

Learning **IS** Changing: Thirty Ways, Many More Visions!

Curtis J. Bonk, Professor, Indiana University
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<http://curtbonk.com/>

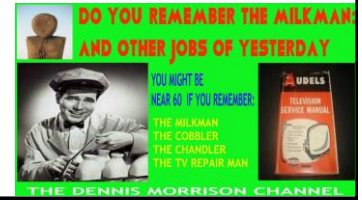


April 30, 2017

'Those Jobs Are Gone'

Steve Kolowich, The Chronicle of Higher Education
<http://www.chronicle.com/article/Whose-Myth-Is-Saving-Us/23994>

'Those Jobs Are Gone'



June 3, 2017

How PLATO changed the World...in 1960 Cait Etherington, ElearningInside News (nearly 60 years ago)

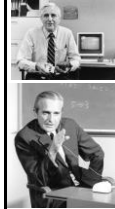
<https://news.elearninginside.com/how-plato-changed-the-world-in-1960/>



Intelligence Augmentation and Amplification

Douglas Engelbart's "The Mother of All Inventions" (1968) (50 years ago!)

(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.amazon.com/Machines-Learning-Grace-Cameron-Reference/dp/0002346983>



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



Poll #1: Do you remember the Apple II (40 years ago)



Knowledge Navigator (1987)

Apple Computer (30 years old!)

<http://www.youtube.com/watch?v=hB4dEwEoc>





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

SKILLSHARE

Learn anything from anyone, anywhere.



Join us! Start learning and discover unique classes in your city.

August 6, 2016
The Web at 25!

Happy (sort of) birthday, World Wide Web!
 Erica Fink and Jonathan Tortora, CNN Money (Tech)

<http://info.cern.ch/> (First website)
<http://www.cern.ch/hypertext/WWW/TheProject.html>
<http://money.cnn.com/2016/08/06/technology/web-at-25-years-old/index.html?hpid=stock-story>



THE WORLD WIDE WEB BEGINS ON MARCH 12, 1989

Twenty-five years ago, the first public website went live.

January 15, 2016
Wikipedia at 15!
Scott McLemee, Inside Higher Ed

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



Wikipedia at 15

Celebrate or hate it as you will, writes Scott McLemee, Wikipedia has metamorphosed from its beginnings as a gangly cultural interloper into the de facto reference work of first resort.

January 15, 2016
 by Scott McLemee

Wikipedia came into the world 15 years ago today — and, man, what an ugly baby. The first snapshot of it in the Internet Archive is from late March of 2001, when Wikipedia was already 10 weeks old. At that point, it claimed to have more than 3,000 pages, with an expressed hope of reaching

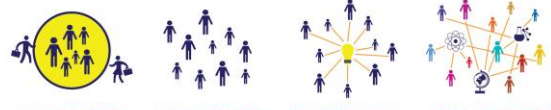
April 4, 2016
MIT OpenCourseWare at 15!
<http://ocw.mit.edu/about/15-years/>



MIT OpenCourseWare

MIT OpenCourseWare is a free and open publication of selected MIT course materials, covering the entire MIT curriculum. It is a unique resource for students and educators around the world.

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).

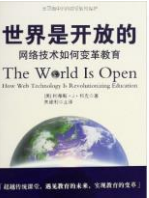
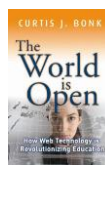
Phase IV, 2015
 THE AGE OF PERSONALIZATION.

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

The World is Open:
How Web Technology Is Revolutionizing Education

TEN OPENERS: (WE-ALL-LEARN)

1. Web Searching in the World of E-Books
2. E-Learning and Blended Learning
3. Availability of Open Source and Free Software
4. Leveraged Resources and OpenCourseWare
5. Learning Object Repositories and Portals
6. Learner Participation in Open Information Communities
7. Electronic Collaboration
8. Alternate Reality Learning
9. Real-Time Mobility and Portability
10. Networks of Personalized Learning




























English teaching service VIPKID raises \$200M and reportedly hits a \$1.5B valuation







































Top-notch online English teacher earns nearly \$1 million a year




























EEARNING **NEWS**
LEADS | REVENUE | GROWTH | NEW | SUPPORT | ABOUT

Woz U Has Made Some Big Promises. Can It Deliver?

