

Education 20/20 meets Education 4.0: Visions of Our Changing Learning World!

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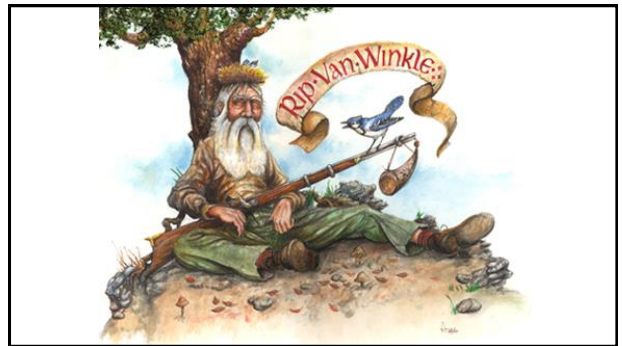


Talk Overview

1. Education 20/20 and Education 4.0
2. Artificial Intelligence vs. Intelligence Augmentation
3. The Evolution of E-Learning
4. Megatrends of Learning: Engagement, Access, and Customization
(30 ways that learning is changing...)
5. Future Trends and Ideas



(Circa Confucius 551–479 BCE)

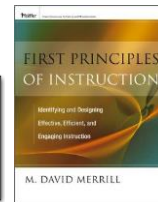
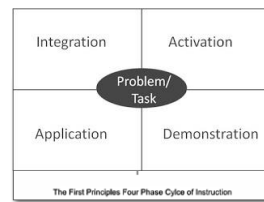


**What happens to
sleeping students?**



Merrill's First Principles of Teaching/Instruction

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



Education 20/20



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

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



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



4. The Principle of Cheerfulness and Optimism

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



5. The Principle of High Expectations

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



6. The Principle of Choice and Options

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



7. The Principle of Empowerment and Autonomy

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



8. The Principle of Support and Feedback

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



9. The Principle of Spontaneity

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



10. The Principle of Organization

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



11. The Principle of Sharing

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



12. The Principle of Nontraditional Learning

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



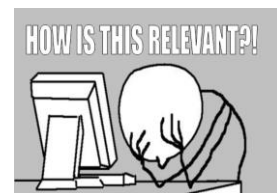
13. The Principle of Passion and Inspiration

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



14. The Principle of Relevance and Meaningfulness

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



15. The Principle of Trial and Error (i.e., it is ok to fail)

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



16. The Principle of Expanded Resources

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



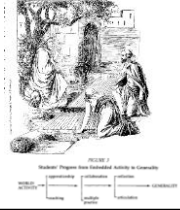
17. The Principle of Human Connectedness

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



18. The Principle of Cognitive Apprenticeship

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



19. The Principle of Purpose and Vision

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



20. ??? (what is missing)

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



Learning is Changing...



Education 3.0...



"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.nhn/fm/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 free/open educational resources for students within discipline, sometimes across institutions	Free/open educational resources created and reused by students across multiple institutions, disciplines, nations, supplemented by original materials created for them
Learning activities	Traditional, essays, assignments, tests, some groupwork within classroom	Traditional assignment approaches transferred to more open technologies; increasing collaboration in learning activities; still largely 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

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/>
(Unemployment, machine super-computing, artificial intelligence, self-driving cars, smart technological tools and environments, genetic editing, etc.)
<http://www.trainingshare.com/fourth-industrial-revolution-video-clip-sheet.php>

Navigating the next industrial revolution

Revolution Year Information

- | Revolution | Year | Information |
|------------|------|--|
| 1 | 1784 | Steam, water, mechanical production equipment |
| 2 | 1870 | Division of labour, electricity, mass production |
| 3 | 1909 | 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
<https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>
<http://trainingshare.com/fourth-industrial-revolution-video-clip.php>
<http://www.tubechop.com/watch/828981>



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>



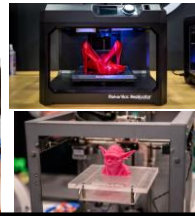
"It's quite clear that the established models of education have to change and adapt to the new environment."

