

What is the Future of Learning?: Visions of Education 20/20 in Our Changing Learning World!

Curtis J. Bonk, Professor, Indiana University

cjbonk@indiana.edu

<http://curtbonk.com/>



Talk Overview

1. Jobs are changing
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



(Circa Confucius 551–479 BCE)



November 28, 2017
Automation could kill 73 million U.S. jobs by 2030

Paul Davidson, USA Today

<http://www.usatoday.com/story/news/technology/2017/11/28/automation-jobs-2030/9999999/>

Video (1:20): <http://curtbonk.com/automation.html>

Video (1:20): <http://curtbonk.com/automation2.html>

Automation could kill 73 million U.S. jobs by 2030



September 18, 2018
Machines will create 58 million more jobs than they displace by 2022, World Economic Forum says (133 million jobs will emerge and 75 million may be lost)

Hamza Shaban, The Washington Post

[https://www.washingtonpost.com/technology/2018/09/18/automation-jobs-2022-world-economic-forum-says/2018/09/18/](https://www.washingtonpost.com/technology/2018/09/18/automation-jobs-2022-world-economic-forum-says/2018/09/18/automation-jobs-2022-world-economic-forum-says/2018/09/18/)

Machines will create 58 million more jobs than they displace by 2022, World Economic Forum says



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-study-finds-2017-02-29>

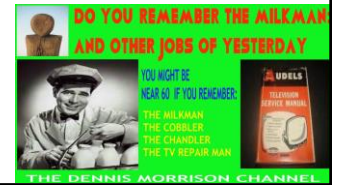
Video: 1:46

<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>**April 30, 2017****Education 1.0****'Those Jobs Are Gone'**

Steve Kolowich, The Chronicle of Higher Education

<http://www.chronicle.com/article/Those-Jobs-Are-Gone/23864>

'Those Jobs Are Gone'

**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/TheMotherInvention_GreatCommonsReference/10/1012/26563

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

**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://theoutline.com/post/8222/reader-rabbit-history-the-learning-technology-venture-capitalism-sandiego-tech-1980s-2000s>**Fast Forward 30+ Years...**

"Anyone can now learn anything from anyone at any time."

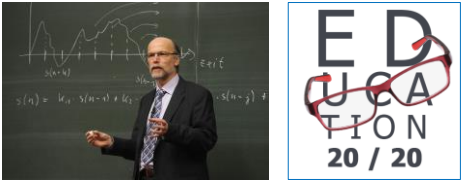
**The Creation of Effective Learning Environments**<http://study.com/academy/lesson/learning-environment-in-the-classroom-definition-importance.html>

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



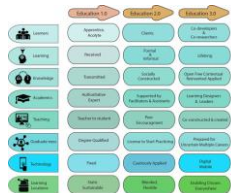
"In Education 3.0, classrooms would move away from lectures, such as this one, to having class time be spent on discussions and projects, using digital technology."
 (Per Wikipedia: https://en.wikipedia.org/wiki/Education_3.0)

Education 3.0
The Genesis and Emergence of Education 3.0 in Higher Education and its Potential for Africa
 First Monday, by Derek Keats and J. Philipp Schmidt, March 2007
<http://firstmonday.org/issue/index.php/first/article/view/1625/1540>

EDUCATION 3.0

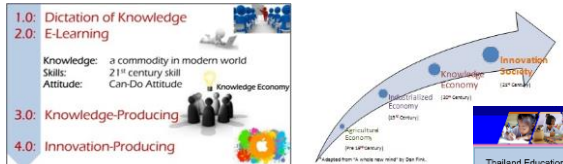
Characteristics	Education 1.0	Education 2.0	Education 3.0
Primary role of professor	Source of knowledge	Guide and source of knowledge	Orchestrator of collaborative knowledge creation
Content arrangements	Traditional copyright materials	Copyright and freeware educational resources for students within disciplines, sometimes across institutions	Freely open educational resources created and reused for students across multiple institutions, disciplines, nations, supplemented by original materials created for them
Learning activities	Traditional, essay, assignments, tests, some groupwork within classroom	Traditional assignment approaches transferred to more open technologies; increasing collaboration in learning activities; will largely be confined to institutional and classroom boundaries	Open, flexible learning activities that focus on creating room for student creativity; social networking outside traditional boundaries of discipline, institution, nation

