author/author/B00147X208000>



Machines of Loving Grace:

The Quest for Common Ground Between
Humans and Robots. HarperCollins.
John Markoff (2015)

<http://www.amazon.com/Machines-Loving-Grace-Common-Ground/dp/B002264682>



Part 1: Technology Yesterday



Poll: Remember Education 1.0

1728: 1st correspondence course advertised Boston

(learn shorthand from Caleb Phillips thru weekly mailed lessons)

The First University Correspondence Course
(University of London, External Program, 1858)

1728-1990s – Generally postal system based



Fall 2014, On Wisconsin MOOC, Meet MORC (Massive Open Radio Course)

WHA, UW Madison, College of the Air, 1933,
Vocational Training dedicated to Agriculture,
and later Home Economics and Typing



MOOC, Meet MORC



Mimeograph machine.

Artificial Intelligence John McCarthy, Stanford AI Lab

<http://www.stanford.edu/ai/ai-lab/ai-lab-history/ai-lab-history-1955-1960>

John
McCarthy

- 1955: Develop the phrase "Artificial Intelligence"
- 1959: Programs with Common Sense
- 1960: First LISP implementation
- 1971: Turing Award Recipient



March 14, 2016 Artificial Intelligence and Robots Paul Basken, The Chronicle of Higher Education

<https://www.chronicle.com/article/Artificial-Intelligence-and-Robots/235000>

Behind a Computer's Surprise Victory,
Hints of Global Economic Upheaval



Forget the robots — here come the geniuses!



June 3, 2017 How PLATO changed the World...in 1960 Cait Etherington, ElearningInside News

<https://news.elearninginside.com/how-plato-changed-the-world-in-1960/>

PLATO was the first general-purpose computer-based instruction system. Starting in 1960, it ran on the University of Illinois' SILLAC-1 computer. By the late 1970s, it supported several thousand graphics terminals distributed worldwide, running on nearly a dozen different networks: mainframe computers, heavy modern computers, multi-user computing were originally developed on PLATO, including forums, message boards, online testing, e-mail, chat rooms, picture languages, instant messaging, remote screen sharing, and multiplayer games.



The World of Open Education



Intelligence Augmentation and Amplification Douglas Engelbart's "The Mother of All Inventions" (1968) Augmentation Research Center (ARC)

(The live demonstration featured the introduction of the computer mouse, video conferencing, teleconferencing, hypertext, word processing, hypermedia, object addressing and dynamic file linking, bootstrapping, and a collaborative real-time editor.)

<http://www.stanford.edu/ai/ai-lab/ai-lab-history/ai-lab-history-1955-1960>

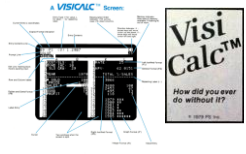


Engelbart's prototype
of a computer mouse,
as designed by Bill
English from
Engelbart's sketches.



May 22, 2019

Story #1: VisiCalc (a boring accountant)
How computing's first 'killer app' changed everything
Tom Harford, BBC News
<https://www.bbc.com/news/business-47802280>



Dan Bricklin, inventor of the first computer spreadsheet

Poll: Anyone remember these technologies?



Story #2: The Zip disk dissertation...
10 ed-tech tools of the 70s, 80s, and 90s
eSchool News, Meris Stansbury
<http://www.eschoolnews.com/2013/05/10/10-ed-tech-tools-of-the-70s-80s-and-90s/print/>

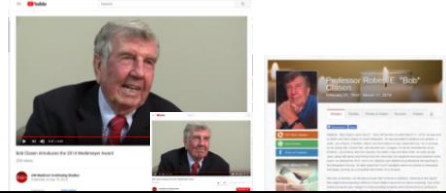


March 17, 2018

Story #3: To a product of distance learning...
Bob Clasen, University of Wisconsin
https://www.youtube.com/watch?v=kCmL_MGajec&feature=youtu.be

February 27, 1934-March 17, 2018

<https://www.crosscountrynews.com/news/289339/Robert-Clasen/>



Knowledge Navigator (1987)
Apple Computer
<http://www.youtube.com/watch?v=3b84rEw6ac>



September 26, 2018

Story #4: Remember Education 2.0?
The rise and fall of the company behind 'Reader Rabbit' and all your favorite educational games
Abigail Cain, The Outline
<https://www.youtube.com/watch?v=a-Nh58BIIk>

Rocky's Boots: <https://www.youtube.com/watch?v=a-Nh58BIIk>

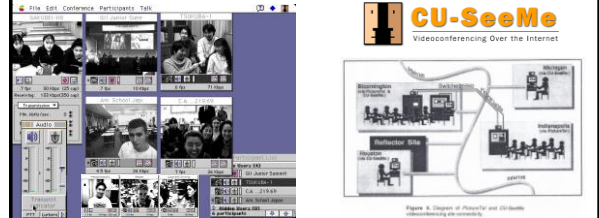
Project YES (Curt Bonk): <https://youtu.be/bZDSmQH4Ug>



1995 Story #5: A nice day on Nicenet http://etec.ctit.ubc.ca/510wiki/A_Nicenet_Approach



April 22, 2019 Story #6: CU-SeeMe Innovations <http://www.umich.edu/~comm464/virtcomm/mingchen/>



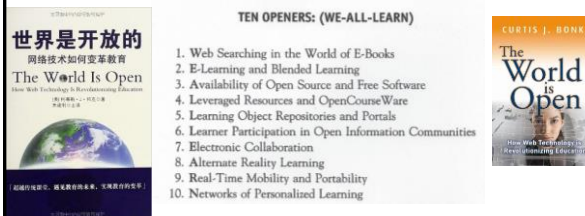
Fast Forward 30+ Years... "Anyone can now learn anything from anyone at any time."