August 17, 2016**Research: 3D Printing Market to Double by 2020**

Joshua Bolkan, Campus Technology

<https://campustechnology.com/articles/2016/08/17/research-3d-printing-market-to-double-by-2020.aspx>**Research: 3D Printing Market to Double by 2020**

By Joshua Bolkan 08/17/16

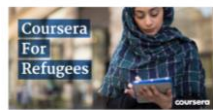
**June 7, 2016****Teaching refugees how to code, CNN Money**<http://money.cnn.com/video/technology/2016/06/07/recode-flattop-refugees-code.cnnmoney/index.html>**June 20, 2016****Coursera on a Mission to Help Refugees**

Lauren Camera, US News and World Report

<http://www.usnews.com/news/articles/2016-06-20/coursera-on-a-mission-to-help-refugees>

Coursera Blog

Coursera and the U.S. Department of State Launch Courses for Refugees



Today, New York is a leading global city, and Coursera is proud to help the world's most vulnerable people.

**September 21, 2016****Udacity Unveils Nanodegree Program for Self-Driving Car Engineers**

Sri Ravipati, Campus Technology

<http://campustechnology.com/articles/2016/09/21/udacity-unveils-nanodegree-program-for-self-driving-car-engineers.aspx>**Udacity Unveils Nanodegree Program for Self-Driving Car Engineers**

By Sri Ravipati 09/21/16

**February 9, 2017****More black and Latino students learn to code as Code.org classes swell**

essica Guynn, USA Today

<http://www.usatoday.com/story/tech/news/2017/02/09/codeorg-reaches-black-latino-students/97671518/>**More black and Latino students learn to code as Code.org classes swell**

Associated Press 02/09/17 11:57 AM Updated on Feb. 9, 2017

**July 28, 2016****Knod**

(Per Dr. Michael Mayrath: work with employers to diagnose skills gaps, then provide a platform to deliver content to build those skills in a learn by doing experiences, real projects with employers)

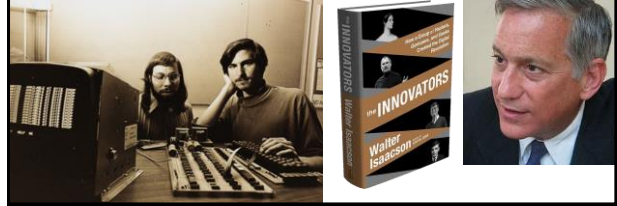
<http://www.knod.net/>

Poll:
**Read any good books lately
 detailing this shift?**



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

<http://books.amazon.com/Books/Books/Books/The-Innovators-Walter-Isaacson/9781475928899>



Machines of Loving Grace:
 The Quest for Common Ground Between
 Humans and Robots. HarperCollins.
 John Markoff (2015)

<http://www.amazon.com/Machines-Loving-Grace-Common-Between/dp/0062266683>



Artificial Intelligence
 John McCarthy, Stanford AI Lab

<http://www.amazon.com/Machines-Loving-Grace-Common-Between/dp/0062266683>



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

<https://www.chronicle.com/article/Artificial-Intelligence-and-Robots/238282>

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

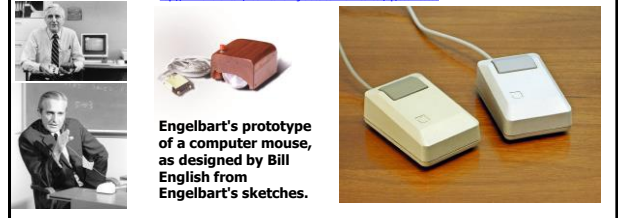
By Paul Basken | March 14, 2016



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.amazon.com/Machines-Loving-Grace-Common-Between/dp/0062266683>



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

June 10, 2015

Augmented reality promises 'superpowers', and people are listening

The USA Today, Marco della Cava

<http://www.foxnews.com/story/2015/06/10/letsee-app-south-korean-consumers-to-scan-a-product-and-see-reviews-instantly-overlaid-overtop/>



Letsee is an AR app from a South Korean consumer to scan a product and see reviews instantly overlaid overtop.



June 3, 2016

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

Elyse Wanshel, Huffington Post

<http://ht.ly/bSpe300XEP>

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

This could be empathy 2.0 for the average third student who is 34.



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

April 10, 2016

Virtual reality tested by NFL as tool to confront racism, sexism

Marco della Cava, USA Today

<http://www.usatoday.com/story/tech/news/2016/04/08/vr-test-vrality-tested-tool-confront-racism-sexism/8267466/>



One VR diversity demo places the user in the body of an African-American woman as a white male avatar gets aggressive mere feet away. (In one Stanford VR demo, subjects are made to feel what is like to be homeless, as in this scene where the user is transported into the body of a woman riding the bus with a few possessions.)