September 18, 2017
Education 1.0 to 3.0
 Gilly Salmon, University of Liverpool, UK
<http://www.gillysalmon.com/learningfutures.html>



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)



1.0: Dictation of Knowledge
 2.0: E-Learning
 Knowledge: a commodity in modern world
 Skills: 21st century skill
 Attitude: Can-Do Attitude
 Knowledge Economy
 3.0: Knowledge-Producing
 4.0: Innovation-Producing
 Innovation Society
 Thailand Education 4.0

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.
 Level: question: 95.999913% 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 low 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.
 Level: question: 95.999998% confidence

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)

CREATIVITY INC.
 ED CATRALL

The Zig Zag creativity card deck:
 A brilliant tool for creative thinking and more energy!

KEITH SAWYER

Pinkroot 2.
 Advice from Adam Grant: Look for "disagreeable givers"

Originals
 Adam Grant

Ken Robinson and Liz Aronson
 Creative Schools
 The Global Education Revolution That's Transforming Education

Elizabeth Gilbert
BIG MAGIC
 CREATIVE LIVING BEYOND FEAR

How schools kill creativity

July 24, 2018
The 100-Year Life:
 Living and Working in an Age of Longevity
 Lynda Gratton and Andrew Scott
<http://www.amazon.com/100-Year-Life-100-Working-Longevity/dp/1543624634>
<http://www.100yearlife.com/>

THE 100-YEAR LIFE
 Living and Working in an Age of Longevity
 LYNDIA GRATTON & ANDREW SCOTT

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/>
 (Ubiquitous, machine superintelligence, artificially intelligent robots, self-driving cars, smart technological brain enhancement, genetic editing, etc.)
<http://www.trainingshare.com/fourth-industrial-revolution-video-clip-short.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

The Fourth Industrial Revolution
 Klaus Schwab

COM IMPROV
 Annual Meeting 2016

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/92869981>

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 Kominia, 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, Maris Stanbury, eCampus News

<https://www.ecampusnews.com/campus-administration/education-gen-z-what-students/>



**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** **Comedian**
Consultant **Camping Trip Guide** **Coach**
Community Organizer **Course Expedition Leader** **Collaborator**
Cultivator **Chemist** **Care Giver**
Colleague

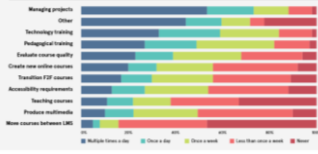


April, 2016**Instructional Design in Higher Education,
Gates Foundation and Intentional Futures**

http://intentionalfutures.com/reports/instructional_design/files/Intentional%20Design%20in%20Higher%20Education%20Report.pdf

http://intentionalfutures.com/reports/instructional_design/

HOW OFTEN DO YOU UNDERTAKE THE FOLLOWING TASKS IN YOUR WORK?

**Instructional Design**

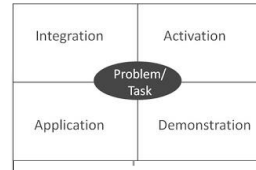
Desired games for a new breed of academic



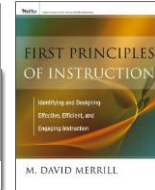
David Merrill - 11 October 2016

**Merrill's First Principles of
Teaching/Instruction**

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

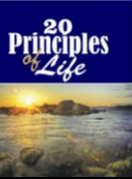


The First Principles Four Phase Cycle of Instruction

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

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

<http://www.applcathai.com/articles/education-4-0/>

**Education
4.0****1. The Principle of Flexibility**

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

**2. The Principle of
Convenience**

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

**3. The Principle of
Collegiality**

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



4. The Principle of Cheerfulness and Optimism

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



5. The Principle of High Expectations

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



6. The Principle of Choice and Options

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



7. The Principle of Empowerment and Autonomy

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



August 6, 2018 Why I'm Easy: On Giving Lots of A's Gary Laderman, The Chronicle of Higher Education

