

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

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Talk Overview

1. Technology Yesterday
2. Technology Today

30 ways learning is changing...

Megatrends of Learning:

- a. Engagement
- b. Access, and
- c. Customization

3. Technology Tomorrow and Future Trends



The Evolution of E-Learning (All 7 year cycles)



Phase I, 1994:
THE AGE OF
PORTALS AND
PAGES (NETSCAPE
GOES PUBLIC).



Phase II, 2001:
THE AGE OF
OPENNESS
(MIT OCW &
WIKIPEDIA BORN).



Phase III, 2008:
THE AGE OF
MOOCs (FIRST
MOOC OFFERED).



Phase IV, 2015
THE AGE OF
PERSONALIZATION.

Other prior significant e-learning dates: 1985: FIRST ONLINE COURSE, LINDA HARASIM, UNIV. OF TORONTO
1987: HYPERCARD FIRST SHIPPED.

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.

Winky Dink and ... Bill Gates?, Bob Greene, March 31, 2013, CNN



A girls uses her "Winky Dink" drawing kit to draw on a TV screen as they watch the 1950s kids program.

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 generalized computer-assisted instruction system. Starting in 1960, it ran on the University of Illinois' ILLIAC I computer. By the late 1970s, it supported several thousand graphics terminals distributed worldwide, running on nearly a dozen different networked mainframe computers. Many modern concepts in 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.



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.amaa.com/Technics/Living_Great_Computer_Science/100/100226663



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



The World of Open Education



Poll: Anyone remember these technologies?



May 10, 2013

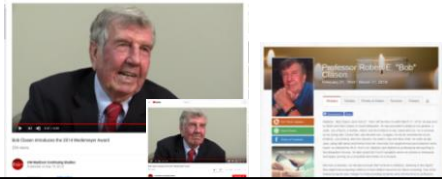
10 ed-tech tools of the 70s, 80s, and 90s eSchool News, Meris Stansbury

<http://www.eschoolnews.com/2013/05/10/10-ed-tech-tools-of-the-70s-80s-and-90s/print/>



September 19, 2014 A Distance Learning Story

Bob Clasen, University of Wisconsin
https://www.youtube.com/watch?v=kCm1_MGaqec&feature=youtu.be
 February 27, 1934-March 17, 2018
<https://www.crowdfunder.com/donate/2018/03/17/Robert-Clasen/>



September 26, 2018 Remember Education 2.0?

The rise and fall of the company behind 'Reader Rabbit' and all your favorite educational games

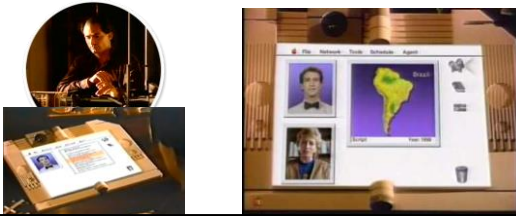
Abigail Cain, The Outline

<https://www.theoutline.com/post/2018/09/26/remember-education-20-the-rise-and-fall-of-the-company-behind-reader-rabbit-and-all-your-favorite-educational-games/>
 Rocky's Boots: <https://www.youtube.com/watch?v=9Nj58bTik>
 Project YES (Curt Bonk): <https://youtu.be/bZD5mQH4Ups>



Knowledge Navigator (1987) Apple Computer

<http://www.youtube.com/watch?v=3b4k4F6w6ac>



How Might Video Games Be Good for Us?

Jane McGonigal, October 15, 2012, BQO

<http://www.bqonline.com/content/how-might-video-games-be-good-for-us>



August 6, 2016 The Web is 25!

Happy (sort of) birthday, World Wide Web!,
 Erica Fink and Jonathan Tortora, CNN Money (Tech)
<http://info.cern.ch/> (First website)

<http://info.cern.ch/hypertext/WWW/TheProject.html>
<http://money.cnn.com/2016/08/06/technology/world-wide-web-25-years-old/index.html?hpid=hp-stack-atom>



January 15, 2016 Wikipedia is 15!

Scott McLemee, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/article/2016/01/15/wikipedia-15>



April 4, 2016 MIT OpenCourseWare is 15!

<http://ocw.mit.edu/about/15-years/>



The Creation of Effective Learning Environments

<http://study.com/academy/lesson/learning-environment-in-the-classroom-definition-importance.html>



July 29, 2016 Reimagine Your Learning Space: Starbucks Your Classroom!

Oskar Cymerman, Teaching Channel

<https://www.teachingchannel.org/blog/2016/07/29/starbucks-your-classroom/>



Sterile, industrial-era rows aren't very attractive or motivating. Even more, I've become convinced that traditional educational settings dull the senses...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. That is the truth. That is the reality in many U.S. classrooms today. But no longer in mine. Never again.

