

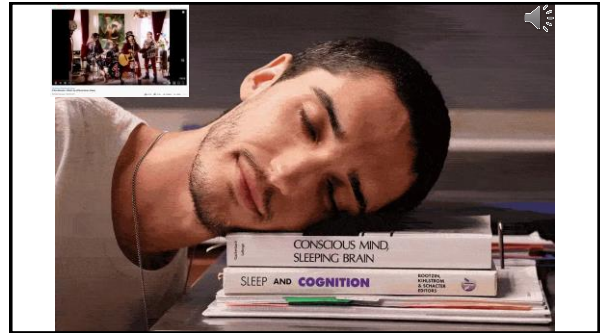
Time to Wake Up from Our Innovative Learning Dreams and Make Smarter Learning a Reality

Curtis J. Bonk, Professor, Indiana University

cjbonk@indiana.edu
<http://curtbonk.com/>



1



2

Innovative Learning Dreams...

December 1, 2020

Catherine Offord, The Scientist

<https://www.the-scientist.com/infographics/infographic-the-technology-scientists-use-to-engineer-dreams-58171>



3

October 27 and November 27, 2020

Robots on the rise as Americans experience record job losses amid pandemic
 Lauran Arantani, The Guardian

U.S. Lost Over 60 Million Jobs—Now Robots, Tech And Artificial Intelligence Will Take Millions More
 Jack Kelly, Forbes

<https://www.forbes.com/sites/jackkelly/2020/10/27/u-s-lost-over-60-million-jobs-now-robots-tech-and-artificial-intelligence-will-take-millions-more/#1a3d95961a83>

Robotics and automation have been a hot topic for decades, and now it's becoming more real than ever

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



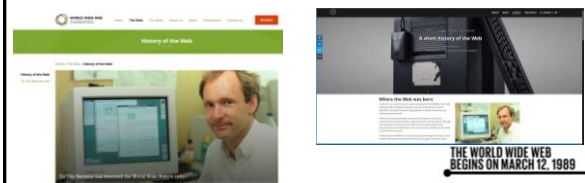
4

August 6, 2021

The Web is now 30+!

<http://info.cern.ch/> (First website)

<http://money.com.com/2010/08/06/technology/the-world-wide-web-30-years-old/index.html?cid=hp-stack-down>
<https://webfoundation.org/about/mission/history-of-the-web/>
<https://thome.com/science/competing/first-web/about-history-web>



5

January 15, 2021

Wikipedia is now 20+!

Simon Garfield, Equire: What We Know And Can Agree On: Wikipedia At 20

https://en.wikipedia.org/wiki/Wikipedia:20th_anniversary

<https://www.esquire.com/uk/culture/a34412278/wikipedia-at-20/>
<https://wikipedia20.pubpub.org/>



6

April 4, 2021

MIT OpenCourseWare is now 20+!

<https://www.youtube.com/watch?v=0aAEamhJHUI>
<https://ocw.mit.edu/about/milestones/>
<https://news.mit.edu/2021/mit-courseware-educational-resource-to-millions-0406>



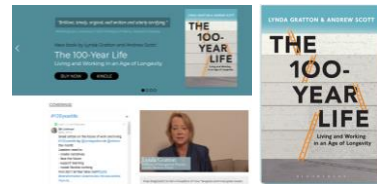
7

July 24, 2018

The 100-Year Life: Living and Working in an Age of Longevity

Lynda Gratton and Andrew Scott

<http://www.100yearlife.com/>
<https://www.amazon.com/100-Year-Life-Living-Working-Longevity/dp/1543624624>



8

March 13, 2019

The Career Curriculum Continuum

Andrew Hermalyn, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/views/2019/03/13/how-universities-can-stay-center-business-future-opinion>



9

February 25, 2020

The 60 Year Curriculum: Developing New Educational Models to Serve the Agile Labor Market

Chris Dede, Harvard University, The Evollution

<https://evolution.com/news/education/professional-development/the-60-year-curriculum-developing-new-educational-models-to-serve-the-agile-labor-market/>
<https://thebellinc.com/podcast/219>



10

Dreams of Smarter Learning... Center for the Advancement of Teaching Temple University, Paul Blaschko