<https://www.chronicle.com/article/Why-I-m-Easy-On-Giving-Lots-of-A's/244344>

August 8, 2017

Professor's plan to let students grade themselves gets an F, Paul LeBlanc, CNN

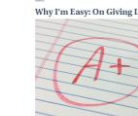
<http://www.cnn.com/2017/08/08/us/duke-university-grades-grading-reduction/index.html>

Professor's plan to let students grade themselves gets an F



THE CHRONICLE OF HIGHER EDUCATION

Why I'm Easy: On Giving Lots of A's



8. The Principle of Support and Feedback

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



9. The Principle of Spontaneity

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



10. The Principle of Organization

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



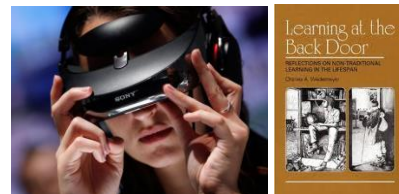
11. The Principle of Sharing

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



12. The Principle of Nontraditional Learning

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



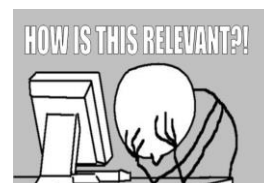
13. The Principle of Passion and Inspiration

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



14. The Principle of Relevance and Meaningfulness

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



16. The Principle of Expanded Resources

<http://travelingman.blogspot.com/2011/05/books-1st-principle-of-instruction.html>

A word cloud centered around the word "open" in large green letters. Other words include "resources", "educational", "videos", "textbooks", "policy", "curriculum", "learning", "audio group", "source courseware", "transformation materials assessment teaching", "discussions applications content paper-based", "peer test podcasts", "FAQ licensing", "computer-based science multimedia courses access maps", "documents webinars", "data streaming", "educators", and "materials".

September 19, 2014

Story #1...I am a product of distance learning...
Bob Clasen, University of Wisconsin
<https://www.youtube.com/watch?v=kCmLMGaac8f&feature=youtu.be>
February 27, 1934-March 17, 2018
<https://www.crowdfunderinc.com/university-249129/Robert-Clasen>



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.



17. The Principle of Human Connectedness

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



18. The Principle of Cognitive Apprenticeship

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



19. The Principle of Purpose and Vision

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



20. ??? (what is missing)

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



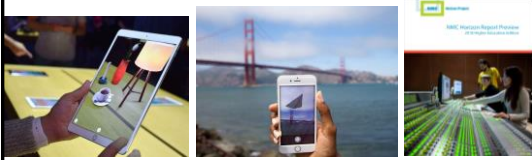
Bonk's 20 "Last" Principles of Instruction (LAST = Learning Activation System Template)

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



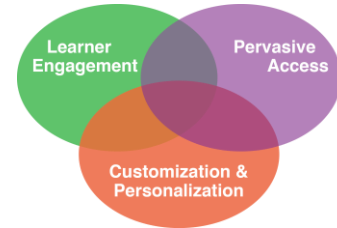
Thirty Ways Learning is Changing...

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

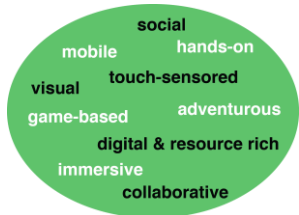


ARKit lets you create immersive augmented reality experiences on iOS devices. (Photo: Wearable)

30+ Ways Learning is Changing: The Mega Trends



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



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-your-guide-to-the-biggest-consumer-electronics-show/106678601/>