Education 3.0...Education 20/20



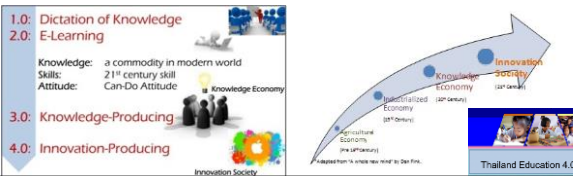
"In Education 3.0, classrooms would move away from lectures, such as this one, to having class time be spent on discussions and projects, using digital technology." (Per Wikipedia: https://en.wikipedia.org/wiki/Education_3.0)

Now What is Education 4.0?

"Innovation-producing education. Learn more in: Development of Individual Agency within a Collaborative, Creative Learning Community"

<http://www.igi-global.com/dictionary/education-40/41755>

<https://thinc.in.th/engadmission/education4.html> (Chula Engineering)



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/10217854957270186/>



Question Answering: Level 1 – Level 5

Example 1:
 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: 95.999133% confidence

Example 2:
 Question: Why is turbulence dangerous to small airplanes?
 Answer: Water turbulence is exacerbated by a pair of vortices that spin from the wingtips. The vortices are mostly created when a plane is flying slow and the wings are working hardest to produce lift. The bigger the plane, the bigger the vortices. The most delicate vortices have smaller planes more vulnerable should they run into one.
 Level1 question: 95.999988% confidence

(Paul Kim, Taiwan, November 2018)

Level 1

- When did Elon successfully launch the SpaceX program?
- Who admitted that launching the car into space was "kind of silly and fun"?

Level 2

- What are the things Tesla designed?
- What were the things Tesla couldn't determine the cause of?

Level 3

- How do you compare Elon Musk and Nicolas Tesla?
- How is Mars different from Jupiter?

Level 4

- Why did Tesla built a plant in Colorado, not in New York?
- Why did Tesla at first consider whether they were "electrical disturbances as are produced by the sun"?

Level 5

- If he did not devise ever-more sensitive receivers to detect these waves, what could have been the consequence?
- If he did not introduce the AC motor in the late 1880, what would have been the consequence?

(Paul Kim, Taiwan, November 2018)

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, machine learning, artificial intelligence, robotics, self-driving cars, nano-technological brain enhancements, genetic editing, etc.)

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

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://www.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://trusedk12.com/phigital-digital-learning/>

May 15, 2017

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

<https://www.ecarnous.com/carnous-administrator/education/generation-z-phigital-student/>

Going 'phigital'? 4 things schools need to know about Generation Z

Clearly... Learning is Changing!



How Online Learning is
Changing Classroom Design



Education 20/20



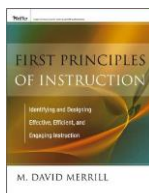
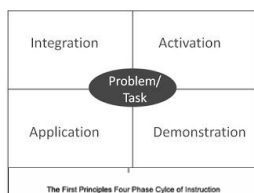
20 New Roles of the Instructor

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>



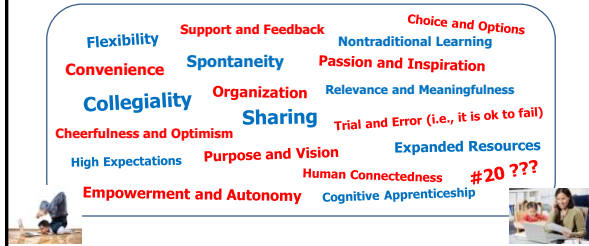
Bonk's Last Principles of Teaching/Instruction (Education 4.0?)

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



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

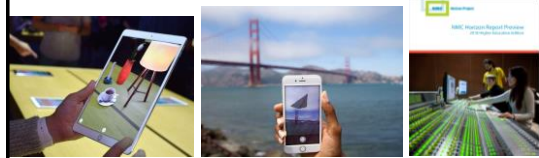
<http://travelinman.blogspot.com/2011/05/banks-last-principles-of-instruction.html>



Technology Today:

Thirty Ways Learning is Changing...