March 6, 2019 Sharing Courses Far and Wide Mark Lieberman, Inside Higher Ed <https://www.insidehighered.com/digital-learning/article/2019/03/06/cu-see-me-revisited>



The World is Open: How Web Technology Is Revolutionizing Education



Education 3.0...Education 20/20



"In Education 3.0, classrooms would move away from lectures, such as this one, to having class time be spent on discussions and projects, using digital technology."
(Per Wikipedia: https://en.wikipedia.org/wiki/Education_3.0)

March 29, 2017

Every industrial robot takes up to 6 jobs, study finds

Steve Goldstein, MarketWatch

<http://www.marketwatch.com/story/ever-6-jobs-study-finds-2017-02-29>

Video: 1:46 <http://curtbonk.com/futureandroids.html>

Video: 49-1:12: <http://curtbonk.com/futureandroids2.html>

Video: 01 to 49: <http://curtbonk.com/futureandroids3.html>

Video: 01-25: <http://curtbonk.com/futureandroids4.html>

Every industrial robot takes up to 6 jobs, study finds



January 14, 2016

The Fourth Industrial Revolution: What it means, how to respond

Klaus Schwab, Founder and Executive Chairman, World Economic Forum

<https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>
(big data, mobile supercomputing, artificially intelligent robots, self-driving cars, neuro-technological brain enhancements, genetic editing, etc.)

<http://www.trainingshare.com/fourth-industrial-revolution-video-clip-short-1.php>



Navigating the next industrial revolution

Revolution	Year	Information
1	1784	Steam, water, mechanical production equipment
2	1870	Division of labour, electricity, mass production
3	1969	Electronics, IT, automated production
4	?	Cyber-physical systems



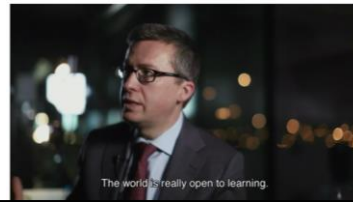
April 13, 2016

The Fourth Industrial Revolution: What it means, how to respond

Klaus Schwab, Founder and Executive Chairman, World Economic Forum

<http://trainingshare.com/fourth-industrial-revolution-video-clip.php>

<http://www.tubechop.com/watch/8280981>



The world is really open to learning

August 21, 2016

ST Future Economy Roundtable: Is Asia ready for the Fourth Industrial Revolution? The Straits Times

<http://www.straitstimes.com/asia/is-asia-ready-for-the-fourth-industrial-revolution>



"It's quite clear that the established models of education have to change and adapt to the new environment."

July 11, 2017

The Rise of the Phigital Learner

Going 'phigital'? 4 things schools need to know about Generation Z, Todd Kominak, TrustEd

<http://trusteds12.com/phigital-digital-learning/>

May 15, 2017

3 must know's about the rising "phigital" student-and why their impact is enormous, Meris Stansbury, eCampus News

<https://www.ecampusnews.com/meris-stansbury/education/goe-what-education/>



Clearly... Learning is Changing!



How Online Learning is
Changing Classroom Design



Education 20/20



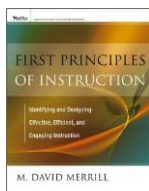
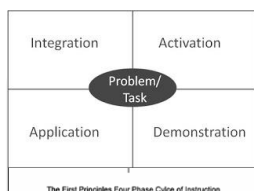
20 New Roles of the Instructor

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



Merrill's First Principles of Teaching/Instruction

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



Bonk's Last Principles of Teaching/Instruction (Education 4.0?)

<http://travellinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html>
<http://www.apnicad2016.com/articles/education-4-0/>



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

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

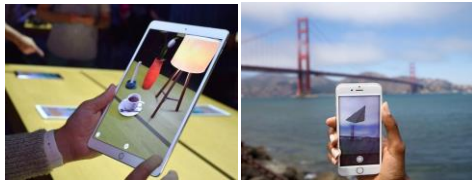
Flexibility Support and Feedback Choice and Options
Convenience Spontaneity Nontraditional Learning
Collegiality Organization Passion and Inspiration
Cheerfulness and Optimism Relevance and Meaningfulness
High Expectations Purpose and Vision Expanded Resources
Empowerment and Autonomy Human Connectedness #20 ???
Cognitive Apprenticeship

20. ??? (what is missing)

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



Part II. Technology Today



ARKit lets you create immersive augmented reality experiences on iOS devices. (Photo: Wearable)

December 13, 2018 In China's Silicon Valley, Edtech Starts at the 'MOOC Times Building'

Jeffrey R. Young, EdSurge

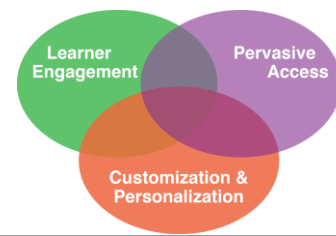
<https://www.edsurge.com/news/2018-12-13-in-china-s-silicon-valley-edtech-starts-at-the-mooc-times-building>



90+ ED TECH COMPANIES WRITING THE FUTURE OF EDUCATION



30+ Ways Learning is Changing: The Mega Trends



Thirty Ways Learning is Changing...