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/10442881/>



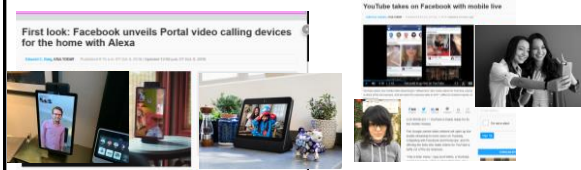
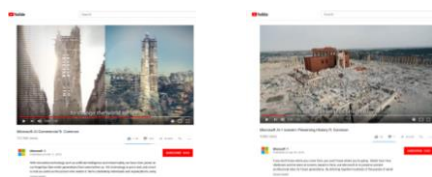
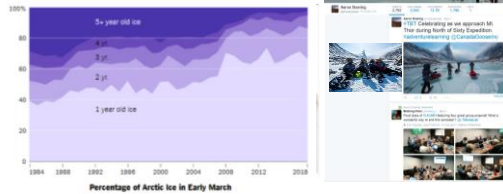
July 24, 2018 Learning is More Digital and Resource Rich This Physicist Wants Female Scientists To Get Noticed. So She Wrote 270 Wikipedia Profiles.

Jenna Amatulli, Huffington Post
https://www.huffpost.com/entry/scientist-wrote-270-wikipedia-pages-in-a-year-so-female-scientists-get-noticed_en_36574ee610613ab02c005



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**

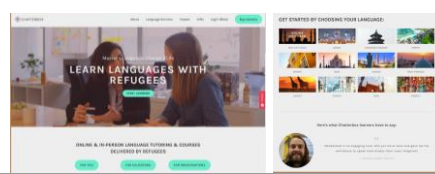
<https://www.theverge.com/2018/10/8/18211111/facebook-portal-alexa>
<http://www.cnet.com/news/facebook-portal-alexa/>
<http://www.usatoday.com/story/tech/2017/02/07/youtube-takes-facebook-mobile-live/37566592/>

**April 22, 2018****Learning is More Visual****Microsoft AI Commercial ft. Common**Video 1:00: Microsoft AI Commercial ft: <https://www.youtube.com/watch?v=9taCY7jhhs4> / (Feb 11, 2018)Video 1:48: Microsoft AI: Amplifying Human Ingenuity: <https://www.youtube.com/watch?v=NDmu7Z5N9Ks>Video 1:00: Microsoft AI: Empowering Innovators ft. Common: <https://www.youtube.com/watch?v=Z20Za1tUu5H8> (April 22, 2018)Video: 0:44: Microsoft AI + The Yield: Taking the guesswork out of farming ft. Common: <https://www.youtube.com/watch?v=7zafx10H4g> (April 22, 2018)**May 14, 2018 (Engagement)****Learning is More Adventurous****Aaron Doering, Chasing Seals, TEDx**<http://chasingseals.com/><https://twitter.com/chasingseals><https://www.nytimes.com/interactive/2018/05/14/climate/arctic-sea-ice.html>**August 8, 2017****Learning is More Game-like****ShortSims**<http://www.shortsims.com/>Clark Aldrich clark@clarkaldrichdesigns.com**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/california-youth-learning-code-prison-help-san-quentin-jonatan/810122002/>
 Video (1:44): <http://fourthink.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**

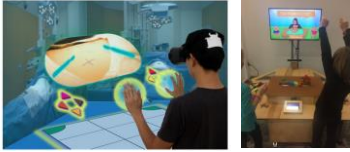
The overall winner in the competition was **Chatterbox**, an online language school powered by refugees

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

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-justin-anglio/>



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-justin-anglio/>



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.

July 19, 2017

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

<https://hololens.reality.news/news/hololens-assists-in-live-surgery-5178887/>

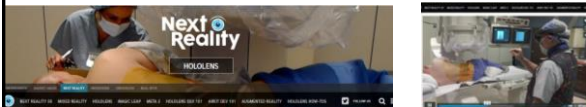
Video #1: 1:09: <http://curtbonk.com/hololens.html>

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-in-live-surgery-5178887/>

**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=5YolaMTWYg>

27 seconds <http://curtbonk.com/thejournal27.html>

38 seconds <http://curtbonk.com/thejournal38.html>

1: 10: <http://curtbonk.com/thejournal.html>

Google Expeditions Adds
Augmented Reality for
Classrooms

By Sri Ravipati

May 18, 2017

27 seconds

38 seconds

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10

1: 10



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/eng/78w_gallery?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/articles/world-active-learning-higher-ed>



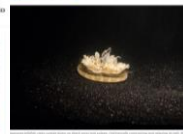
May 7, 2014 (Access)
Learning is More Global
 CNA - Speaking Exchange (video chats)
<https://www.youtube.com/watch?v=5-5EfwqF2k>
 FCB Brazil and the CNA language school network are launching the Speaking Exchange project, which connects CNA students in Brazil with Americans living in retirement homes.