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



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

90+ ED TECH COMPANIES WRITING THE FUTURE OF EDUCATION



October 21, 2018

Virtually Inspired (from Drexel University)

Building a Go-to Resource on Innovation in Online Learning

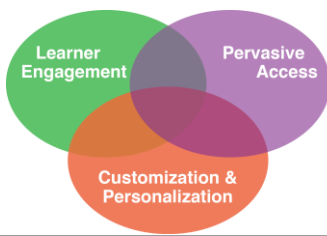
Meg Lloyd, Campus Technology

<https://campustechnews.com/profile/meg-lloyd-283628-building-a-go-to-resource-on-innovation-in-online-learning.aspx>

<https://virtuallyinspired.org/>



30+ Ways Learning is Changing: The Mega Trends



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



July 29, 2018**Learning is More Collaborative**

Why Silicon Valley is teaming up with San Quentin to train young people to code
Jessica Guynn and Megan Diskin, USA TODAY

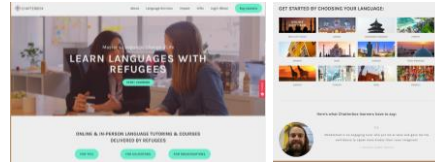
<https://www.usatoday.com/story/tech/2018/07/25/collaborative-coding-learning-coding-prison-help-san-quentin-inmates/810122002/>
 Video (1:46): <http://currbank.com/san-quentin.html>

Why Silicon Valley is teaming up with San Quentin to train young people to code

**March 21, 2018 (Engagement)****Learning is More Collaborative****Chatterbox**

The overall winner in the competition was **Chatterbox**, an online language school powered by refugees

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

**September 4, 2017****Virtual Reality and AR Explodes**

VR Lets Med Students Experience What It's Like To Be 74
Elyse Wanshel, Huffington Post

<http://huff.ly/1Sp300K2P>
<https://www.usatoday.com/story/tech/2017/09/04/virtual-reality-med-students-experience-what-it-like-to-be-74/438888802/>

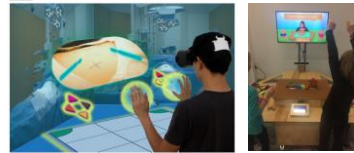


Facebook Spaces is a new social VR hang out area that allows owners of Oculus Rift and Touch to interact in virtual reality. (Photo: Facebook)

May 1, 2018**Learning is More Hands-on**

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/>



EarthShake, the first educational game for the NoRILLA system, teaches early physics principles through hands-on learning.

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 30, 2017**Learning is More Immersive**

Fly above the water with Oracle Team USA in 360

<https://www.eschoolnews.com/2017/05/30/fly-above-the-water-with-oracle-team-usa-in-360/>

The first 17 seconds: <http://currbank.com/sailing-17.html>
 1:04 to 1:56: <http://currbank.com/sailing-48.html>
 Whole video: <http://currbank.com/sailing.html>
 1:01: <http://currbank.com/sailing-101.html>



July 19, 2017 Learning is More Immersive HoloLens Assists in Live Surgery

Tommy Palladino, Next Reality

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-5178887/>



May 18, 2017 Learning is More Immersive

Google Expeditions Adds Augmented Reality for Classrooms, 5th Rawgati, THE Journal
<https://thejournal.com/articles/2017/05/18/google-expeditions-adds-augmented-reality-for-classrooms.aspx>

27 seconds <http://www.youtube.com/watch?v=5P1eHWTYg>
38 Seconds <http://curtbonk.com/thejournal27.html>
1: 10: <http://curtbonk.com/thejournal38.html>

Google Expeditions Adds
Augmented Reality for
Classrooms



April 8, 2018 Pros and Cons of Virtual Reality in the Classroom

Adam Evans, The Chronicle of Higher Education

<https://www.chronicle.com/article/ProsCons-of-Virtual/2430167d-csp197>

Pros and Cons of Virtual Reality in the
Classroom



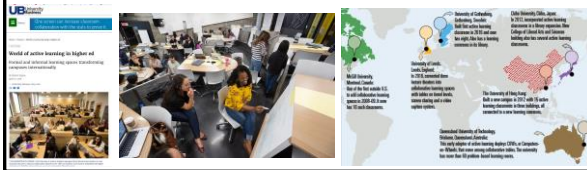
Pro:
An art professor might virtually guide students in his rural-Kentucky classroom through an exhibit happening in Paris, allowing them not only to explore works of art but also to virtually hold and examine them up close. A biology class might virtually travel down DNA strands previously visible only through a microscope.

Con:
We need to be having conversations about the ethics of using virtual reality in the classroom. Just because we have the ability to virtually transport a student to a war-torn country or a historical moment in time does not mean we should do so without thinking of possible consequences. What ethical obligations might faculty members owe our students during these experiences?

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



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/articles/world-active-learning-higher-ed>



May 7, 2014 (Access) Learning is More Global CNA - Speaking Exchange (video chats)

<https://www.youtube.com/watch?v=5-5E8w0F0>
FCB Brazil and the CNA language school network are launching the Speaking Exchange project, which connects CNA students in Brazil with Americans living in retirement homes.