11

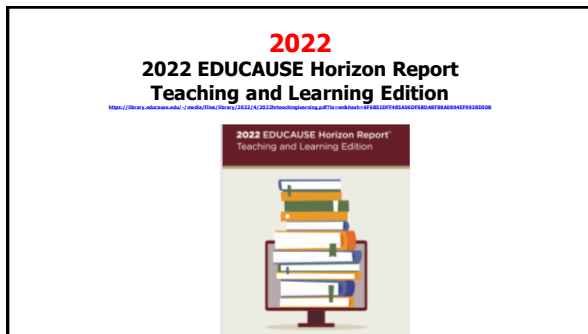
November 11, 2020

Educational technology is coming of age during the pandemic: Nowhere more so than in India

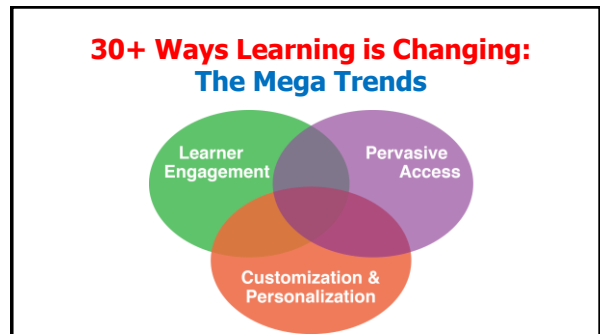
<https://www.economist.com/international/2020/11/11/educational-technology-is-coming-of-age-during-the-pandemic>



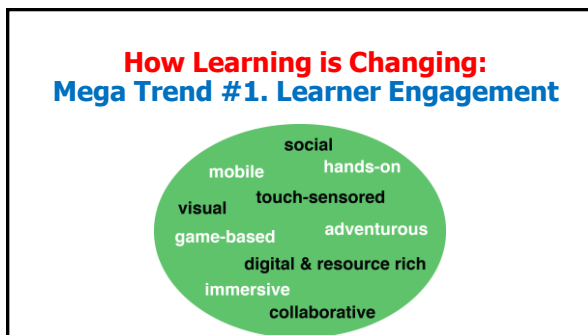
12



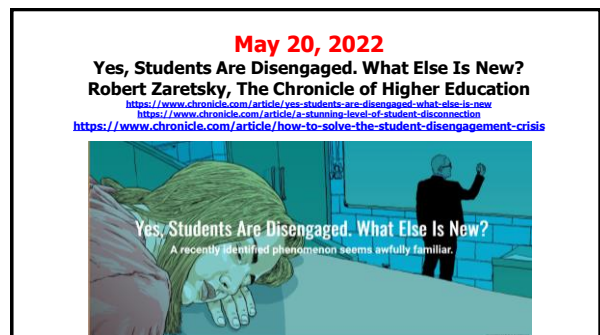
13



14



15



16



17



18

June 24, 2021**Learning is More Immersive**

This Week In XR: VR Ad Excitement, Tencent Invests \$50M In
Ultraleap, The LinkedIn Of VR
Charlie Fink, Forbes

<https://apple.news/A0dVCTuP7Qau0YdrQcchb6A>

A New World Awaits – Varjo's Special Event on June 24, 2021

Metaverse explained (22:50): <https://www.youtube.com/watch?v=MHDfNr0MNek>

<http://curtbonk.com/vr3.html>

Mixed Reality Hand Tracking with Varjo XR-1 and Ultraleap (solar system/Earth):
Video (1:20): <http://curtbonk.com/vr1.html>



25

August 20, 2021**Learning is More Immersive**

How virtual reality can help to recruit and train staff
By Bernd Debusmann Jr, BBC

<https://www.bbc.com/news/business-57805093>

How virtual reality can help to
recruit and train staff



Companies with workers in remote
locations can benefit from VR says
Tom Symonds



26

June 1, 2022**Meet the Metaverse**

Michael B. Horn, Education Next

<https://www.educationnext.org/meet-the-metaverse-new-frontier-virtual-learning/>



27

November 3, 2021**What is Microsoft's Metaverse?**

The metaverse is here, and is our increasingly digital world, we continue to focus on bringing humanity to every digital interaction. That's why we announced Mesh for Microsoft Teams at Ignite 2021, our gateway to the metaverse and a way to make online meetings more personal, engaging and fun. You can think of the metaverse as a new version – or a new vision – of the internet, one where people gather to communicate, collaborate, and share with a personal virtual presence on any device.