July 11, 2018
Learning is More Immediate...
 Fossil of first giant dinosaur, dubbed
 Ingentia prima, found in Argentina
 Brett Molina, USA Today
<https://www.usatoday.com/story/science/2018/07/11/first-giant-dinosaur-fossil-found-in-argentina/1774592002>
<https://www.usatoday.com/story/news/2017/05/09/first-giant-dinosaur-fossil-found-in-argentina/101475468/>
 15 second: <http://curtbook.com/ghostbusters15.html>

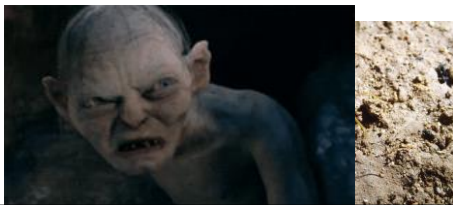


September 21 and November 12, 2017
Learning is More Immediate...
 Scientists just discovered the first brainless animal that sleeps
 Sara Kaplan, Washington Post
<https://www.washingtonpost.com/science/scientists-discover-first-brainless-animal-that-sleeps/2017/09/21/>
 This ancient shark with a snake head and 300 teeth is why we should just say
 nope to the ocean
 Cleve R. Woodson, Jr., Washington Post
<https://www.washingtonpost.com/science/this-ancient-shark-with-a-snake-head-and-300-teeth-is-why-we-should-just-say-nope-to-the-ocean/2017/11/12/>



A *Cassiopea* jellyfish rests upside-down on black sand and pulses, rhythmically contracting and relaxing its bell. At night, *Cassiopea* jellies pulse less frequently — a clue that they're sleeping, researchers report. (Photo by JanEaster.com)

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/science/2015/11/19/new-daddy-longlegs-named-after-lord-of-the-rings-character-smeagol/76072262/>



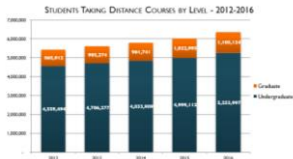
October 4, 2018 (Engagement)
Learning is More Synchronous
 Shindig, Future Trends Forum, Bryan Alexander
 Anant Agarwal, CEO and founder of edX
<https://bryanalexander.org/the-future-trends-forum/>
<http://www.shindig.com/>
<https://events.shindig.com/event/14-anniversary>
<https://shindig.com/client/client/7event=ftf-agarwal>



February 19, 2018
Learning is More Online (Access)
Grade Increase:
Tracking Distance Education in the United States

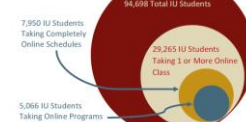
Joshua Kim, Inside Higher Ed

<https://onlinelearningsource.com/news/inside-higher-ed/>
<https://www.insidehighered.com/digital-learning/article/2018/02/19/track-distance-education-us>



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.



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/148484>



A Mega-University's Meteoric Rise

An already big Southern New Hampshire U. has a selected undergraduate portfolio in online learning. Since then, the university's online enrollment has shot upward.



New Southern New Hampshire U. students in the university's College for Innovation programs.

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.

September 17, 2018
Talk to Books

<https://books.google.com/talktobooks/>
<https://qz.com/1262664/talk-to-books-at-ted-2018-rav-kurzel-welsh-argues-astounding-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,

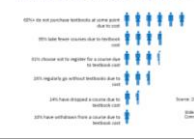
Open Education Ontario Summit

<https://www.oecs.ca/events/open-education-ontario-summit>

Why OPEN?