July 11, 2018

Learning is More Immediate... Fossil of first giant dinosaur, dubbed Ingentia prima, found in Argentina Brett Molina, USA Today

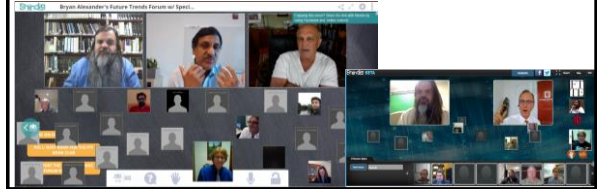
<http://www.usatoday.com/story/news/science/2018/07/11/first-giant-dinosaur-found-argentina/27483282/>
<https://www.usatoday.com/story/news/2018/07/09/first-giant-dinosaur-found-argentina/25445486/>
 15 second: <http://curtbonk.com/ghostbusters15.html>

**October 4, 2018 (Engagement)**

Learning is More Synchronous

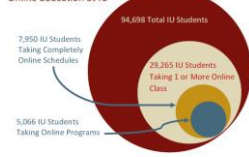
Shindig, Future Trends Forum, Bryan Alexander

Anant Agarwal, CEO and founder of edX
<https://bryanalexander.org/the-future-trends-forum/>
<http://www.shindig.com/>
<http://events.shindig.com/event/ftr-anniversary>
<https://shindig.com/client/client/?event=ftr-agarwal>

**November 1, 2017**

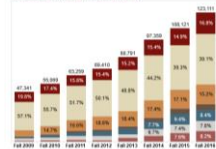
Learning is More Online (Access) Indiana University, Office of Online Education

Fall 2017
Online Education at IU



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

Trends for Total Hours Taken in Online Classes

**November 11, 2018**

Meet the New Mega-University: Can the fast-growing Southern New Hampshire U. transform higher education? Goldie Blumenstyk, The Chronicle of Higher Education

<https://www.chronicle.com/article/Meet-the-New-Mega-University/244954>



A Mega-University's Meteoric Rise

A decade ago, Southern New Hampshire had a small but respected reputation for online learning. Since then, the online education has exploded.



New Southern New Hampshire University is the nation's largest college to develop a program from scratch to become a leading online education provider.

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/244954>
<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.

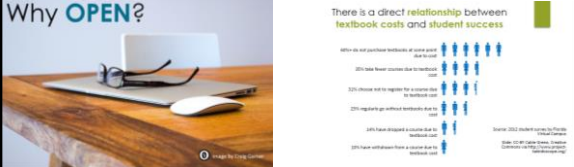
September 17, 2018

Talk to Books

<https://books.google.com/talktobooks/>
<https://up.com/1252864/talk-to-books-at-1st-2018-rar-kurzweil-univers-google-automating-new-search-tool-will-answer-any-question-by-reading-thousands-of-books/>



March 27, 2017 (Access)
Learning is More Free and Open
 Beyond Free: Harnessing the resonant value in open and collaborative practices for the public good
 David Porter, CEO, eCampus Ontario,
 Open Education Ontario Summit
https://www.slideshare.net/David_Porter
<https://www.oels.ca/events/open-education-ontario-summit>



Why OPEN?

There is a direct relationship between textbook costs and student success

40% of all postsecondary students at some point drop out of school

20% take fewer courses due to textbook cost

20% choose not to register for a course due to textbook cost

20% regularly go without textbooks due to cost

40% have dropped a course due to textbook cost

20% have withdrawn from a course due to textbook cost

Source: 2012 Student Success by Textbook Cost Study, eCampus Ontario, University of Toronto, University of Regina, University of Saskatchewan, University of Alberta, University of British Columbia, University of New Brunswick, University of Manitoba, University of Ottawa, University of Quebec, University of Windsor, University of Western Ontario, University of Waterloo, University of Guelph, University of Regina, University of Saskatchewan, University of Alberta, University of British Columbia, University of New Brunswick, University of Manitoba, University of Ottawa, University of Quebec, University of Windsor, University of Western Ontario, University of Waterloo, University of Guelph

August 2, 2018
Learning is More Free and Open
OpenStax Infographic
https://oeb.ca/oea-oea/openstax.com/www.network.uvic.ca/oea/oea/2018/08/02/infographic-2018_final-2134km.pdf



48% of degree-granting institutions using OpenStax textbooks

1,170+ non-U.S. schools using OpenStax textbooks

3,990+ U.S. schools using OpenStax textbooks

100+ countries using OpenStax textbooks

4.2 million students

March 19, 2018
Learning is More Free and Open
Open Textbook Network
 Center for Open Education, University of Minnesota
<http://research.cehd.umn.edu/otn/>