Read the article here: <https://www.microsoft.com/information>. Learn more: <https://www.microsoft.com/en-us/mesh>

Video (2:19): <https://www.microsoft.com/en-us/mesh>



28

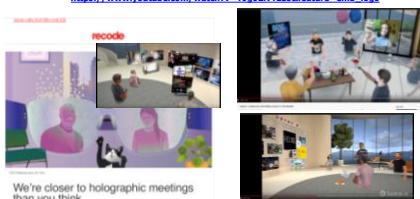
September 15, 2020

We're closer to holographic meetings than you think
Adam Clark Estes, Recode/VOX

<https://www.vox.com/2020/9/15/21444444/recode-vox-meets-the-founders-of-spatial-in-vr>

Spatial - Collaborate with lifelike avatars in VR/AR/Web (May 12, 2020: 37 seconds):
<https://curtbonk.com/spatial.html>

Hyper Reality (May 19, 2016: 6:15):
https://www.youtube.com/watch?v=72p02v755k&feature=emb_logo



29

September 15, 2020**Holographic teaching presence:**

Participant experiences of interactive synchronous seminars delivered via holographic
videoconferencing

Nai Li* and David Lefevre, Imperial College Business School, Imperial College London
Research in Learning Technology, Vol. 28, 2020

<https://journal.ait.ac.uk/index.php/rlt/article/view/2265>



Figure 1. The community of inquiry framework.



Figure 3. An example of a display studio.

30

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



31

September 10, 2019 The Future of Learning, Transforming Access Simon Nelson, CEO, FutureLearn, PCF9 Conference, Edinburgh, Scotland



32

June 17, 2021 Outschool (low cost online) Learning is More Online... <https://outschool.com/>

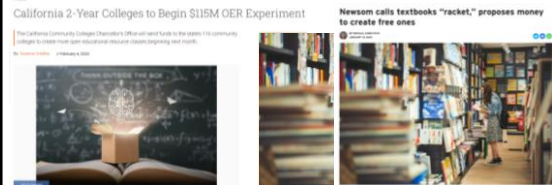


33

February 4, 2022 California 2-Year Colleges to Begin \$115M OER Experiment Suzanne Smalley, Inside Higher Ed (results in better grades, lower costs)

<https://www.insidehighered.com/news/2022/02/04/california-2-year-colleges-oer-experiment>
<https://www.insidehighered.com/news/2022/02/04/california-2-year-colleges-oer-experiment>
<https://www.insidehighered.com/news/2022/02/04/california-2-year-colleges-oer-experiment>
<https://www.insidehighered.com/news/2022/02/04/california-2-year-colleges-oer-experiment>

The grant program concluded in 2019 and it is anticipated that the 23 community colleges produced 34 Zero Textbook Cost degrees or certificates, saving 23,373 students approximately \$40,311,208 in textbook costs resulting in an **888% ROI** (return on investment) from the original \$5 million invested by the CA Community College Chancellor's Office.



34

Learning is More Free and Open Introducing the TEC-VARIETY Model

<http://tec-variety.com/>
<http://tec-variety.com/TEC-VARIETY-Chinese.pdf>



35

November 10, 2020 Learning is More Synchronous "Telepresence" robots are making virtual school feel a little more like real school Jennifer Davis, The Washington Post

<https://www.washingtonpost.com/technology/2020/11/11/educational-technology-is-coming-of-age-during-the-pandemic/>



36

June 18, 2021

Learning is More Synchronous

I am writing to send a screenshot of the synchronous hybrid English class for rural Chinese students. I also have a short video clip (though not in high quality), if you are interested.



37

June 15, 2020

Learning is More Globally Collaborative

Lewis F. Cole Middle School Virtual Band Concert

9:13: https://www.youtube.com/watch?v=yqP15zu_C4



38

April 11, 2020

Learning is More Video-based...

(e.g., Flipgrid)

Ed Tech with Adam: <https://www.youtube.com/watch?v=hysv0PwgsFs>
<https://edtechsearch.com/2021/01/18/microsoft-acquires-social-learning-platform-flipgrid/>



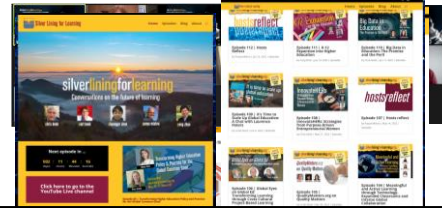
39

June 25, 2021

Learning is More Video-based...