There is a direct relationship between textbook costs and student success

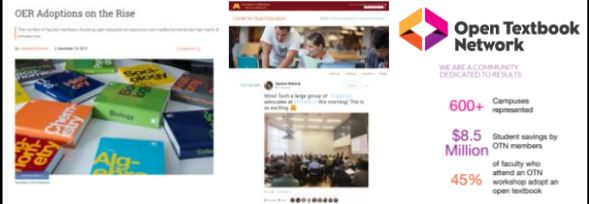


August 2, 2018 Learning is More Free and Open OpenStax Infographic

<https://openstax.org/r/openstax-network-does-the-dirty-work-2018-2019-infographic>



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/>



December 19, 2017 and April 24, 2018 Learning is More Free and Open eTexts 101: A Practical Guide <https://the-ph.unh.edu.org/learnings101/2018-orientation/introduction/> <https://the-ph.unh.edu.org/learnings101/>



May 19, 2016 (Access) Learning is More Free and Open 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>



May 3, 2017 Learning is More Free and Open 4 out of 5 Companies Have Hired a Coding Bootcamp Graduate Sri Ravipati, Campus Technology <http://campustechology.com>



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



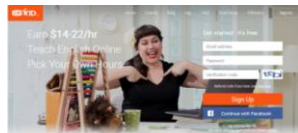
March 6, 2018**Learning is More Direct from Experts**

By connecting Chinese pupils with North American teachers, Beijing-based platform is building cultural bridges, one online English class at a time.

Most Innovative Companies, Fast Company

Interview with VIPKid CEO Cindy Mi

<https://www.fastcompany.com/company/vipkid>

**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 use TeachMeNow software to create their own-branded online learning communities.

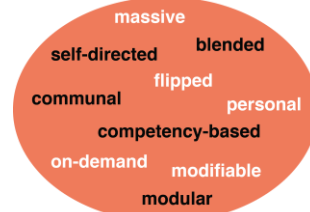
<https://teachmenow.com/>

**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

Indiana's Active Learning Mission Expands

The University of Indiana is expanding its active learning mission to include video interactive, mobile, and social media.

By Julie Johnston

July 15, 2017

**March 2, 2018****The Architecture of Ideal Learning Environments**

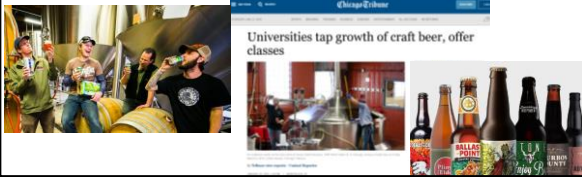
Emelina Minero, Edutopia

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

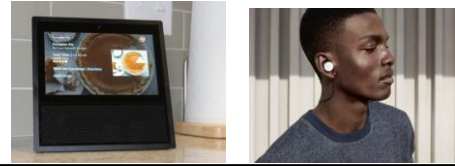


January 20, 2016
Learning is More Blended
 Universities tap growth of craft beer, offer classes, Chicago Tribune

<http://www.chicagotribune.com/DailyNews/CT-Universities-tap-growth-of-craft-beer-offer-classes-2016-01-20-story.html>



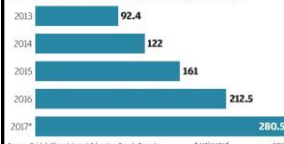
January 2, 2018
Learning is More Personal
 5G to AR: Here are 7 technologies to watch in 2018, Edward C. Baig, USA Today
 (e.g., Augmented hearing)



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/2113271/china-wants-bring-artificial-intelligence-its-classrooms-boost>
 Video 1:33: <http://curtbook.com/chinese-ai.html>

Size of internet-enabled education market (billion yuan)



November 15, 2018
Learning is More Personalized
 TutorIT SAT Prep

Joseph M. Scandura; scandura0@gmail.com

Students can use practice on what SAT is at www.tutorit.com. They also will get individualized help on items they miss, as long as they ask 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 Personal

Can Artificial Intelligence Make Teaching More Personal?
 Goldie Blumenstyk, The Chronicle of Higher Education
<https://www.chronicle.com/article/Can-Artificial-Intelligence/243023>

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](#).