Knowledge Navigator (1987) Apple Computer

<http://www.youtube.com/watch?v=h4kzFwEoc>



October 14, 2011

Siri (co-founder Tom Gruber)

<http://www.imore.com/siri>



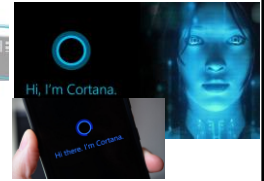
May 9, 2016

Personal Digital Assistants (PDA)

Personal digital assistants are on the rise (and they want to talk)

USA Today, Edward Baig (i.e., Google codename of "Chirp"), Elizabeth Weise, USA Today

<http://www.usatoday.com/story/tech/news/2016/05/09/personal-digital-assistants-are-on-the-rise-and-they-want-to-talk/8222884/>



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

世界是开放的
网络技术如何变革教育
The World Is Open
Curtis J. Bone
Web Technology
Revolutionizing Education

February 22, 2017

Digital citizenship lessons from a 9-year-old with 18,000 Twitter followers, Alan November, eSchool News

<http://www.eschoolnews.com/2017/02/22/digital-citizenship-twitter/>
<http://www.eschoolnews.com/2017/02/22/digital-citizenship-twitter/>
<http://www.eschoolnews.com/2017/02/22/digital-citizenship-twitter/>
<http://www.eschoolnews.com/2017/02/22/digital-citizenship-twitter/>
<http://www.eschoolnews.com/2017/02/22/digital-citizenship-twitter/>

Digital citizenship lessons from a 9-year-old with 18,000 Twitter followers

BLC17 Keynote Speakers

August 5, 2015

Shubham Jaglan (10 years old) Overwhelmed by "Dream" Return Home After Double World Championship

Disha Chopra, NDTV Sports

<http://www.ndtv.com/sports/2015/08/05/shubham-jaglan-overwhelmed-by-dream-return-home-after-double-world-championship>
<http://www.ndtv.com/sports/2015/08/05/shubham-jaglan-overwhelmed-by-dream-return-home-after-double-world-championship>
<http://www.ndtv.com/sports/2015/08/05/shubham-jaglan-overwhelmed-by-dream-return-home-after-double-world-championship>

India's Golf Prodigy Shubham Jaglan Returns Home to Hero's Welcome

April 20, 2015

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

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."

July 2016

The Awareness Problem: Opening the Textbook: Educational Resources in U.S. Higher Education, 2015-2016

I. Elaine Allen and Jeff Seaman, Babson Survey Research Group

<http://www.babsonsurveyresearch.com/reports/opening-the-textbook-2016.pdf>

AWARENESS OF OPEN TEXTBOOKS: 2015-16

Very aware
Aware
Somewhat aware
Not aware

OER Use to Triple Over Next 5 Years

OER Use to Triple Over Next 5 Years

January 3, 2017

College is Over

Roger Schank, LinkedIn

<http://www.sandiegouniv.edu/news/science/schank-sabota-jane-20161213-story.html>

College is Over

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.

January 15, 2016 Wikipedia is 15!

Scott McLemee, Inside Higher Ed



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 is 15!

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



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>



1971 Email is 35 years old!

Raymond Tomlinson, inventor of modern email, dies, USA Today (March 7, 2016)

<http://www.usatoday.com/story/tech/2016/03/07/35-years-after-inventing-email-dies/8143454/>

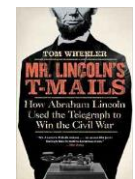
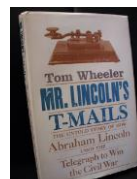
Raymond Tomlinson, inventor of modern email, dies



Invented: May 24, 1844 150 Years since Lincoln needed the Telegraph (T-Mail)

Mr. Lincoln's T-Mails: How Abraham Lincoln Used the Telegraph to Win the Civil War, Tom Wheeler (2008).

<http://www.amazon.com/Mr-Lincolns-T-Mails-Abraham-Telegraph/dp/0061120841>

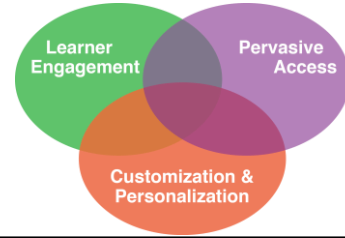


Thirty Ways Learning is Changing...