Silver Lining for Learning

<https://silverliningforlearning.org/>
https://www.youtube.com/channel/UC9XEsh89qrTlpmVvpQt_nA/live



40

How Learning is Changing: Mega Trend #3. Customization



41

June 2, 2021

A Pandemic Silver Lining? More People Are Talking About Teaching

Beckie Supiano, The Chronicle of Higher Education

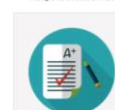
<https://www.chronicle.com/article/a-pandemic-silver-lining-more-people-are-talking-about-teaching>

A Pandemic Silver Lining? More People Are Talking About Teaching
 By Beckie Supiano | June 1, 2021



View Online: <https://www.chronicle.com/2021/06/01/teachers-give-passing-grades-to-pandemic-learners/>

eCAMPUS NEWS
 Today's Innovations in Education



Students give passing grades to pandemic learning


Laura Pustone
 May 17, 2021
 Survey results are promising and indicate that online learning was more successful than many in higher ed initially believed

42

June 17, 2021

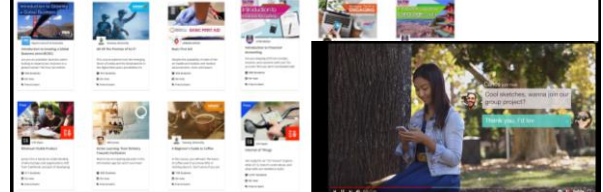
Free Book: Hybrid-Flexible Course Design
<https://edtechbooks.org/hyflex>

Planning for a Blended Future:
A Research-Driven Guide for Educators
<https://www.everglades everywhere.org/resources/planning-for-a-blended-future/>
<https://www.chronicle.com/article/how-to-prepare-for-the-next-phase-of-hybrid-teaching/>



43

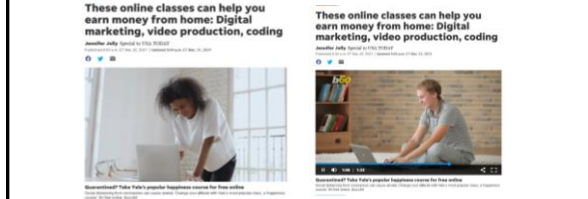
Learning is More Self-Directed
The LMS Market is Quickly Losing Ground
 Carol Leaman, CLO
<https://www.openlearning.com/>
<https://www.openlearning.com/>



44

March 20, 2021

These online classes can help you earn money from home: Digital marketing, video production, coding
 Jennifer Jolly, USA Today
<https://www.usatoday.com/story/tech/columnist/2021/03/20/online-classes-earn-money-digital-marketing-video-coding/753042001/>



45

Learning is More Self-Directed
Language Lessons Online
 e.g., BBC Learning English, Duolingo, Babbel, SpanishPod, etc.
 (Zixi Li & Curt Bonk, June 2022, Duolingo Research)
<http://www.bbc.co.uk/learningenglish>



46

February 1, 2021

Yale is offering its highly popular 'happiness' course to high school students for free
 By Marika Gerken, CNN
<https://www.cnn.com/2021/02/01/us/yale-good-life-class-trnd-wellness/index.html>
(3.4 million enrolled, 28,500 reviews)

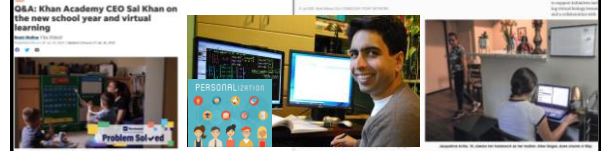
Yale is offering its highly popular 'happiness' course to high school students for free



47

July 31, 2020

Learning is More Personal
Khan Academy aims to give 'strategic supplement'
 Brett Molina, USA Today
<https://www.usatoday.com/story/tech/2020/07/30/khan-academy-ai-sal-khan-grappling-fall-virtual-learning/5525480002/>



48

49

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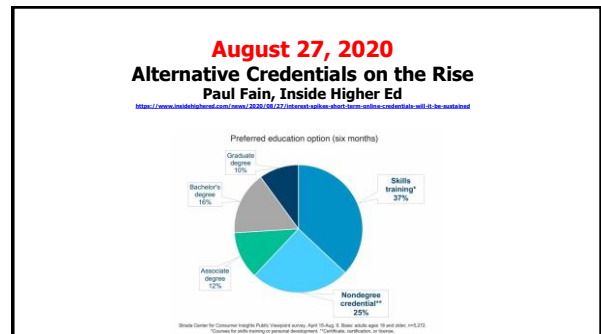
August 27, 2020
Alternative Credentials on the Rise
 Paul Fain, Inside Higher Ed
<https://www.insidehighered.com/news/2020/08/27/inside-highered-short-term-online-credentials-will-20-be-sustained>