(i.e., it's more informal, video-based, ubiquitous, collaborative, self-directed, global, mobile, open, massive, etc.)



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



July 17, 2017 Learning is More Collaborative

Buildings That Foster Collaboration,
Lawrence Blumler, The Chronicle of Higher Education

<https://www.usatoday.com/story/money/2017/07/20/stocks-new-highs/49695503/>

Buildings That Foster Collaboration



Social spaces, like this one in an interdisciplinary-science building at Arizona State U., don't qualify for federal reimbursement of research-overhead costs. So now "we don't build any single-purpose space," says the university architect.

January 3, 2018 Learning is More Mobile CES 2018: Your guide to the biggest consumer electronics show USA Today

<https://www.usatoday.com/story/tech/news/2018/01/03/ces-2018-what-to-see-at-the-biggest-consumer-electronics-show/3300738001/>



The Octopus watch from Joy, an icon-based watch for kids to have good habits is on display during CES.



August 4, 2017 Learning is More Mobile When our smartphones leave us out of touch Brett Molina, USA Today

<https://www.usatoday.com/story/tech/news/2017/08/04/when-our-smartphones-leave-us-out-of-touch/501962002/>



October 8, 2018 Learning is More Social First look: Facebook unveils Portal video calling devices for the home with Alexa Edward C. Baig, The USA Today

<https://www.theverge.com/2018/10/8/18040000/facebook-portal-video-calling-devices>

Video (3 minutes) <http://courtbook.com/facebook-portal.html>

<https://www.usatoday.com/story/tech/2017/10/17/youtube-takes-on-facebook-mobile-tv/37566592/>



July 24, 2018
Learning is More Digital and Resource Rich
This Physicist Wants Female Scientists To Get Noticed.
So She Wrote 270 Wikipedia Profiles.
Jenna Amatulli, Huffington Post

<https://www.huffpost.com/entry/scientist-wants-270-wikipedia-profiles-to-get-noticed-so-she-wrote-270-wikipedia-profiles>



August 8, 2017
Learning is More Game-like
ShortSims

<http://www.shortsims.com/>
 Clark Aldrich clark@clarkaldrichdesigns.com



July 19, 2017
Learning is More Immersive
HoloLens Assists in Live Surgery
Tommy Palladino, Next Reality

<https://hololens.reality.news/news/hololens-assists-in-surgery-9178887/>
 Video #1: 1:09: <http://curtbonk.com/hololens.html>
 Video #2: 1:37: <http://curtbonk.com/hololens2.html>

07/19/2017
 Numerous examples exist of doctors and surgeons using HoloLens to plan surgeries. The device has even been used to view reference images during a procedure and stream it to a remote audience. Until recently, it has not been used to augment the surgeon's view of the patient during a live surgery.
 Original Video: <https://hololens.reality.news/news/hololens-assists-live-surgery-9178887/>



July 17, 2017
Learning is More Immersive
Learning Chemistry in Virtual Reality,
Sarah Hardman, New Learning Times

<https://newlearningtimes.com/learning-chemistry-in-virtual-reality-91442/>
 1:38 video: <https://curtbonk.com/chemistry-vr-3.html>
 All: <http://curtbonk.com/chemistry-vr.html>
 01:40: <http://curtbonk.com/chemistry-vr-2.html>
 1:38-1:50: <http://curtbonk.com/chemistry-vr-3.html>



May 1, 2018
Learning is More Immersive
3 ways districts can use AR and AI
Justin Anglio, eSchool News

<https://www.eschoolnews.com/2018/05/01/3-ways-districts-can-use-ar-and-ai/>



When a teacher glances around her classroom, Lumilo allows her to see real-time analytics (in the form of icons) floating directly above each student's head. The teacher can glance directly at a student or "click" on a student's icon to see more detailed information about where and how that student might be struggling.

May 18, 2017
Learning is More Immersive

Google Expeditions Adds Augmented Reality for Classrooms, Sri Ravipati, THE Journal
<https://thejournal.com/articles/2017/05/18/google-expeditions-adds-augmented-reality-for-classrooms.aspx>
<https://www.youtube.com/watch?v=DYqJaMWTVg>
 27 seconds <http://curtbonk.com/thejournal27.html>
 38 Seconds <http://curtbonk.com/thejournal38.html>
 1: 10: <http://curtbonk.com/thejournal1.html>



May 28, 2019

Learning is More Immersive

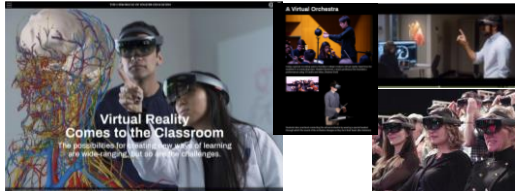
Virtual Reality Comes to the Classroom

Beth McMurtrie, The Chronicle of Higher Education

<https://www.chronicle.com/article/virtual-reality-immersive-class/24130528>

A virtual-reality experience for students in a conducting class: <http://cutipunk.com/virtual-4.htm>

