Slide 1

**Meaningful Medical Instruction in the Digital Age:
When Evolution Stumbles into Evolution**

Curtis J. Bonk, Professor, Indiana University
cjbonk@indiana.edu
http://curtbonk.com/

1

Slide 2

**The Olympic Distance Running Controversy of 1984
Did Zola Budd Trip Mary Decker?**
https://www.liveabout.com/zola-budd-mary-decker-olympic-distance-controversy-3258921

2

Slide 3

**UNIVERSITY OF HOUSTON
College of Medicine Report**

January 2018

https://uh.edu/medicine/_documents/college-of-medicine-report-v2.pdf

BIOMEDICAL SCIENCES CURRICULUM

Behavioral and Social Sciences Curriculum

3

Slide 4

**2019
Increasing Demand for Digital Learning
Experience and Instructional Design Expertise
EDUCAUSE Horizons Report,
2019 Higher Education Edition**
https://library.educause.edu/~/media/files/library/2019/4/2019horizonreport.pdf

Increasing Demand for Digital Learning Experience
and Instructional Design Expertise

Horizon Report | 2019 Higher Education Edition

4

Slide 5

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

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

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

5

Slide 6

March 29, 2017
**Every industrial robot takes up to 6
jobs, study finds**
Steve Goldstein, MarketWatch
http://www.marketwatch.com/story/over-6-million-jobs-at-risk-from-robots-new-study-finds-2017-03-29
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

Every industrial robot takes up to 6 jobs,
study finds

6

Slide 7

April 30, 2017
Education 1.0
'Those Jobs Are Gone'
Steve Kolowich, The Chronicle of Higher Education
http://www.chronicle.com/article/Who-s-UpWho-s-Down-in/239964

Slide 8

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/6293/reader-rabbit-history-the-learning-company-zoombinis-carmen-sandiego?zd=1&zi=ambuobk7
Rocky's Boots: https://www.youtube.com/watch?v=a-NLh58bI1k
Project YES (Curt Bonk): https://youtu.be/bZD5mQH4Ups

Slide 9

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

Slide 10

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
3.0: Knowledge-Producing
4.0: Innovation-Producing

Slide 11

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/1543624634

Slide 12

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-learners-lives-opinion

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

13

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.

14

July 11, 2017
The Rise of the Phigital Learner
Going 'phigital?' 4 things schools need to know about Generation Z, Todd Kominiak, TrustEd
http://trustedk12.com/phigital-digital-learning/
May 15, 2017
3 must know's about the rising "phigital" student-and why their impact is enormous, Meris Stansbury, eCamous News
https://www.ecampusnews.com/campus-administration/education-gen-z-phigital-student/

15

Undergraduate Gen Z students & information technology
Vickie Cook, University of Illinois Springfield
Matt Kleinschmit (2019)
https://www.visioncritical.com/blog/generation-z-infographics

16

September 22, 2017
Binge Learning: What Online Education Can Learn from Netflix
Henry Kronk, E-learning Inside News
https://theumlaut.com/binge-learning-is-online-education-s-killer-app-84da18f8ae76

17

Clearly...
Learning is Changing!

18

3

1. Instructor as Counselor

19

2. Instructor as Consultant

20

3. Instructor as Conductor

21

4. Instructor as Course Ambassador

22

5. Instructor as Curator

23

6. Instructor as Concierge

24

20 New Roles of the Instructor

Course Ambassador
Captain Consumer Advocate
Curator
Counselor Change Catalyst
Cook
Concierge
Conductor Comedian
Camping Trip Guide Coach
Consultant
Course Expedition Leader Collaborator
Community Organizer
Chemist Care Giver
Cultivator Colleague

25

26

Bonk's Last Principles of Teaching/Instruction (Education 4.0?)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
http://www.applicadthai.com/articles/education-4-0/

27

1. The Principle of Flexibility
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., multiple due dates, grace period, flexible agenda, etc.)

28

2. The Principle of Convenience
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., multiple ways to turn in, record the class, get student input on time to teach the class, etc.)

29

3. The Principle of Collegiality
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., help turn papers into publications, introduce students to colleagues, ask them to share resources and papers with you, etc.)