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/news/2017/05/09/amazon-echo-show-brings-voice-alexa-to-a-two-way-video-touchscreen/10148864/>
 24 seconds: <http://curtbook.com/jetsons24.html>
 44 Seconds: <http://curtbook.com/jetsons44.html>

Amazon Echo Show brings chatty Alexa to a two-way, video touchscreen

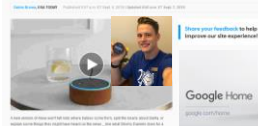


August 2, 2018

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/244529>

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 Madoney, Georgia Tech News Center
<http://www.gatech.edu/2017/01/09/ai-robots-in-classroom/>

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/2015/12/bot-teacher-that-impressed-and-fooled.html>



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/243017>

- 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.**



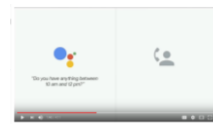
May 9, 2018

Learning is More On Demand

Google Duplex Demo from Google IO 2018

Video (4:11): <https://www.youtube.com/watch?v=b41mEm2Fy98>
 Video (2:05): <http://curtbonk.com/googleio-245.html>

Entire video (4:11): <http://donaldclarkplanb.blogspot.co.uk/2018/05/google-just-announced-ai-bot-that-could.html>

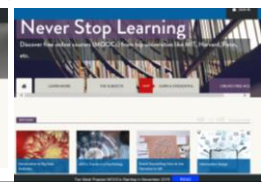
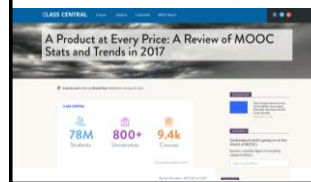


January 22, 2018

Learning is More Massive

MOOCs for Credit Class Central

<https://www.classcentral.com/report/mooc-for-credit/>



July 28, 2016 (Customization)
Learning is More Massive
Udemy: "Get cozy with a class"

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



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

<https://www.insidehighered.com/higher-learning-and-teaching/2018/09/26/professional-credentialing-engagement>

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.

**INSIDE
HIGHER ED**

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 CODE 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.



April 20, 2015

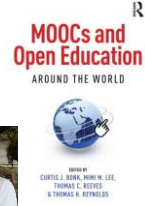
250 MOOCs and Counting: One Man's
Educational Journey, Chronicle of Higher Education
<http://chronicle.com/article/250-MOOCsCounting-One/229397?cid=at>
 If the MOOC movement has faded, nobody told Jima Ngei. Mr. Ngei, who lives in Port Harcourt, Nigeria, has completed and passed 250.



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

MOOCs and Open Education
Around the World

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



July 1, 2015 (Customization)
Chapter 14: Creating a Temporary Spontaneous
Mini-Ecosystem through a MOOC

Paul Kim and Charlie Chung, Stanford University
Figure 2. Twitter thread announcing the MOOC



June 14, 2016 (Customization)

Chapter 15: Learning About MOOCs by Talking to Students

Charles Severance, Univ. of Michigan
Anuar Lequerica, Class Central

<https://www.class-central.com/report/dt-chuck-graduate-ceremony-python-specialization/>



October 30, 2017**Learning is More Massive**

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

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

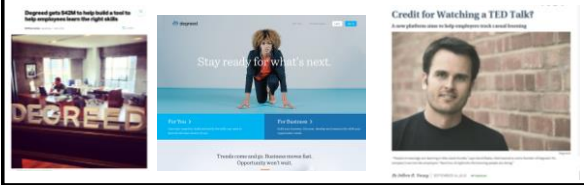
Report: 59% of employed data scientists learned skills on their own or via a MOOC

More companies are hiring data scientists and their related fields, but they may not need a degree or computer science to get into it, according to a new report from TechCrunch.

**March 6, 2018****Learning is More Competency-Based**

Degreed gets \$42M to help build a tool to help employees learn the right skills
Matthew Lynley, TechCrunch

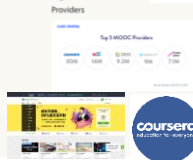
<https://techcrunch.com/2018/03/06/degreed-gets-42m-to-help-build-a-tool-to-help-employees-learn-the-right-skills/>

**January 22, 2018**

A Review of MOOCs Stats and Trends in 2017, Dhawal Shah, Class Central
<https://www.class-central.com/report/moocs-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.