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



30+ Ways Learning is Changing: The Mega Trends



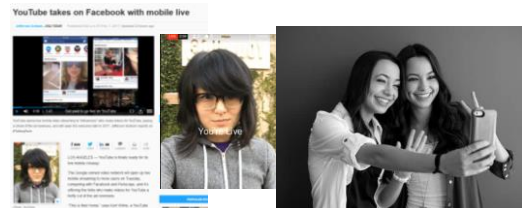
How Learning is Changing: Mega Trend #1. Learner Engagement



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/97566592/>



August 23, 2016 (Engagement) Learning is More Visual

e.g., reef videoconferencing
(Great Barrier Reef, Australia)

<http://www.reef.org.au/education-at-reef-the-aquarium/reef-videoconferencing>



May 7, 2015 (Engagement) Learning is More Adventurous

Aaron Doering, Chasing Seals, TEDx

<http://chasingseals.com/>
<https://twitter.com/chasingseals>



July 22, 2016 (Engagement)

Learning is More Game-like

When Pokémon Goes to Campus:

The Good, the Bad, and the Ugly
Gabriel Sandoval, Chronicle of Higher Education



Pokémon Go players converged last week on the U. of Nebraska at Lincoln's Memorial Stadium, which officials had opened to the animated-monster hunters. The hit augmented-reality game has prompted many colleges to jump on the bandwagon.

April 2, 2015 (Engagement)

Learning is More Immersive

The Quest to Put More Reality in Virtual Reality.
Review: Samsung rises to challenge with Galaxy S6 and S6 Edge,
Edward Balg, USA Today



NextVR crewmembers set up their virtual reality cameras at an NBA game, allowing viewers of the live event to see the game from a variety of positions in the arena.

February 15, 2017 (Engagement)

Learning is More Synchronous

Shindig, Future Trends Forum, Bryan Alexander

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

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

<http://events.shindig.com/event/16f-anniversary>



February 17, 2016 (Engagement)

Learning is More Mobile

World's Cheapest Smartphone at \$3.67

https://m.facebook.com/haiting/launched?refid=525..._&_%26

https://m.facebook.com/story.php?story_fbid=1615376001211579&id=192827336797

<http://gadgets.ndtv.com/videos/freedom-251-launch-as-world-s-cheapest-smartphone-at-rs-251-40488>



Samsung Pay on the Gear S3. (Photo: Eli Blumenthal, USA TODAY)



Samsung is hoping to have 10,000 apps by the time the Gear S3 launches this fall.

September 7, 2016 (Engagement)

Learning Apps - Personalized Interfaces for Performance

Elliott Masie's Learning TRENDS; trends@masie.com

Personalized for an employee based on their development goals, competency gaps and changing skill/information matrix in the workplace. A Learning App could provide a just in time set of content, context, collaboration connections, coaching sets and real time feedback.

Learningpool: <https://www.learningpool.com/services/apps-for-learning>



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: Challenge, Dissonance, Controversy
10. Yielding Products: Goal Driven, Purposeful Vision, Ownership



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

informal
free
open
synchronous
online
immediate
global
video-based
ubiquitous
direct from experts

July 21, 2016 Facebook's Aquila drone completes first test flight

Jessica Gwynn, USA Today

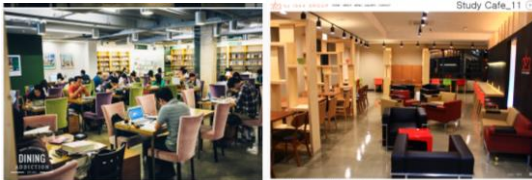
<http://www.usatoday.com/story/tech/news/2016/07/21/facebook-aquila-completes-first-test-flight/87268916/>



An aerial view of Aquila, a autonomous aircraft Facebook is designing to deliver mobile broadband networks to isolated people (mission to fly 60,000 above Earth for up to 3 months at a time; current record for solar-powered unmanned flight is 2 weeks). (Photo: Facebook)

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

http://363.co.kr/wp/?page_id=244
http://363.co.kr/wp/?m_gallery=study-cafe_11



September 28, 2016 (Customization) Learning is More Free Bookshare, An accessibility online library for people with disabilities

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

Accessibility Nonprofit Delivers 10 Million Accessible E-Books

By Siri Karpinski | 09/22/16

A California-based nonprofit has reached a significant milestone: delivering more than 10 million accessible e-books worldwide.