A group of students could gather around a virtual heart: <http://cutipunk.com/virtual-5.htm>



How Learning is Changing:

Mega Trend #2. Pervasive Access

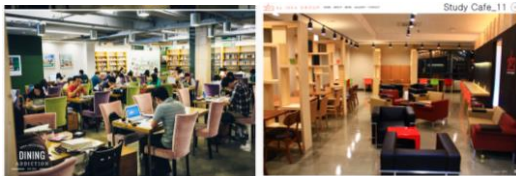


August 1, 2016 (Access)

Learning is More Ubiquitous

363 by Idea Group; Study Café Meeting Place; Idea Space (Seoul, Korea)

http://363.co.kr/wp/?w_sallery=study-cafe_11



April 16, 2018

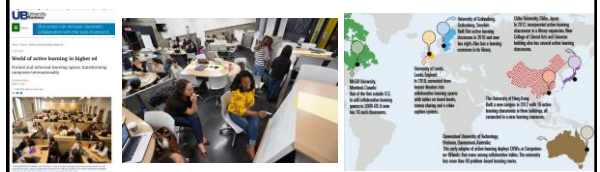
Learning is More Informal

World of active learning in higher ed

Formal and informal learning spaces transforming campuses internationally

Sherrie Negrea, University Business, May 2018

<https://www.universitybusiness.com/article/world-active-learning-higher-ed>



April 22, 2018

Learning is More Visual

Microsoft AI Commercial ft. Common

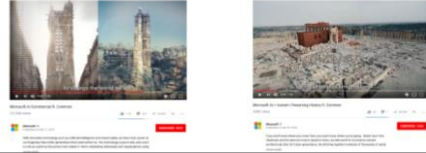
Video 1:00: Microsoft AI Commercial ft. Common: <https://www.youtube.com/watch?v=9uac721hnd4> (Feb 11, 2018)

Video 1:46: Microsoft AI: Amplifying Human Ingenuity: <https://www.youtube.com/watch?v=C3H0mU7Z5NP6>

Video 1:00: Microsoft AI: Empowering Innovators ft. Common: <https://www.youtube.com/watch?v=250M0dR1W> (April 22, 2018)

Video 1:50: Microsoft AI + Icones: Preserving History ft. Common: <https://www.youtube.com/watch?v=ZD2ja1h4d5M> (April 22, 2018)

Video 0:44: Microsoft AI + The Yield: Taking the guesswork out of farming ft. Common: <https://www.youtube.com/watch?v=7zauf6t8t8e> (April 22, 2018)



November 20, 2018

Learning is More Video-based...

The Mantis Cam Gives Us a Peek into a Whole New Ocean World

Melanie Hering, New Learning Times

The Mantis Cam Gives Us a Peek into a Whole New Ocean World

October 2018



You might like



March 21, 2018 (Engagement) Learning is More Global

Chatterbox

The overall winner in the competition was [Chatterbox](#), an online language school powered by refugees

<https://www.chatterbox.org/>

<https://www.youtube.com/watch?v=-S-5FwPFOk>



November 19, 2015 (Access) Learning is More Immediate...

New daddy longlegs named after 'Lord of the Rings' character Smeagol, Mary Bowerman, USA Today

<http://www.usatoday.com/story/tech/2015/11/19/new-daddy-longlegs-named-after-lord-of-the-rings-character-smeagol/7451734/>



November 28, 2018 Learning is More Immediate... 'Siberian unicorn' once walked among early humans Tara John, CNN

<https://www.cnn.com/2018/11/27/europe/siberian-unicorn-humans-science/index.html>



October 4, 2018 (Engagement) Learning is More Synchronous

Shindig, Future Trends Forum, Bryan Alexander

[Anant Agarwal](#), CEO and founder of edX

<https://bryanalexander.org/the-future-trends-forum/>

<http://www.shindig.com/>

<https://shindig.com/client/client/?event=ftf-agarwal>



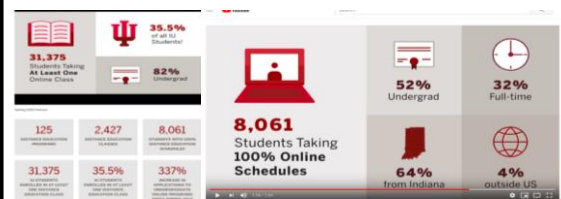
July 29, 2018 Learning is More Synchronous Why Silicon Valley is teaming up with San Quentin to train young people to code Jessica Guynn and Megan Diskin, USA TODAY

<https://www.usatoday.com/story/tech/2018/07/25/california-youth-learning-code-prison-help-san-quentin-jonathan/810122002/>

Video (1:46) <http://courtsbook.com/san-quentin.html>



February 4, 2019 Learning is More Online (Access) Indiana University, Office of Online Education

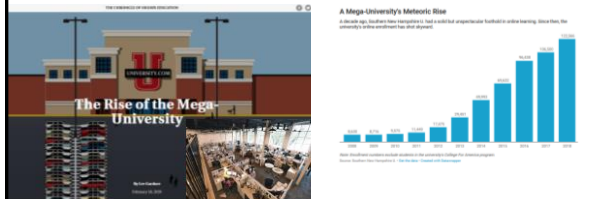


*Starting in fall 2017, ACP students are excluded from this total.