Google IT Professional Certificates

Integrated nondegree/certificate programs will likely remain a fast-growing market segment

Sources: Moody's, U.S. Department of Education

55



56



57

February 6, 2021
Microlearning: A Pathway to Effective Training Retention and Behavioral Change
 Jiani Wu, Venngage
<https://www.venngage.com/articles/microlearning>

Microlearning (Microlearning) Wiley, Chai, TechTarget
<https://www.techtarget.com/whatis/definition/microlearning>

Microlearning: A Pathway to Effective Training Retention and Behavioral Change

Microlearning	Macrolearning
I need help now	I want to learn everything now
1-10 minutes	Hours, days
Based on single concept or skill	Classroom, lecture, massive open online course, educational program
Videos, text, articles, modules, learning games	Include practice and graded exercises
Early interactive, relevant	Human interaction to learn from
Content sorted by quality and relevance	Classroom, expert needed
Is the content useful, accurate and relevant?	Is the content authoritative and educational?

Microlearning

58

June 30, 2022
Introducing the first-ever experiential, mobilemicro-learning courses (MLCs)
 Gnowbe
<https://learn.gnowbe.com/about>

Heavy, Chunky, Boring Text

Bite-Sized Chunks, Easy To Understand

59

June 6 and 27, 2022
The macro impact of microcredentials
 Susan Manning, Ed.D, Director of Customer Education, Credly, eSchool News
<https://www.ecampusnews.com/2022/06/06/the-macro-impact-of-microcredentials/>

The macro impact of microcredentials

Susan Manning, Ed.D, Director of Customer Education, Credly
 June 6, 2022

By pairing microcredentials with digital credentials, individuals are prepared for a changing workforce and can make a big impact in three key ways


3 reasons microcredentials are poised to go mainstream

Roddy Gault, Chief Strategy and Growth Officer, JET
 June 27, 2022


Our understanding of learning and work has started to change—our understanding of credentials must now evolve, too

60

August 20, 2019
ASU develops world's first adaptive-learning biology degree, ASU News
<https://www.asu.edu/news/2019/08/20/asu-develops-worlds-first-adaptive-learning-biology-degree>
 Flipping the classroom increased performance and persistence. "Beckett Sterner and I got an ovation at the end of the junior-level major's course, Evolution -- Biology 345, and also at the end of the class on zombies.... The results of the first effort were impressive."
 "In its first semester, we saw student pass rates, in a nonmajors' Biology 100 course called The Living World, improve by 24% and dropout rates reduce by 90%..."

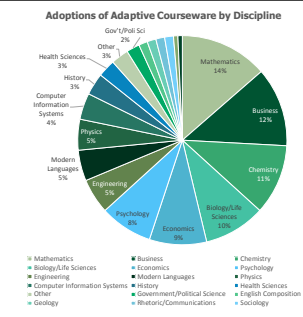


ASU develops world's first adaptive-learning biology degree
 School of Life Sciences leads effort to transform undergraduate science education



61

Courseware By Discipline:
 Over 20 disciplines adopting courseware (52% STEM and 48% Humanities & Social Sciences) (Vignare & Tesene, October 24, 2020).
<https://vimeo.com/showcase/7515148/video/458694115>



Adoptions of Adaptive Courseware by Discipline


Discipline	Percentage
Mathematics	14%
Business	12%
Chemistry	11%
Biology/Life Sciences	10%
Economics	9%
Psychology	8%
Engineering	7%
Modern Languages	5%
Computer Information Systems	4%
Physics	3%
History	3%
Health Sciences	2%
Gov't/Poli Sci	2%
Other	2%

© 2020 THE PERSONALIZED LEARNING CONCEPTUAL AT ASU

62

April 30, 2020
New Udemy Report Shows Surge in Global Online Education in Response to COVID-19
 There has been an immense surge in enrollments in courses related to Telecommuting (21,598% increase) and Virtual Teams (1,523%), as well as Decision Making (277%), Self Discipline (237%), and Stress Management (235%).