May 4, 2016 (Access) Learning is More Video-Based What I Learned at the ASU GSV Summit Kenneth Green, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/article/2016/05/04/what-i-learned-at-the-asu-gsv-summit>
Survey: Video Usage in Ed Continues Ramp-up,
Dian Schaffhauser, THE Journal

July 18, 2016 (Access)

ASU GSV Summit



September 14, 2015 (Access) Learning is More Video-Based Credit for Watching a TED Talk? A new platform aims to help employers track casual learning

Chronicle of Higher Education, Jeffrey R. Young

<http://chronicle.com/article/Credit-for-Watching-a-TED-Talk/233072>
Degreed: <https://degreed.com/>

September 14, 2015

Credit for Watching a TED Talk?

A new platform aims to help employers track casual learning



Learn Anything.
Using the World's Best Resources.



May 14, 2016 (Access)
Learning is More Immediate...
Mastodon bones offer clues of earliest humans in North America, Faith Karimi, CNN

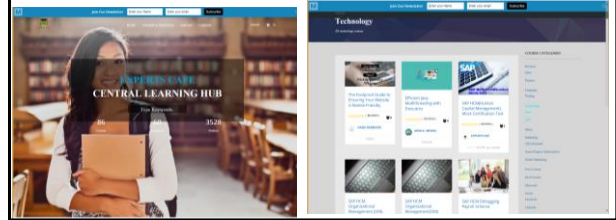
Abstract: <http://advances.sciencemag.org/content/2/5/e1600375.full>
 Full Article: <http://advances.sciencemag.org/content/2/5/e1600375.full>
 Supplemental materials (PDF): <http://advances.sciencemag.org/content/suppl/2016/05/10/2.5.e1600375.DC1>
 PDF: http://advances.sciencemag.org/content/suppl/2016/05/10/2.5.e1600375.DC1/1600375_S1.pdf

Mastodon bones offer clues of earliest humans in North America



June 20, 2016 (Access)
Learning is More Direct from Experts
(e.g., The Expert Café)

<http://expertscafe.com/>



June 13, 2016 (Access)
Nine-Year-Old Anvitha Vijay is the Youngest Developer at WWDC (age 9)
(Apple Worldwide Developers Conference), Gadgets

<http://gadgets.ndtv.com/apps/news/story-nine-year-old-anvitha-vijay-is-the-youngest-developer-at-wwdc-2016-84841576>



May 4, 2016 (Access)
This Mongolian Teenager Aced a MOOC
Now He Wants to Widen Their Impact
(140,000 people take the MIT MOOC on Circuits and Electronics, 5 of 300 to get a perfect score)
The Chronicle of Higher Education, Jeffrey R. Young

<http://chronicle.com/article/This-Mongolian-Teenager-Aced-a-MOOC/236362>

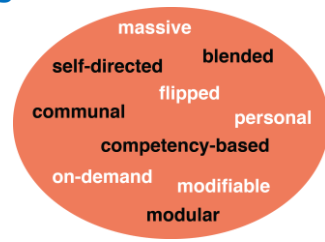


May 19, 2016 (Access)
From MOOC to bootcamp to MIT
MIT News, Office of Digital Learning
(Jin Wu—from MITx to MIT Global Entrepreneurship Bootcamp to master's student)

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



How Learning is Changing:
Mega Trend #3. Customization



September 7, 2016 (Customization) Learning is More Comfortable

The Future of Collaboration Spaces Encompasses Video Interactive, Mobil, Julie Johnston, IU, Campus Technology
<http://campustechnology.com/article.aspx/2016/09/07/the-future-of-collaboration-spaces-encompasses-video-interactive-mobile.aspx>



In the Indiana University Media School lobby, a large display will showcase student work and provide interactive sessions. (photo by Allen Major/The Media School @ Indiana University)

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>



February 16, 2017 Learning is More Communal

Building Global Community, Marc Zuckerberg, Facebook
<https://www.facebook.com/notes/mark-zuckerberg/building-global-community/1010350821158471/>



Mark Zuckerberg publishes manifesto to save the world



February 16, 2017 Zuckerberg: Bonds between strangers can help in divisive times

Jessica Guynn, USA Today
<http://www.usatoday.com/story/tech/2017/02/16/mark-zuckerberg-facebook-community/2172739/>