OER Adoptions on the Rise

Open Textbook Network

WE ARE A COMMUNITY DEDICATED TO RESKITS

600+ Campuses represented

\$8.5 Million Student savings by OTN members

45% of faculty who attend an OTN workshop adopt an open textbook

December 19, 2017 and April 24, 2018
Learning is More Free and Open
eTexts 101: A Practical Guide
<https://lib.ualberta.ca/eTexts101/Student-Workshop/Introduction/>
<https://lib.ualberta.ca/eTexts101/>



OER Adoptions on the Rise

Cost savings for students participating in U's eTexts Program

Year	2012	2013	2014	2015	2016	2017
Surveys	\$49,124	\$108,238	\$253,281	\$335,257	\$475,332	\$514,905
Fair	\$49,124	\$108,238	\$253,281	\$335,257	\$475,332	\$514,905
OpenStax	\$500,000	\$500,000	\$1,450,287	\$1,470,281	\$2,200,485	\$1,070,515

OpenStax Saved 1 Million Students \$70 Million

By: Heidi Colburn | 21 August 2, 2017

Real cost savings for students participating in U's eTexts Program

May 3, 2017
Learning is More Free and Open
 4 out of 5 Companies Have Hired a Coding Bootcamp Graduate
 Sri Ravipati, Campus Technology

August 9, 2017
Learning is More Free and Open
Modern State Education Alliance
<https://modernstates.org/>



Freshman Year For Free

New Venture Will Offer Free Courses That Students Can Take for College Credit

By: Gailor Blumstein | 8/20/2017 10:17


March 21, 2018

Learning is More Direct from Experts

TeachMeNow

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 are creating their own branded online learning communities.

<https://teachmenow.com/>



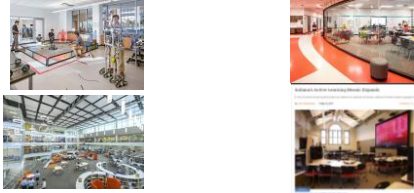
The image displays the TeachMeNow platform interface. On the left, a laptop shows the website's dashboard with a calendar and a bar chart. In the center, a tablet displays a virtual session interface with a video feed and a chat window. On the right, a desktop screen shows a grid of teacher profiles, each with a photo, name, and hourly rate. Below the grid, there is a section for 'Live Online Sessions' featuring a video feed of a session in progress.

[illegible]

March 2, 2018
Learning is More Modifiable
The Architecture of Ideal Learning Environments

Emelina Minero, Edutopia

<https://www.edutopia.org/article/architecture-ideal-learning-environments>



January 20, 2016
Learning is More Blended
Universities tap growth of craft beer, offer classes, Chicago Tribune

<http://www.chicagotribune.com/business/CT-business-craft-beer-offer-classes-20160120-story.html>



February 27, 2017
Learning is More Self-Directed
The LMS Market is Quickly Losing Ground
 Carol Leaman, CLO

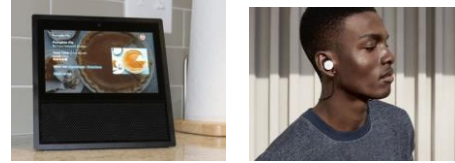
<https://www.openlearning.com/>

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



January 2, 2018
Learning is More Personal
5G to AR: Here are 7 technologies to watch in 2018, Edward C. Baig, USA Today

<https://www.usatoday.com/story/tech/2018/01/02/7-technologies-to-watch-in-2018-5g-artificial-intelligence-robotics-voice-recognition/4955613002/>



March 14, 2016
Learning is More Personal
Artificial Intelligence and Robots
 Paul Basken, The Chronicle of Higher Education

<https://www.chronicle.com/article/Behind-a-Computer-s-Surprise-Victory-Hints-of-Global-Economic-Uptakeal/235882>

<http://www.usatoday.com/story/tech/2016/03/13/robots-artificial-intelligence-ai-classrooms/81728892>



October 14, 2017
Learning is More Personalized
China wants to bring artificial intelligence to its classrooms to boost its education system

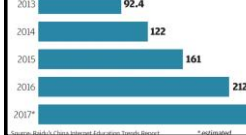
How the take off of AI-enabled education will affect the interaction between China's 14 million teachers and 188 million pupils

Weng Jing, South China Morning Post

<http://www.scmp.com/tech/ai/article/2017/10/14/china-wants-bring-artificial-intelligence-its-classrooms-boost>

Video 1:33: <http://courbonk.com/chinese-ai.html>

Size of internet-enabled education market (billion yuan)



April 8, 2018**Learning is More Personal**

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**.