By Thomas H. Davenport 11/28/17



August 17, 2016
Learning is More Hands-on
Research: 3D Printing Market to Double by 2020, Joshua Bolkan, Campus Technology
<https://campustechnology.com/articles/2016/08/17/report-3d-printing-market-to-double-by-2020.aspx>
Research: 3D Printing Market to Double by 2020
 By Joshua Bolkan | 08/17/16




January 12, 2017
Learning is More Hands-On
Pregnant Robots Give Birth to New Forms of Experiential Learning
 Jenny Abamu, New Learning Times
<https://newlearningtimes.com/cms/article/4028/pregnant-robots-give-birth-to-new-forms-of>




July 19, 2017
Learning is More Virtual
HoloLens Assists in Live Surgery
 Tommy Palladino, Next Reality
<https://hololens.reality.news/news/holoLens-assists-live-surgery-9178887/>
 Video #1: 1:09: <http://curtbonk.com/hololens.html>
 Video #2: 1:37: <http://curtbonk.com/hololens2.html>
 07/19/2017

Numerous examples exist of doctors and surgeons using HoloLens to plan surgeries. The device has even been used to view reference images during a procedure and stream it to a remote audience. Until recently, it has not been used to augment the surgeon's view of the patient during a live surgery.

Original Video: <https://hololens.reality.news/news/holoLens-assists-live-surgery-9178887/>



July 19, 2017
Learning is More Virtual
Modern medicine breathes new life into virtual training
<https://www.usatoday.com/videos/tech/2017/07/28/modern-medicine-breathes-new-life-into-virtual-training/104672096/>
 Videos
 2:34 (entire video): <http://curtbonk.com/vr-medicine4b.html>
 .01-.21: <http://curtbonk.com/vr-medicine.html>
 .37-.56: <http://curtbonk.com/vr-medicine2.html>
 .57-1.29: <http://curtbonk.com/vr-medicine3.html>
 1:30-2:27: <http://curtbonk.com/vr-medicine4.html>



February 7, 2017 (Engagement)
Learning is More Social
YouTube takes on Facebook with mobile live
 Jefferson Graham, USA Today
<http://www.usatoday.com/story/tech/2017/02/07/youtube-takes-facebook-mobile-live/37566932/>

YouTube takes on Facebook with mobile live



October 16, 2017 (Engagement)
Learning is More Synchronous
Zoom Weekly Guests, Maria Solomou, Sept. 20, 2017
Personal Zoom link: <https://TU.zoom.us/j/8123222878>



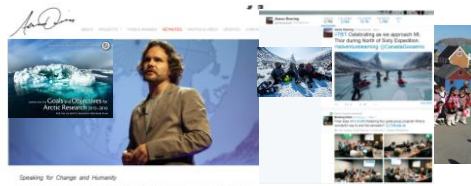
May 7, 2015 (Engagement)

Learning is More Adventurous

Aaron Doering, Chasing Seals, TEDx

<http://chasingseals.com/>

<https://twitter.com/chasingseals>

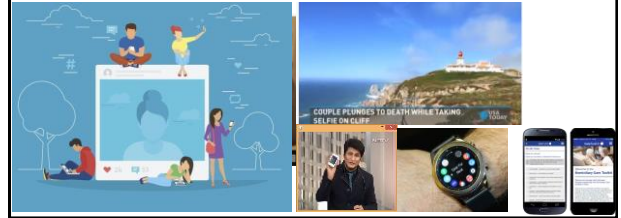


August 4, 2017

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/learning-is-more-mobile-when-smartphones-leave-us-out-of-touch/51462001/>



**Learning is More Free
Want "FREE" engagement?**

How about

"Adding Some TEC-VARIETY"?