Zuckerberg: Bonds between strangers can help in divisive times



May 20, 2016 (Customization) Learning is More Massive agMOOCs (India) <http://www.agmoocs.in/>



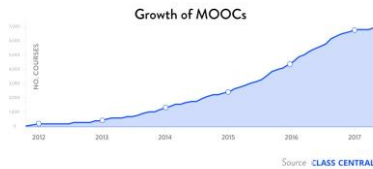
September 15, 2015 Customization) GROOCs are MOOCs for Social Impact

Social Learning for Social Impact, edX
Join the world's first GROOC – a MOOC for groups – to collaborate with others globally and create social change.
<https://www.edx.org/course/social-learning-social-impact-impact-social>
<https://www.youtube.com/watch?v=3d4eW9W5A80>



December 25, 2016
By The Numbers: MOOCS in 2016
 Dhawa Shah, Class Central

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



December 25, 2016
Class Central

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



58M Students
700+ Universities
6850 Courses

MOOCs in 2016. Analysis by Class Central

December 23, 2016
HarvardX and MITx: Four Years of Open Online Courses -- Fall 2012 - Summer 2016
 Isaac Chung, MIT, and Andrew Dean Ho, Harvard

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2889436

Exhibit 2: Course participation and demographics

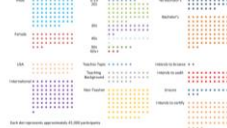
Exhibit 2a: The size and makeup of a typical HarvardX and MITx open online course

Courses (including repeats and modules)	290
Certificates (free and paid)	244,705
Enrollments (across >50% content)	739,269
Participants (across content)	4,449,034
Certificate sections per course	500
Enrollments per course	2,547
Participants per course	15,342
Percentage of female participants	32%
Percentage of bachelor's degree holders	73%
Median age	29
Percentage from the United States	29%

Note: Per-course and demographic statistics are medians of course-level statistics.

- The typical HarvardX/MITx course or module certifies 500 participants.
- Around 1,500 will explore half or more of course content.
- Around 7,500 will access the course content.

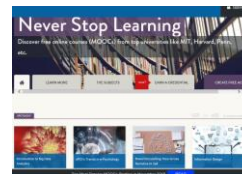
Exhibit 2b: HarvardX and MITx open online courses, also available on



August 12, 2016 (Customization)
Class Central's Top 50 MOOCs of All Time,
 Dhawal Shah, Class Central Blog

"Now there are close to 6,000 MOOCs from 600+ universities around the world."

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



August 12, 2016 (Customization)
A Life of Happiness and Fulfillment
 Indian School of Business, Rajagopal Raghunathan

<https://www.class-central.com/mooc/2860/courses-a-life-of-happiness-and-fulfillment>



A Life of Happiness and Fulfillment

Indian School of Business, Rajagopal Raghunathan

This course, based on the award-winning class offered both at the Indian School of Business and at the MIT Sloan School of Management, is a unique blend of business and happiness. It explores the science of happiness and the role of business in creating a better world. The course is designed to help students understand the factors that lead to a happy and fulfilling life, and how they can apply these insights to their own lives and careers.

★★★★★ (22 ratings)



A Life of Happiness and Fulfillment

August 30, 2016

Thousands sign up for free online wine course, John Elmes, Wine News

<http://www.deccanherald.com/wine-news/online-wine-course-adopts-323646/>



August 5, 2015 (Customization) How Nanodegrees Are Disrupting Higher Education

John Waters, Campus Technology

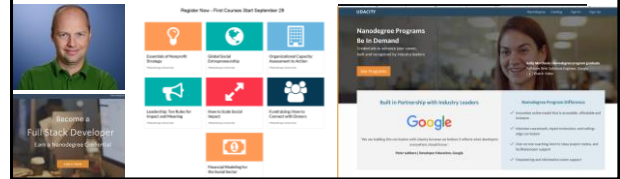
<http://campustechnology.com/articles/2015/08/05/how-nanodegrees-are-disrupting-higher-education.aspx>