As of Spring Semester 2018

February 18, 2019

The Rise of the Mega-University

Lee Garner, The Chronicle of Higher Education
<https://www.chronicle.com/interactives/Trend19-MegaU-Main>

July 29, 2018

Learning is More Online

Can a Huge Online College Solve California's Work-Force Problems?

Karin Fischer, The Chronicle of Higher Education

<https://www.chronicle.com/article/Can-a-Huge-Online-College/244054><http://curtbonk.com/link>

Can a Huge Online College Solve California's Work-Force Problems?

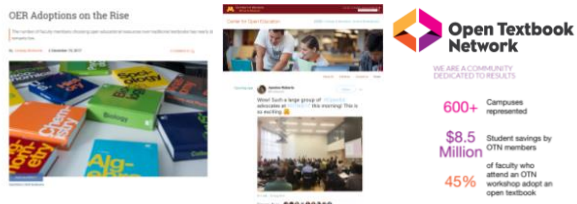


The new college is being created to help California's adults improve their job prospects in growing fields like IT support.

March 19, 2018

Learning is More Free and Open
Open Textbook Network

Center for Open Education, University of Minnesota

<http://research.coe.edu/ota/>

March 6, 2019

Learning is More Free and Open

The high cost of college textbooks, explained

Gabby Del Valle, The Chronicle of Higher Education

<https://www.chronicle.com/article/The-high-cost-of-college-textbooks-explained/244054><https://u.ph.unimelb.edu.au/textbooks101/front-matter/introduction/><https://u.ph.unimelb.edu.au/textbooks101/>

The high cost of college textbooks, explained

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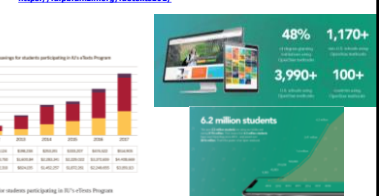
The high cost of college textbooks, explained

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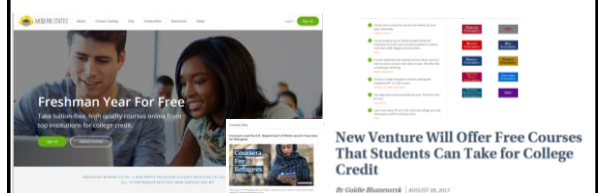
May 19, 2016 (Access)

Learning is More Free and Open
From MOOC to bootcamp to MIT

(Jin Wu—from MITx to MIT Global Entrepreneurship Bootcamp to master's student)

<http://news.mit.edu/2016/mooc-bootcamp-mit-0514>

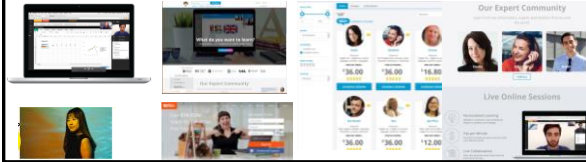
August 9, 2017

Learning is More Free and Open
Modern State Education Alliance<https://modernstates.org/>

March 21, 2018**Learning is More Direct from Experts****TeachMeNow and VIPKid**

TeachMeNow is a gig-economy platform for teachers. This marketplace connects teachers, experts, and mentors to students. The technology combines scheduling, payments and live virtual sessions that can connect on any device. Allows tens of thousands of teachers to create their own online businesses, with some earning over \$100,000 last year. In addition, schools and companies including Microsoft use TeachMeNow software to create their own branded online learning communities.

<https://teachmenow.com/>

**September 25, 2017****Learning is More Direct from Experts****Professors Have Taken Over the MOOCs:****How open online learning is changing****Joshua Kim, Inside Higher Ed**

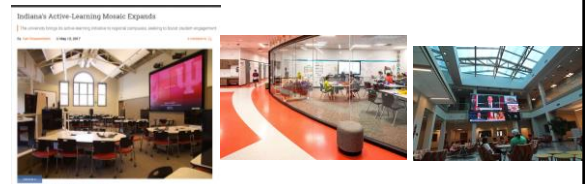
<https://www.insidehighered.com/blogs/technology-and-learning/professors-have-taken-over-moocs>



How Learning is Changing: Mega Trend #3. Customization

**May 12, 2017 (Customization)****Learning is More Modifiable**

The Future of Collaboration Spaces Encompasses Video Interactive, Mobile, Julie Johnston, IU, Campus Technology

**January 9, 2017****Learning is More On Demand**

Jill Watson, Round Three, Georgia Tech course prepares for third semester with virtual teaching assistants, Jason Maderer, Georgia Tech News Center

The Terribly Thin Conception of Ethics in Digital Technology, David Golumbia, Uncomputing

<http://www.uncomputing.org/>

Bot teacher that impressed and fooled everyone, Donald Clark, Plan B

<http://www.chronicle.com/article/What-I-Learned-When-My/243017>

**April 8, 2018****Learning is More On Demand****What I Learned When My Students Used Google Translate**

Diane Loyet, The Chronicle of Higher Education

<https://www.chronicle.com/article/What-I-Learned-When-My/243017>

- I was very surprised by the results. They sent me examples of translations into English from Albanian, Chinese, Kazakh, Russian, and Spanish. **The translations from Albanian, Kazakh, Russian, and Spanish were good. They were not perfect, but the mistakes were such that, had I encountered the sentences in a student paper, I would have attributed them to grammatical errors on the part of the non-native speaker of English.** Here is one of the Spanish examples:
- Original Spanish:** Si yo fuera tú, le cobrara hasta por respirar.
- Google Translate's English translation:** If I were you, I'll even charge you for breathing.
- Accurate translation:** If I were you, I would even charge him for breathing