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



What motivates?

1. Tone/Climate: Psychological Safety, Comfort, Sense of Belonging
2. Encouragement: Feedback, Responsiveness, Praise, Supports
3. Curiosity: Surprise, Intrigue, Unknowns
4. Variety: Novelty, Fun, Fantasy
5. Autonomy: Choice, Control, Flexibility, Opportunities
6. Relevance: Meaningful, Authentic, Interesting
7. Interactivity: Collaborative, Team-Based, Community
8. Engagement: Effort, Involvement, Investment
9. Tension: Challenges, Dissonance, Controversy
10. Yielding Products: Goal Driven, Purposeful Vision, Ownership



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



August 9, 2017

Learning is More Immediate...

**The biggest dinosaur in history: Archaeologists reveal
122ft long PATAGOTTAN**

Titansaur: the largest animals ever to walk the Earth

<https://www.theguardian.com/science/2016/08/12/dinosaur-titanosaur-the-greatest-architect-ever-walk-earth-argentina>

https://www.youtube.com/watch?v=4QmK53_d_w



June 7, 2017

Learning is More Immediate...

**Oldest Fossils of Homo Sapiens Found in Morocco, Altering History of Our Species,
Carl Zimmer, The New York Times**



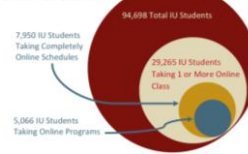
August 1, 2016 (Access)
Learning is More Ubiquitous
 363 by Idea Group; Study Café
 Meeting Place; Idea Space (Seoul, Korea)

http://363.co.kr/en/2016/08/01/363_gallery_study_cafe_11

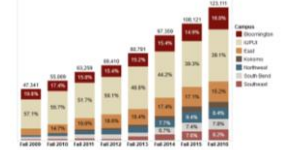


November 1, 2017
Learning is More Online
 Indiana University
 Office of Online Education

Fall 2017
 Online Education at IU



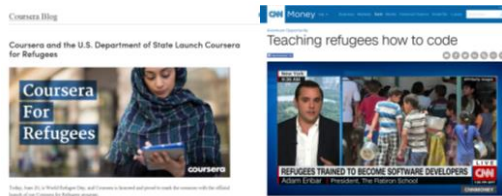
Trends for Total Hours Taken in Online Classes



*Starting in fall 2007, ADP students are excluded from counts.

June 7, 2016
Learning is More Free
 Teaching refugees how to code
 CNN Money

<http://money.cnn.com/video/technology/2016/06/07/teaching-refugees-code.cnnmoney/index.html>



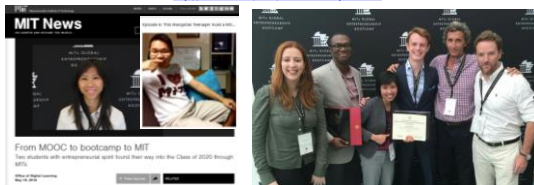
August 5, 2015 (Access)
Learning is More Informal
 Shubham Jaglan (10 years old) Overwhelmed by
 "Dream" Return Home After Double World
 Championship
 Disha Chopra, NDTV Sports

<http://sports.ndtv.com/golf/news/246551-shubham-jaglan-overwhelmed-by-dream-return-home-after-double-world-championship>



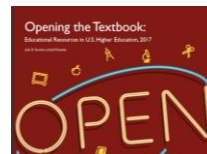
May 19, 2016 (Access)
Learning is More Free and Open
 From MOOC to bootcamp to MIT
 MIT News, Office of Digital Learning
 (Jin Wu—from MITx to MIT Global Entrepreneurship Bootcamp
 to master's student)