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/244129>
 24 seconds: <http://courbonk.com/jetsons24.html>
 44 seconds: <http://courbonk.com/jetsons44.html>

Alexa goes to college: Echo Dots move into dorms on campus



Hey, Alexa, Should We Bring Virtual Assistants to Campus? These Colleges Gave Them a Shot

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

Jill Watson, Round Three, Georgia Tech course prepares for third semester with virtual teaching assistants, Jason Maderes, 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://donaldclarkplanb.blogspot.co.uk/2016/12/bot-teacher-that-impressed-and-fooled.html>



ROBOT TEACHER FOOLED STUDENTS FOR MONTHS

May 9, 2018**Learning is More On Demand**

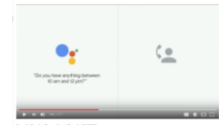
Google Duplex Demo from Google IO 2018

Video (4:11): <https://www.youtube.com/watch?v=bd1mEm2Fv08>
 Video (2:05): <https://courbonk.com/googleio-245.html>

Extra video (4:21): <https://courbonk.com/googleio2018.html>

Donald Clark Plan B

<http://donaldclarkplanb.blogspot.ca/2018/05/people-just-announced-ai-bot-that-could.html?m=1>

**Some Weird Things Are Going On...****Weirdness #1: Never Stop Learning!**

I'M WEIRD!

But I know you love me!

**MOOC Trends and Recent Data**

Weirdness #2: MOOCs are not dead **August 19, 2018** **Cumulative Growth in Number of MOOCs, 2011-18**

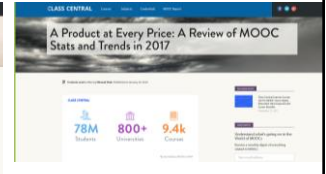
Almanac 2018, Chronicle of Higher Education
<https://www.chronicle.com/article/Top-9-MOOC-Providers-by-Number/244950?cid=cp216>
 Cumulative Growth in Number of MOOCs, 2011-18



PSYCHOLOGY
 BLOOMINGTON

January 22, 2018 **Learning is More Massive** **MOOCs for Credit** **Class Central**

<https://www.class-central.com/stats/moocs-for-credit/>



Weirdness #3: Your Friends are doing MOOCs **June 15, 2017** **Massive List of MOOC Providers Around The World,** **Class Central**

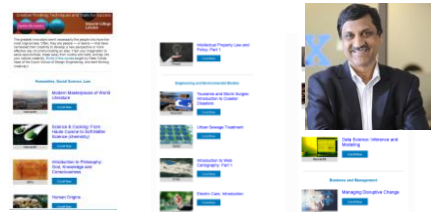
JMOOC, K-MOOC, and T-MOOC?
<https://www.class-central.com/report/mooc-providers-list/>



PSYCHOLOGY
 BLOOMINGTON

Weirdness #4: Summer MOOC Discounts **Email inbox: June 10, 2018** **edX (Summer discounts)**

<https://www.edx.org/course>



Weirdness #5: Master's of Accountancy MOOCs? **Email inbox: June 11, 2018** **Coursera**

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



Weirdness #6: MOOC Info in Engagement Announcements **September 26, 2018** **The Future of Professional Credentialing ... in an** **Engagement Announcement**

Joshua Kim, Inside Higher Ed
<https://www.insidehighered.com/digital-learning/article/2018/09/26/mooc-info-engagement-announcements>

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 CORe 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.




May 19, 2016
Weirdness #7: From MOOC to bootcamp to MIT
MIT News, Office of Digital Learning
 (Jin Wu—from MITx to MIT Global Entrepreneurship Bootcamp to master's student)
<http://news.mit.edu/2016/mooc-bootcamp-mit-0519>



THE CHRONICLE OF HIGHER EDUCATION
 This Mongolian Teenager Aced a MOOC. Now He Wants to Widen Their Impact.

MIT News
 From MOOC to bootcamp to MIT
 Two students with entrepreneurial spirit found their way into the MIT system.

Weirdness #8: Hundred+ MOOC Clubs
April 20, 2015
250 MOOCs and Counting: One Man's Educational Journey, Chronicle of Higher Education
<http://chronicle.com/article/250-MOOCsCounting-One/229397?cid=at>
 If the MOOC movement has faded, nobody told Jima Ngei. Mr. Ngei, who lives in Port Harcourt, Nigeria, has completed and passed 250.



Jima Ngei: "I had this unrelenting fear that this miracle of free access might evaporate soon."