April 8, 2018 Learning is More On Demand What I Learned When My Students Used Google Translate

- Diane Loyet, The Chronicle of Higher Education
<https://www.chronicle.com/article/What-I-Learned-When-My/243037>
- In contrast, Google Translate's English version of a Chinese passage was unintelligible:
 - But the second language acquisition is a steady process, if you take a cure to do, that is, chronic diseases and even health care, unlike acute disease, once the recipe to treatment, the consequences will soon be reflected.

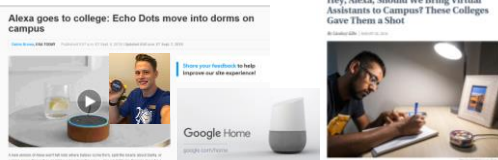


May 9, 2017 (Customization) Learning is More On Demand (PDAs)

Amazon Echo Show brings chatty Alexa to a two-way, video touchscreen
Edward C. Baig and Elizabeth Weise, USA Today
<https://www.usatoday.com/story/tech/columns/2017/05/09/amazon-echo-show-touchscreen-voice-alexa/101448864/>
24 seconds: <http://courtbok.com/jetsons24.html>
44 Seconds: <http://courtbok.com/jetsons44.html>



August 2, 2018 Learning is More On Demand (PDAs) Hey, Alexa, Should We Bring Virtual Assistants to Campus? These Colleges Gave Them a Shot Lindsey Ellis, The Chronicle of Higher Education <https://www.chronicle.com/article/Hey-Alexa-Should-We-Bring/249129>

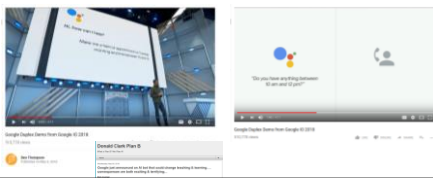


September 17, 2018 Learning is More On Demand Talk to Books

<https://books.google.com/talktobooks/>
<https://www.youtube.com/watch?v=bdmEm2Fy08>
any question by reading thousands of books.



May 9, 2018 Learning is More On Demand Google Duplex Demo from Google IO 2018 Video (4:11): <https://www.youtube.com/watch?v=bdmEm2Fy08> Video (2:05): <http://courtbok.com/google40-245.html> Entire video (4:11): <http://courtbok.com/google40-245.html> Donald Clark Plan B <http://donaldclarkplanb.blogspot.ca/2018/05/google-just-announced-ai-bot-that-could.html?m=1>



November 15, 2018 Learning is More Personalized TutorIT SAT Prep



Joseph M. Scandura; scandura0@gmail.com

Students can now practice on actual SATs at <https://www.tutorit.com>. They also will get 100% customized help on home they miss, as long as they work or until they get them all right. SATs generally cover very similar material from one year to the next. Students can continue with additional SATs until they reach their goal.



April 8, 2018
Learning is More Personalized
Can Artificial Intelligence Make Teaching More Personal?
 Goldie Blumenstyk, The Chronicle of Higher Education
<https://www.chronicle.com/article/Can-Artificial-Intelligence/243923>

Can Artificial Intelligence Make Teaching More Personal?

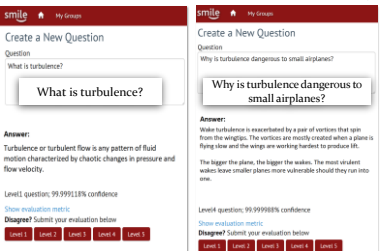
A new grading tool called **Gradescope** — powered by AI and now being used for more than 175,000 students at 550 colleges — offers one window on the possibilities. The tool helps automate the grading process without requiring instructors to rely on multiple-choice tests. Several professors who use it say the automation has actually made it easier for them to personalize their teaching. At the University of Michigan at Ann Arbor, students in a statistics class last fall had their writing assignments evaluated by an [automated text-analysis tool](#).

November 8, 2018
Learning is More Personalized
AI Question Asking
 (Paul Kim keynote in Taiwan; Education 4.0 Conference)
<https://www.facebook.com/digitalschema>
<https://www.facebook.com/digitalschema/videos/19217854957270186/>




Question Answering: Level 1 – Level 5

(Paul Kim, Taiwan, November 2018)



Question: What is turbulence?

Answer: Turbulence or turbulent flow is any pattern of fluid motion characterized by chaotic changes in pressure and flow velocity.

Level1 question: 99.999128% confidence
 Disagree? Submit your evaluation below
 Level1 Level2 Level3 Level4 Level5

Level4 question: 99.999988% confidence
 Disagree? Submit your evaluation below
 Level1 Level2 Level3 Level4 Level5

October 14, 2017
Learning is More Personalized
China wants to bring artificial intelligence to its classrooms to boost its education system
 How the take off of AI-enabled education will affect the interaction between China's 14 million teachers and 188 million pupils
 Meng Jing, South China Morning Post
<https://www.scmp.com/tech/innovation/article/2131271/china-wants-bring-artificial-intelligence-its-classroom-boost>
 Video 1:33: <http://curtbonk.com/chinese-ai.html>

Size of internet-enabled education market (billion yuan)

Year	Size (billion yuan)
2013	92.4
2014	122
2015	161
2016	212.5
2017*	280.5

The system can also analyse the learning pattern of a whole class — and point out the common problems.