<http://news.mit.edu/2016/mooc-bootcamp-mit-0519>



December 19, 2017
Learning is More Free and Open
 OER Adoptions on the Rise
 Lindsay McKenzie, Inside Higher Ed

<https://www.insidehighered.com/news/2017/12/19/more-faculty-members-are-using-oer-survey-finds>



OpenStax Saved 1 Million Students \$70 Million



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.ocis.ca/events/open-education-ontario-summit>

Early Adopter and Adapter Dr. Takashi Sato Physics KPU

Students: 240
Previous Textbook: \$187
OpenStax Textbook: \$0
Student savings: \$40,000
1 course
1 institution
4 terms

The Numbers in BC

151 Open Textbooks
720 Adoptions
31 Institutions
20,312 Students
\$1,998,978 - \$2,517,217

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

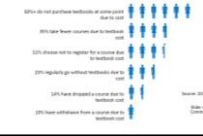
https://www.slideshare.net/David_Porter
<https://www.ocis.ca/events/open-education-ontario-summit>

Why OPEN?

AWARENESS OF OPEN TEXTBOOKS 2015-16



There is a direct relationship between
textbook costs and student success

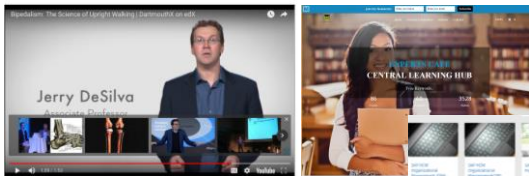
**September 25, 2017****Learning is More Direct from Experts**

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>

**January 9, 2017****Learning is More Direct from Experts**

Jill Watson, Round Three

Georgia Tech course prepares for third semester

with virtual teaching assistants

Jason Maderer, Georgia Tech News Center

<http://www.news.gatech.edu/2017/01/09/jill-watson-round-three>

**May 7, 2014 (Access)****Learning is More Global**

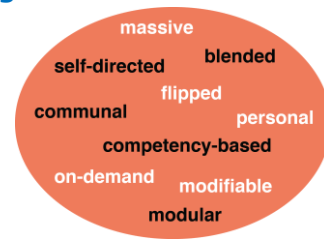
CNA - Speaking Exchange (video chats)

<https://www.youtube.com/watch?v=S-SEfwpF0k>

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.



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



May 9, 2017 (Customization) Learning is On-Demand

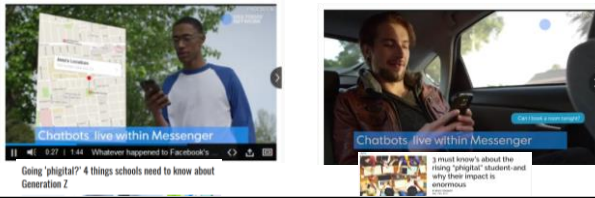
Amazon Echo Show brings chatty Alexa to a two-way, video touchscreen
Edward C. Baig and Elizabeth Weise, USA Today

<http://www.usatoday.com/story/tech/columnists/2017/05/09/amazon-echo-show-touchscreen-video-photos/101448864/>
24 seconds: <http://curtbonk.com/jetsons24.html>
44 Seconds: <http://curtbonk.com/jetsons44.html>



April 17, 2017 Learning is More Blended Facebook's future will blend physical and digital worlds Jessica Guynn, USA Today

<https://www.usatoday.com/story/tech/columnists/2017/04/17/facebook-future-physical-digital-worlds/101448864/>