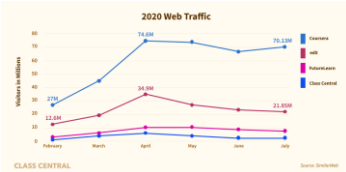
Highest Enrollment Surges by Country Since Shelter in Place



Udemy

63

MOOCs Stats
August 16, 2020
By the Numbers: MOOCs During the Pandemic
 Dhawal Shah, Class Central
<https://www.classcentral.com/report/mooc-stats-pandemic/>



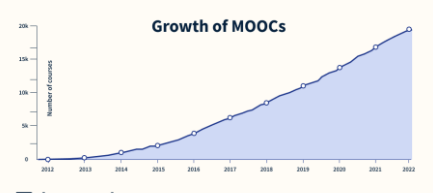
2020 Web Traffic

Month	Coursera	edX	FutureLearn	Class Central
February	12,000	10,000	8,000	5,000
March	25,000	20,000	15,000	10,000
April	70,000	60,000	45,000	30,000
May	70,000	60,000	45,000	30,000
June	70,000	60,000	45,000	30,000
July	70,000	60,000	45,000	30,000

CLASS CENTRAL

64

December 14, 2021
A Decade of MOOCs: A Review of MOOC Stats and Trends in 2021
 Dhawal Shah, Class Central
<https://www.classcentral.com/report/mooc-stats-and-trends-2021/>

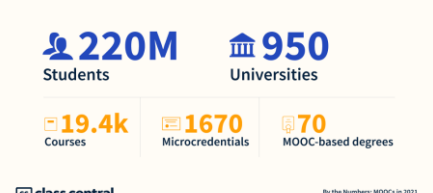


Growth of MOOCs

By the Numbers: MOOCs in 2021
 Statistics do not include China

65

December 14, 2021
A Decade of MOOCs: A Review of MOOC Stats and Trends in 2021
 Dhawal Shah, Class Central
<https://www.classcentral.com/report/mooc-stats-and-trends-2021/>



220M Students
950 Universities
19.4k Courses
1670 Microcredentials
70 MOOC-based degrees

class central

By the Numbers: MOOCs in 2021
 Statistics do not include China

66

Baman Kumar Ghimire and Bishwa Raj Gautam, 2020

Greetings from Nepal, Baman Kumar Ghimire

Teacher, Motherland Secondary School, Pokhara

I held a workshop in a school about 70 students of age 13-15. I was excited to learn that in less than 8 months 78 students of age 10-15 from that school completed at least a MOOC.



67

Marianne Krasny at Cornell et al., 2020

Chapter 16: Courses for a Cause:

MOOC Contributions to a "Better Place for All"



68

Balaji Venkataraman and Tadinada V. Prabhakar, 2020

Chapter 25. Responsive Innovations in MOOCs for Development: A Case Study of AgMOOCs in India and Africa

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



69

March 22, 2021

Famous Stanford coding course seeks to repeat success of novel model of online learning (10,000 students, 120 countries, 900 volunteer teachers)

<https://news.stanford.edu/2021/03/22/famous-stanford-coding-course-free-online/>



70

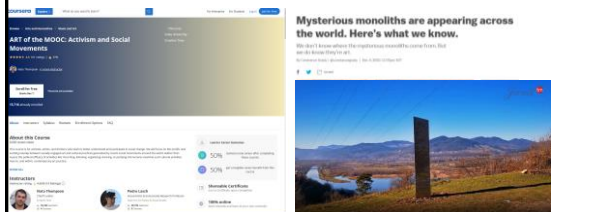
December 7, 2020

ART of the MOOC: Activism and Social Movements

Nato Thompson, Pedro Lasch, Duke, Coursera

<https://www.coursera.org/learn/activism-social-movements>

<https://www.vox.com/culture/22662796/months-utah-california-romania>



71

January 20, 2022

Arizona State University Announces Effort To Educate 100 Million Students Worldwide

Michael T. Nietzel, Forbes

Video (2:07): https://vimeo.com/667987472?embedded=true&source=vimeo_logo&owner=13433234
<https://thunderbird.asu.edu/lifelong-learning/100-million-learners>



72

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



73

Tech Trends of Tomorrow

http://www.huffingtonpost.ca/di-marie-boontropian/prepare-for-future-learn_b_16407756.html

How Human is Too Human for Robots?