Weirdness #9: We All Teach the World
October, 2018
Teaching the World, Sarah Fister Gale, CLO
Chapter 19: Harnessing the Power of Open Learning to Share Global Prosperity and Eradicate Poverty
Sheila Jagannathan, World Bank, Washington DC
<https://magazine.chronicle.com/issue/october-2018/teaching-the-world/>
<https://magazine.chronicle.com/issue/october-2018/>




May 20, 2016
Chapter 18: Changing the Tune: MOOCs for Human Development? A Case Study (agMOOCs in India)
Balaji Venkataraman and Asha Kanwar (COL)
<http://www.agmoocs.in/>



Weirdness #10: MOOC Wave #2 is here!
May 21, 2018
The Second Wave of MOOC Hype Is Here, and It's Online Degrees
Dhawal Shah, Class Central
<https://www.edsurge.com/news/2018-05-21-the-second-wave-of-mooc-hype-is-here-and-its-online-degrees>



September 12, 2018
Coursera's CEO on the Evolving Meaning of 'MOOC'
Dian Schaffhauser, Campus Technology
<https://campustechology.com/articles/2018/09/12/courseras-ceo-on-the-evolving-meaning-of-mooc.aspx>



Jeff Maggioncalda, Coursera CEO

Weirdness #11: Mega Millions of MOOC Users January 22, 2018

A Review of MOOCs Stats and Trends in 2017, Dhawal Shah, Class Central

<https://www.class-central.com/report/mooc-stats-and-trends-2017/>

Here is a list of the top five MOOC providers by registered users:

1. Coursera — 30 million users.
2. edX — 14 million users.
3. XuetangX — 9.3 million users.
4. FutureLearn — 7.1 million users.
5. Udacity — 5 million users.



Weirdness #12: Discounted MOOC-based MBAs August 7, 2017

FutureLearn and Coventry University to Roll Out 50 Online Degrees (Last year Deakin University announced a similar partnership with FutureLearn)
Class Central, Dhawal Shah

<https://www.class-central.com/news/50-online-degrees-coventry-university-rolls-online-degrees/>

Degree	Provider	University	Cost
MS Computer Science	Udacity	Georgia Tech	\$6,600
MS Analytics	edX	Georgia Tech	\$10k
MBA	Coursera	University of Illinois	\$22k
MS CS Data Science	Coursera	University of Illinois	\$19.2k
MS Accounting	Coursera	University of Illinois	\$27.2k
Masters in Innovation and Entrepreneurship	Coursera	HEC Paris	€20k
Cyber Security (Masters)	FutureLearn/Deakin University		£24k
Development and Humanitarian Action (Masters)	FutureLearn/Deakin University		£24k
Professional Practice: Information Technology (Masters)	FutureLearn/Deakin University		£24k

Weirdness #13: Microcredentials and Nanodegrees October 12, 2018

edX Expands MicroMasters Programs With Data Science ("nanodegrees")
Digital Leadership and More, Sri Ravipati, Campus Technology

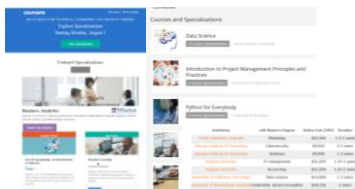
<https://campustechnology.com/2018/10/12/edx-expands-micro-masters-programs-with-data-science-nanodegrees-digital-leadership-and-more/>

Lindsay McKenzie, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/article/2018/10/12/edx-expands-micro-masters-programs-with-data-science-nanodegrees-digital-leadership-and-more>

edX Expands MicroMasters Programs With Data Science, Digital Leadership and More

By Sri Ravipati 10/12/18



Weirdness #14: MOOCs ramp up new fields October 30, 2017

Report: 59% of employed data scientists learned skills on their own or via a MOOC

Alison DeNisco Rayome

<https://www.techrepublic.com/article/report-59-of-employed-data-scientists-learned-skills-on-their-own-or-via-a-mooc/>

Report: 59% of employed data scientists learned skills on their own or via a MOOC

Over 60% of data scientists learned skills on their own or via a MOOC, according to a new report from PwC.

<https://www.techrepublic.com/article/report-59-of-employed-data-scientists-learned-skills-on-their-own-or-via-a-mooc/>

HOW TO KICKSTART A DATA SCIENCE CAREER

ALISON DENISCO

DATA SCIENCE, CREDENTIALS

HOW TO KICKSTART A DATA SCIENCE CAREER

ALISON DENISCO

DATA SCIENCE, CREDENTIALS

MOOCs and Open Education Around the World

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



Tired of MOOCs...?