INDIANA UNIVERSITY BLOOMINGTON

October 12, 2018 (Customization)**Learning is More on Modular**

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

<https://campustechnology.com/article/2018/10/12/edx-expands-micromasters-program-with-data-science-digital-leadership-and-more.aspx>

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

By Sri Ravipati 10/11/18

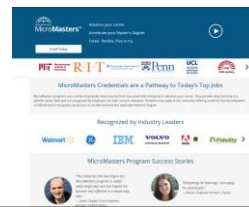
**January 9, 2018****Learning is More on Modular**

MIT launches MITx MicroMasters in Principles of Manufacturing, MIT Open Learning

<http://news.mit.edu/2018/mit-launches-mitx-micromasters-program-principles-manufacturing-0109>

**May 3, 2018**

MicroMasters Credentials are a Pathway to Today's Top Jobs, edX
<https://www.edx.org/micromasters>



August 7, 2017

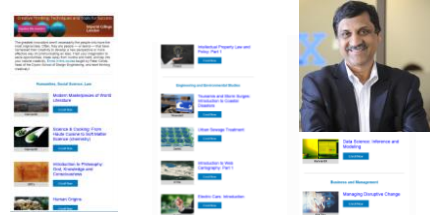
FutureLearn and Coventry University to Roll Out 50 Online Degrees (Last year Deakin University announced a similar partnership with FutureLearn)
Class Central, Dhawal Shah

<https://www.class-central.com/report/futurelearn-coventry-university-roll-50-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)	FutureLearnDeakin University		£24k
Development and Humanitarian Action (Masters)	FutureLearnDeakin University		£24k
Professional Practice: Information Technology (Masters)	FutureLearnDeakin University		£24k

Email inbox: June 10, 2018
edX (Summer discounts)

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



Email inbox: June 11, 2018

Coursera

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



MOOCs are Like Library Books...



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



WHAT'S NEXT



January 30, 2017

7. Professor Einstein PDA's

<http://www.usatoday.com/story/tech/2017/01/28/robotic-bacita-nore-serving-rally-fest/9588878/>

When the Teaching Assistant Is a Robot



Twenty-Four Seven Tutoring

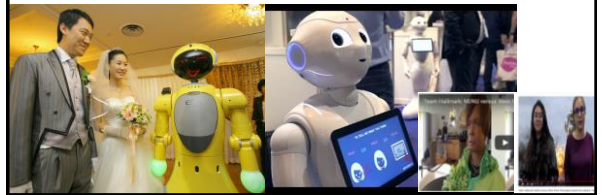


Professor Einstein, an educational Wi-Fi connected robot is on display at the Hanson Robot display during the opening day of Consumer Electronics Show 2017. (Photo: Robert Hanashiro, USA TODAY)
<http://www.usatoday.com/story/tech/2017/01/30/robotic-bacita-nore-serving-rally-fest/9588878/>

February 27, 2017

8. Robot Collaborators/Partners

http://www.thelearningmoon.com/43ancients/02files/Library_Alexandria.html



9. Café Classroom and Café Connectedness

Starbucks Your Classroom!

Oskar Cymerman, Teaching Channel
<https://www.teachingchannel.org/blog/2016/07/27/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



11. World Knowledge Refreshment Stations

http://www.thelearningmoon.com/43ancients/02files/Library_Alexandria.html



June 3, 2016

12. Explosion of Virtual Reality 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 make it so that the average 74-year-old can live a healthy life?

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon

© 2016 The Learning Moon



I don't remember what I'm supposed to do

**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!

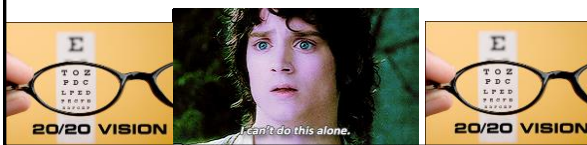


**The Learning Revolution is
coming within reach!**



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