30

4. The Principle of Cheerfulness and Optimism
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., smile, celebrate accomplishments, positive feedback before any criticisms, etc.)

31

5. The Principle of High Expectations
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., post high quality student work, challenge, offer job aids, mention students prior successes like conference presentations from final projects, etc.)

32

6. The Principle of Choice and Options
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., sign up for weeks to present, have 10 midterm or final options and pick any 4, choose if want to work as a group/team or individually submit, etc.)

33

7. The Principle of Empowerment and Autonomy
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., build something for a wider audience, design, negotiate the syllabus in a wiki, students vote on agenda items, student presentations of final projects, etc.)

34

8. The Principle of Support and Feedback
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., offer extensive feedback, assign critical friends for feedback, offer summary feedback for common questions, use job aids and scaffolds, etc.)

35

Bonk's 20 "Last" Principles of Instruction (LAST = Learning Activation System Template)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

36

6

The World of Open Education
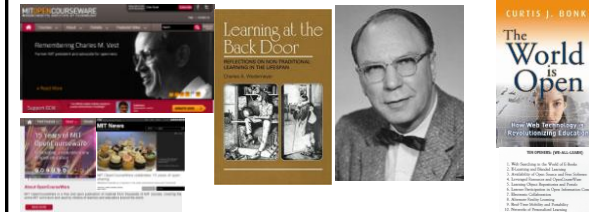
37

38

Fast Forward to 2020...
"Anyone can now learn anything from anyone at any time."
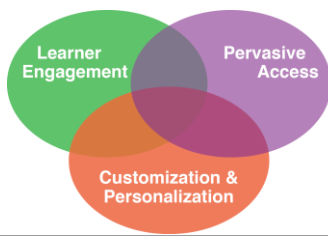

39

**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: Wareable)
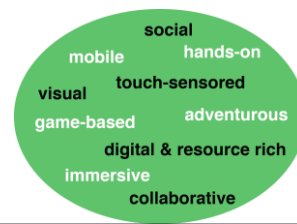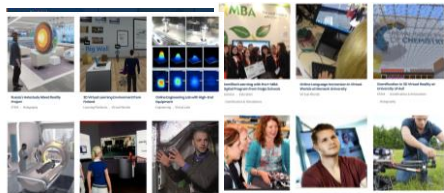
40

**30+ Ways Learning is Changing:
The Mega Trends**

41

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

42

7

Simulations in Virtually Inspired
Learning is More Digital and Resource Rich
https://virtuallyinspired.org/portfolio/online-engineering-lab-with-high-end-equipment/

43

May 30, 2019
Center for Medical Simulation
Learning is More Digital and Resource Rich
https://harvardmedsim.org/
https://harvardmedsim.org/training/clinical-training/

44

May 28, 2020
Virtual Reality Comes to the Classroom, Beth McMurtrie, The Chronicle of Higher Education
https://www.chronicle.com/interactives/20190528-ImmersiveTech
Video (17 seconds): A virtual-reality experience for students in a conducting class: http://curtbonk.com/virtual-o.htm
Video (13 seconds): A group of students could gather around a virtual heart: http://curtbonk.com/vrheart.html
Additional Video (17 seconds): Hamilton College literature students built virtual worlds based on novels and stories they read in class.
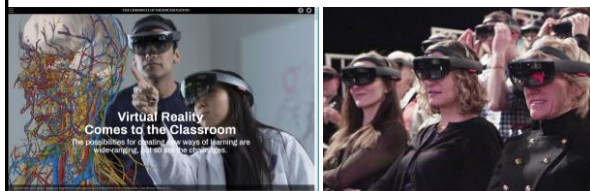
45

May 28, 2019
Virtual Reality Comes to the Classroom
Beth McMurtrie, The Chronicle of Higher Education
https://www.chronicle.com/interactives/20190528-ImmersiveTech
A virtual-reality experience for students in a conducting class: http://curtbonk.com/virtual-o.htm
A group of students could gather around a virtual heart: http://curtbonk.com/vrheart.html