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/author/marie-bourgeois/p/prepare-for-future-learning_b_16462735.html

TECHNOLOGY 11/17/2018

How Human is Too Human for Robots?

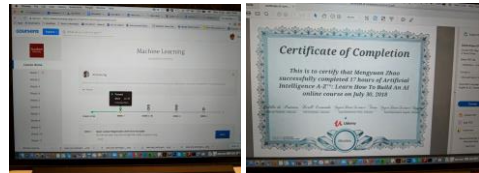


August 1, 2018

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>



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.achievethejournal.com/articles/default.aspx?initiative/launching_oer_degree_pathways.pdf
Griffiths, R., Gardner, S., Lundh, P., Shear, L., Ball, A., Milevsky, 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.

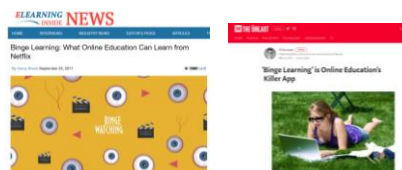
- A large-scale effort to encourage the use of open-education resources has helped students save money and bolstered their learning, according to a report, released today, on the findings from the second year of Achieving the Dream's OER Degree Initiative. The study found that:
 - Students saved between \$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 Kronk, E-learning Inside News

<https://thebulletin.com/binge-learning-is-online-education-s-killer-app-84da18f8ae76>



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.thelivingmoss.com/43ancients/52files/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/ibm/journal/2018/09/mandarin-language-ai/>
<https://www.youtube.com/watch?v=7Eu5TuiR2A>
 1:17: <http://curtbonk.com/mandarin.html>



January 30, 2017
7. Professor Einstein PDA's

<http://www.usatoday.com/story/tech/2017/01/30/robotic-harika-now-serving-math-fan/9888790/>

When the Teaching Assistant Is a Robot



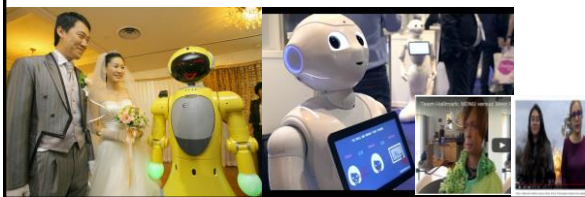
Twenty-Four Seven Tutoring



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)
<https://www.usatoday.com/story/tech/2017/01/30/robotic-harika-now-serving-math-fan/9888790/>

February 27, 2017
8. Robot Collaborators/Partners

http://www.thelivingmoss.com/43ancients/52files/Library_Alexandria.html



January 16, 2018
Robots are better at reading than humans
 Brett Molina, The USA Today

<https://www.usatoday.com/story/tech/news/2018/01/16/robots-better-reading-than-humans/1036420001/>
 Video (57 seconds): <http://curtbonk.com/robots1.html>

Robots are better at reading than humans



March 29, 2017**Every industrial robot takes up to 6 jobs, study finds****Steve Goldstein, MarketWatch**<http://www.marketwatch.com/story/every-industrial-robot-takes-up-to-6-jobs-from-robotics-new-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>**March 24, 2017****Artificial Intelligence Market in the US Education Sector 2017-2021**<http://www.researchandmarkets.com/research/5lshz/artificial>**AI Market to Grow 47.5% Over Next Four Years****Richard Chang, Campus Technology**<https://campustechnology.com/articles/2017/03/23/ai-market-education-sectors-on-rapid-expansion.aspx>**9. Café Classroom and Café Connectedness****Starbucks Your Classroom!****Oskar Cymerman, Teaching Channel**<https://www.teachingchannel.org/blog/2016/07/25/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.theivivingschool.com/55-and-over-science-library-alexandria.html>**March 28, 2017****12. Brain-based Learning****Elon Musk's Neuralink wants to plug into your brain, Marco della Cava, USA Today (includes 34 second video)**<https://www.usatoday.com/story/tech/2017/03/23/elon-musk-neuralink-plug-brain-computer/40371434002>

Elon Musk wants to link human brains with computers. The CEO of SpaceX and Tesla Motors is working on a brain-computer interface (BCI) called Neuralink. The company is currently in the early stages of development and is looking for investors.



Poll:
Evolution or Revolution?



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

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



Things are heating up!

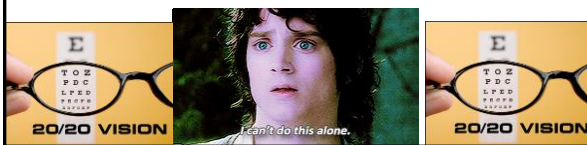


**The Learning Revolution is
coming within reach!**



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