Weirdness #1...We're Teaching the World
October, 2018
Learning is More Massive
 Sarah Fister Gale, CLO
<https://innovation.deloitte.com/us/en/2018/10/teaching-the-world/>
<https://innovation.deloitte.com/us/en/2018/10/teaching-the-world/>



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Weirdness #2: Your Friends are doing MOOCs
June 15, 2017
Massive List of MOOC Providers Around The World, Class Central
 JMOOC, K-MOOC, and T-MOOC?
<https://www.class-central.com/report/mooc-providers-list/>



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Weirdness #5...MOOCs in Wedding Announcements

September 26, 2018
**The Future of Professional Credentialing ...
 in an Engagement Announcement**
Joshua Kim, Inside Higher Ed

The future bride graduated from the *University of Vermont* with a bachelor's degree in anthropology and is currently pursuing a master's degree in public health. She is employed as a care navigator with Apple.

The future groom graduated from *Worcester Polytechnic Institute* with a bachelor's degree in mechanical engineering and is currently pursuing a master's degree in mechanical engineering. He has been accepted in the *Harvard Business HBX COLLE* program and plans to start in November. He is currently working as a technical program manager at Apple. They are planning on a summer wedding in 2020.

INSIDE
HIGHER ED

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MOOCs Trends

**Year of MOOC-based Degrees: A Review of
 MOOC Stats and Trends in 2018,**
Dhawal Shah, Class Central--January 6, 2019

CLASS CENTRAL



- Coursera – 37 million
- edX – 18 million
- XuetangX – 14 million
- Udacity – 10 million
- FutureLearn – 8.7 million

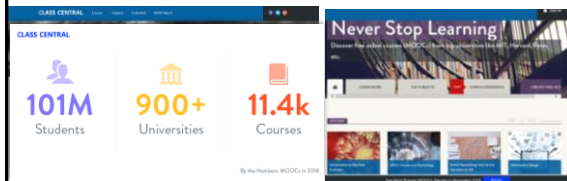
Top five MOOC providers



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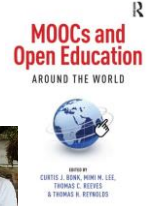
January 6, 2019
Learning is More Massive
**Year of MOOC-based Degrees: A Review of MOOC Stats and
 Trends in 2018, Dhawal Shah, Class Central**

<https://www.class-central.com/report/moocs-trends/>



MOOCs and Open Education Around the World

<http://routledge-ny.com/books/details/9781138807419/>



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



WHAT'S NEXT



Part III. Technology Tomorrow

http://www.huffpost.com/dr-marie-boutin/ai/ai-robot-future-herald_b_36407756.html

How Human is Too Human for Robots?

By Sara Heston

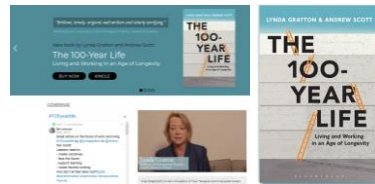


July 24, 2018

The 100-Year Life:

Living and Working in an Age of Longevity
Lynda Gratton and Andrew Scott

<http://www.100yearlife.com/>
<https://www.amazon.com/100-Year-Life-Living-Working-Longevity/dp/1543624634>

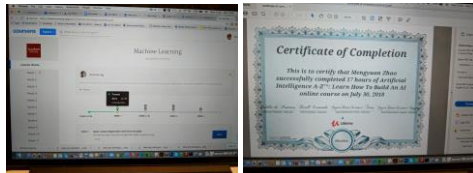


August 1, 2018

1. Independent Studies Via MOOCs

MOOC: AI A-Z: Learning How to Build an AI Online Course and Machine Learning

Mengyuan Zhao
<https://www.udemy.com/artificial-intelligence-ai/>
<https://www.coursera.org/learn/machine-learning>



March 13, 2019

The Career Curriculum Continuum

Andrew Hermalyn, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/news/2019/03/13/how-online-learning-can-prepare-students-future>



October 12, 2018

2. OER-Based Courses and Programs

The Chronicle of Higher Education

Launching OER Degree Pathways:

An Early Snapshot of Achieving the Dream's OER Degree Initiative and Emerging Lessons
https://www.achievethecommons.org/sites/default/files/initiatives/launching_oer_degree_pathways.pdf
Griffiths, R., Gardner, S., Lundh, P., Shear, L., Ball, A., Mislevy, J., Wang, S., Desrochers, D., Stalsloff, R. (2018). Participant Experiences and Financial Impacts: Findings from Year 2 of Achieving the Dream's OER Degree Initiative. Menlo Park, CA: SRI International.



Saving money with open-ed resources.