74



75

1. Robot Collaborators/Partners for Teamwork

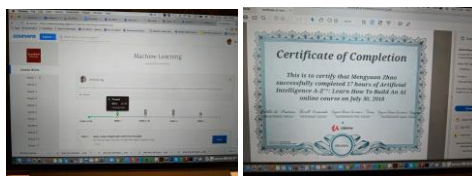
http://www.thevikingman.com/5-scenarios/2016/Library_Alexandria.html



76

2. Independent Studies, Certificates, and Degrees Via MOOCs, OERs, and Informal Learning are Common and Expected

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

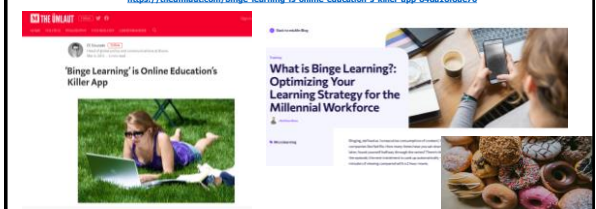


77

3. Binge Learning Experiences

What Online Education Can Learn from Netflix

Henry Kronk, E-learning Inside News
<https://thesumlaad.com/binge-learning-is-online-education-s-killer-app-54da18f6ae76>



78

4. Rise of Super E-Mentors and AI Coaches



79

5. Interactive Agents and Tutors

Pushing the Boundaries of Learning With AI

Lindsay McKenzie, Inside Higher Ed

<https://www.insidehighered.com/digital-learning/article/2018/02/26/interactive-push-expanding-use-ai-higher-ed-teaching-and-learning>
<https://www.dan.com/story/research/2018/01/mandarin-language-ai/>
https://www.youtube.com/watch?time_continue=4&v=7Eub1s18J2A
 1:17: <https://courbook.com/mandarin.html>



80

6. Professor Einstein Personal Digital Assistants (PDA's)

<http://www.usatoday.com/story/tech/2017/01/20/robotic-buddies-now-acting-usally-fant/35888786/>



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/2017/01/20/robotic-buddies-now-acting-usally-fant/35888786/>

81

7. University of the Third Age, London, UK

<https://www.u3a.org.uk/>

U3A (The University of the Third Age) is a UK-wide movement which brings together people in their 'third age' to develop their interests and continue their learning in a friendly and informal environment.

If you're wondering what we mean by the third age - it is a time after you have finished working full-time or raising your family and have time to pursue your interests or just try something new.



82

8. Duplicate Selves in Virtual Worlds

From Minecraft to Zoom calls, we've all spent much of the pandemic on our screens. But are we ready for the metaverse?

Mike Snider, USA Today

<http://courbook.com/metaverse.html>

<https://www.usatoday.com/story/tech/2021/06/21/metaverse-online-social-life-creating-metaverse/70903811002/>
<https://www.youtube.com/watch?v=3F3j37n8t8c>
<https://www.dan.com/story/research/2018/01/mandarin-language-ai/>



83

9. World Knowledge Refreshment Stations

http://www.thethingmoon.com/5Science/52ReelLibrary_Alexandria.html



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10. AI Generated Teachers, Tutors, and Students

Tom Bartlett, The Chronicle of Higher Education
<https://www.futureme.org/>

Dead Man Teaching

What's it like to find out your favorite new professor has been dead for almost two years? It's a weird, weird.

By Peter Berenson / posted 10/10/17



François-Marc Gagnon

L'ORDRE NATIONAL DU QUÉBEC

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Bonus: Fitness Training

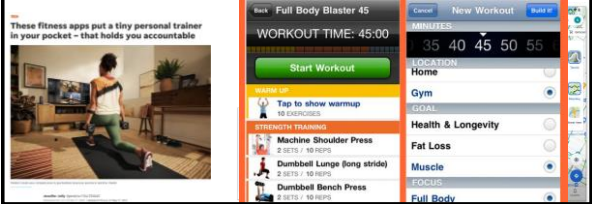
May 17, 2022

These fitness apps put a tiny personal trainer in your pocket – that holds you accountable, Jennifer Jolly, USA Today

<https://www.usatoday.com/story/tech/2022/05/17/fitness-apps-how-to-use-the-tech/9742970002/?url-ct=1>

June 30, 2021

Turn Your Phone Into a Fitness Coach, J. D. Biersdorfer, NY Times
<https://www.nytimes.com/2021/06/30/technology/personaltech/turn-your-phone-into-a-fitness-coach.html>



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Any Questions or Comments?

Slides at: TrainingShare.com

Papers: PublicationShare.com

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