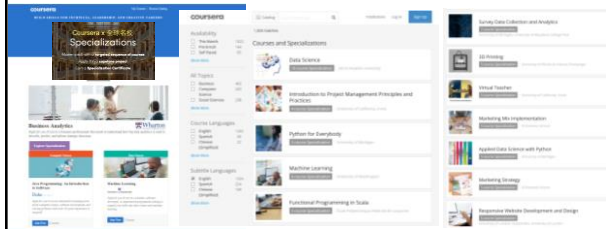
January 13, 2016 (Customization) Degree gets you a tech job — or your money back

Marco della Cava, USA Today

<http://www.usatoday.com/story/tech/news/2016/01/13/degree-give-you-tech-job-your-money-back/78703226/>



July 28, 2016 (Customization) Coursera Specializations email Starting Monday August 1st: 9 Top Specializations



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) World First: University of Michigan's Dr. Chuck Holds a Graduation Ceremony for MOOC Students

Anuar Lequerica, Class Central

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



Type of MOOC	cMOOC	xMOOC	pMOOC
Learner Role	Active	Passive	Active
Instructor Role	Co-learner	Sage on video stage	Guide on the side
Learning Theory	Connectivism	Behaviorism	Constructivism
Primary Pedagogy	Knowledge integration	Knowledge duplication	Knowledge production
Metaphor	"We link movies"	"We watch movies"	"We make movies"
Development Approach	Learning design	Instructional design	Educational design research
Primary Type of Assessment	Self Assessment	External and/or Peer Assessment	Self and/or Client Assessment
Funding Source	Seat of the pants funding	Large external funding	Moderate client provided funding

Figure 1. Differences among three types of MOOCs (Reeves & Hedberg, 2014).

Bonk, C. J., Lee, M. M., Reeves, T. C., & Reynolds, T. H. (in press). The emergence and design of massive open online courses (MOOCs). In R. A. Reiser, & J. V. Demsey (Eds.), *Trends and Issues in Instructional design and technology* (4th Ed.), (pp.7). Boston, MA: Pearson Education. Available: <http://www.publicationshare.com/3>

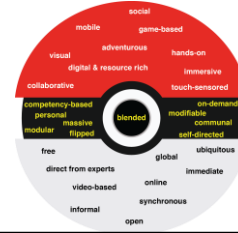
August 24, 2016
K-MOOCs (and ocMOOCs and hMOOCs)
Revolutionizing online education
Professor creates courses tailored to cultural differences
 Korea JoongAng Daily, Bong-Moon Kim
<http://koreajoongangdaily.joins.com/2016/08/24/education/kmooc/20160824kmooc1>
<http://www.kmooc.kr/>



May 4, 2016
MOOC 4.0: The Next Revolution in Learning & Leadership
 Otto Scharmer, Huffington Post
http://www.huffpost.com/otto-scharmer/mooc-40-the-next-evolution_n_7209906.html



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



WHAT'S NEXT

September 2, 2016
Humans, the Latest MOOC Feature
Introduction to Philosophy: God, Knowledge and Consciousness
 (\$300 USD for an identity-verified certificate)
 Carl Straumsheim, Inside Higher Ed
<https://www.insidehighered.com/news/2016/09/02/massachusetts-institute-technology-experiments-instructor-grading-massive-open>



Humans, the Latest MOOC Feature

MIT experiments with instructor grading in massive open online courses as a way to expand teaching and learning opportunities for students and instructors.

September 2, 2016
 by Carl Straumsheim



One of the Massachusetts Institute of Technology's most popular massive open online courses is adding a feature not seen in any of its other humanities MOOCs: instructors grading essays.

January 30, 2017

Personal Professor Albert Einstein

<http://www.usatoday.com/story/tech/2017/01/30/robotic-barista-now-serving-really-fast/95888780/>



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-barista-now-serving-really-fast/95888780/>

Things are heating up!

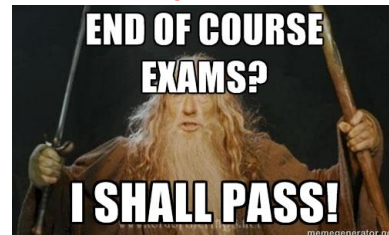


**Education 4.0 is coming
within reach!**



Poll #10:

**Who is now interested in Education
20/20...?**



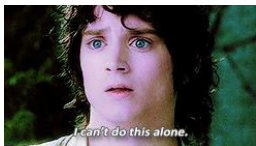
**Remember for Education 20/20
to meet Education 4.0:**

"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: curt@worldisopen.com