- A large-scale effort to encourage the use of open-education resources has helped students save money and bolstered their learning, according to a report, released today, on the findings from the second year of Achieving the Dream's OER Degree Initiative. The study found that:
 - Students saved between \$66 and \$121 per course.
 - Over 60 percent of students reported that the overall quality of their learning experience in an OER course was higher in comparison to a typical, non-OER course.
 - The number of OER courses at participating institutions jumped from 13 in 2016 to 385 in the spring of 2018; the number of students enrolled in OER courses went from 3,404 in 2016 to 37,398 in 2017.

September 22, 2017

3. Binge Learning Experiences

What Online Education Can Learn from Netflix

Henry Kronik, E-learning Inside News
<https://theumblaut.com/binge-learning-is-online-education-s-killer-app-84da18f8ae76>

E-LEARNING NEWS

Binge Learning: What Online Education Can Learn from Netflix

By Henry Kronik, September 22, 2017

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By Henry Kronik, September 22, 2017

By Henry Kronik, September 22, 2017

June 11, 2017 (New Learning Times)
4. Rise of Super E-Mentors and AI Coaches
 (Paul Kim, 2018)



February 27, 2017
5. Web Conferencing Walls

Global Learning Partner or PBL Team Selection Walls

http://www.thelivingmoon.com/43ancienta/02fina_Library_Alexandria.html



September 26, 2018
6. Interactive Agents and Tutors
 Pushing the Boundaries of Learning With AI

Lindsay McKenzie, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/article/2018/09/26/interactive-swift-expand-use-ai-higher-ed-teaching-and-learning>
<https://www.ibm.com/blog/2018/09/26/mandarin-language-ai/>
https://www.youtube.com/watch?time_continue=4&y=7e5Tu1iR2A
 1:17: <http://curbook.com/mandarin.html>



March 24, 2017
Artificial Intelligence Market in the US Education Sector 2017-2021

<http://www.researchandmarkets.com/research/51shbz/artificial>

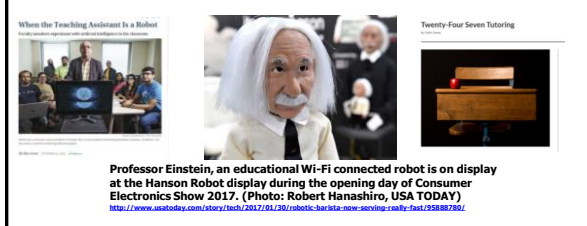
AI Market to Grow 47.5% Over Next Four Years
 Richard Chang, Campus Technology

<https://campustechnology.com/articles/2017/03/23/ai-market-to-grow-47-5-percent-over-next-four-years-in-space-exploration.aspx>



January 30, 2017
7. Professor Einstein PDA's

<http://www.usatoday.com/story/tech/2017/01/30/robotic-bus-ai-how-serving-roboty-fan/25888786/>

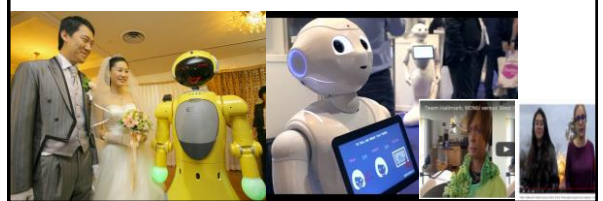


Professor Einstein, an educational Wi-Fi connected robot is on display at the Hanson Robot display during the opening day of Consumer Electronics Show 2017. (Photo: Robert Hanashiro, USA TODAY)

<http://www.usatoday.com/story/tech/2017/01/30/robotic-bus-ai-how-serving-roboty-fan/25888786/>

February 27, 2017
8. Robot Collaborators/Partners

http://www.thelivingmoon.com/43ancienta/02fina_Library_Alexandria.html



9. Café Classroom and Café Connectedness

Starbucks Your Classroom!

Oskar Cymerman, Teaching Channel

<https://www.teachingchannel.org/blog/2018/07/26/starbucks-your-classroom/>



Sterile, industrial-era rows aren't very attractive or motivating....I believe the "Starbucks" environment will promote that freedom and movement...Freedom is the key ingredient to social-emotional well-being and deeper learning. Rows and columns constrict. They hold and stifle.

10. Instructional Designer Morphs into Learning Environment Engineer

The New and Improved Instructional Designer



February 27, 2017 11. World Knowledge Refreshment Stations

http://www.theivymagnum.com/43ancients/925the_Library_Alexandria.html



June 3, 2016 12. Explosion of AR and VR

VR Lets Med Students Experience What It's Like To Be 74

Elyse Wanshel, Huffington Post

<http://ht.ly/bSpe300XEPJ>

Virtual Reality Lets Med Students Experience What It's Like To Be 74

How can we help? We're the average med student who's 74.

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13. The Age of Personalization



Poll: Evolution or Revolution?



**Poll: Excited or does all this
give you a headache?**



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

(South University of Science and Technology of
China, Wednesday June 10, 2015)



Things are heating up!

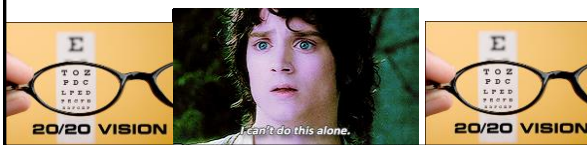


**The Learning Revolution is
coming within reach!**



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

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



Any Questions or Comments?



Slides at: TrainingShare.com

Papers: PublicationShare.com

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

Email: cjbonk@indiana.edu