January 20, 2016 (Customization) Learning is More Blended

Universities tap growth of craft beer, offer classes
Chicago Tribune

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



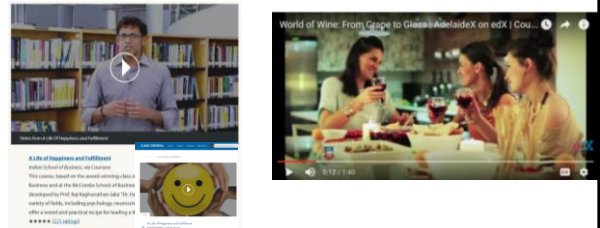
October 13, 2017 Learning is More Massive Udacity Official Declares MOOCs 'Dead' (Though the Company Still Offers Them) Carlos Chen, Vice President & International Executive, Udacity, Jeffrey R. Young, Ed Surge <https://tinyurl.com/yaw4kbvr>



August 12, 2016 (Customization) A Life of Happiness and Fulfillment

Indian School of Business, Rajagopal Raghathan
<https://www.class-central.com/mooc/2868/course-a-life-of-happiness-and-fulfillment>

2:31 Happiness video: <http://curtbonk.com/happiness.html>



May 20, 2016 (Customization) Learning is More Massive agMOOCs (India)

<http://www.agmoocs.in/>



July 1, 2015 (Customization) Learning is More Communal

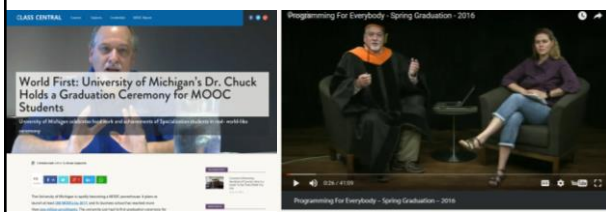
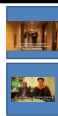
Chapter 14: Creating a Temporary Spontaneous
Mini-Ecosystem through a MOOC
Paul Kim and Charlie Chung, Stanford University
Figure 2. Twitter thread announcing the MOOC



June 14, 2016 (Customization)

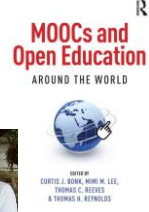
Chapter 15: Learning About MOOCs by Talking to Students
Charles Severance, Univ. of Michigan
Anuar Lequerica, Class Central

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



MOOCs and Open Education Around the World

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



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.techrepublic.com/personal/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

Some researchers are in high demand and others are not. But they may not know it yet, according to a new report from Kaggle.

Here are the 10 skills you need to become a data scientist, the no. 1 job in America.

Some companies are in high demand, and others are not. But they may not know it yet, according to a new report from Kaggle.

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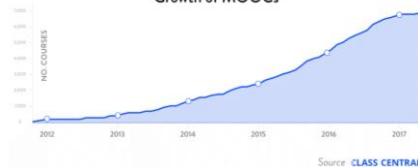
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Some companies are in high demand, and others are not. But they may not know it yet, according to a new report from Kaggle.

August 17, 2017 By the Numbers: MOOCs in 2016 Class Central, Dhawal Shah

<https://www.class-central.com/report/mooc-stats-2016/>

Growth of MOOCs



Source: CLASS CENTRAL

August 7, 2017 MOOCs for Credit

FutureLearn and Coventry University to Roll
Out 50 Online Degrees
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)	FutureLearn/Deakin University		E24k
Development and Humanitarian Action (Masters)	FutureLearn/Deakin University		E24k
Professional Practice Information Technology (Masters)	FutureLearn/Deakin University		E24k

December 25, 2016 Learning is More Massive Class Central

<https://www.class-central.com/report/mooc-stats-2016/>



58M Students
700+ Universities
6850 Courses

MOOCs in 2016. Analysis by Class Central

April 20, 2015 (Customization) Learning is Self-Directed

250 MOOCs and Counting: One Man's
Educational Journey, Chronicle of Higher Education

<http://chronicle.com/article/250-MOOCsCounting-One/239397/?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."

January 9, 2018 (Customization) Learning is More Modular

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

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



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



Any Questions or Comments?

Slides at: TrainingShare.com
Papers: PublicationShare.com
Free book: <http://tec-variety.com/>
Email: curt@worldisopen.com