Unlike VR headsets, augmented-reality glasses allow users to see the world around them, opening up possibilities for shared learning experiences. A group of students could gather around a virtual heart as their professor takes it apart to show them the components. (*Microsoft*)

46

July 19, 2017
Learning is More Immersive
HoloLens Assists in Live Surgery
Tommy Palladino, Next Reality
https://hololens.reality.news/news/hololens-assists-live-surgery-0178887/
Video #1: 1:09: http://curtbonk.com/hololens.html
Video #2: 1:37: http://curtbonk.com/hololens2.html
07/19/2017
HoloLens Assists in Live Surgery
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-0178887/

47
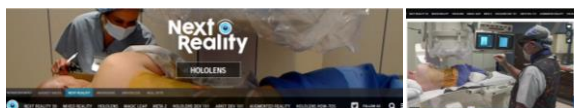
July 17, 2017
Learning is More Immersive
Learning Chemistry in Virtual Reality,
Sarah Hardman, New Learning Times
https://newlearningtimes.com/cms/article/4519/learning-chemistry-in-virtual-reality
1:38 below: https://vialogues.com/vialogues/play/38337/
All: http://curtbonk.com/chemistry-v.html
01-:41: http://curtbonk.com/chemistry-vr.html
:41-1:16: http://curtbonk.com/chemistry-vr-2.html
1:16-1:36: http://curtbonk.com/chemistry-vr-3.html

48

8

49

50

51

52

53

54

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-biggest-consumer-electronics-show/1000779001/
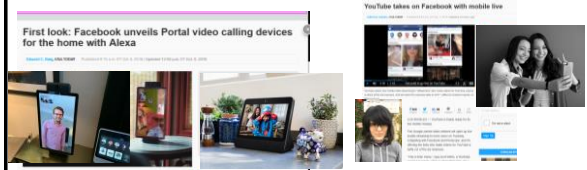
The Octopus watch from Joy, an icon-based watch for kids to have good habits is on display during CES.

55

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.theatlantic.com/science/archive/2018/11/what-happened-after-people-first-arrived-americas/575325/
Video (1 minute): http://curtbonk.com/facebook-portal.html
http://www.usatoday.com/story/tech/2017/02/07/youtube-takes-facebook-mobile-live/97566592/

56

June 5, 2018
Learning is More Collaborative
Chatterbox: Master a Language, Change a Life
Mursal Hedayat, London
https://www.youtube.com/watch?v=3K3VexuIpe0

57

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=9tucY7Jhhs4_/ (Feb 11, 2018)
Video 1:48: Microsoft AI: Amplifying Human Ingenuity: https://www.youtube.com/watch?v=NDmu7ZSNPXo
Video 1:00: Microsoft AI: Empowering Innovators ft. Common: https://www.youtube.com/watch?v=Z5OWdqfAYhw (April 22, 2018)
Video: 1:00 Microsoft AI + Iconem: Preserving History ft. Common:
https://www.youtube.com/watch?v=ZDZJa1hzMSM (April 22, 2018)
Video: 0:44: Microsoft AI + The Yield: Taking the guesswork out of farming ft. Common:
https://www.youtube.com/watch?v=7rzufxIGH4o (April 22, 2018)
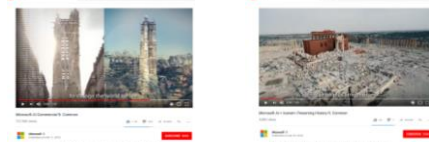
58

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-amazing-ways-our-district-is-using-ar-and-vr/

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.

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

informal
free   global
video-based
open
synchronous   ubiquitous
direct from experts
online
immediate
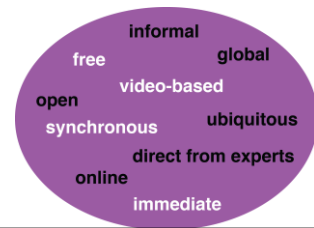
60

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/article/world-active-learning-higher-ed

61

December 9, 2019
Learning is More Free
The Free-College Fantasy
Kevin Carey, The Chronicle of Higher Education
https://www.chronicle.com/interactives/20191209-FreeCollege

62

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/

63

August 2, 2018
Learning is More Free and Open
OpenStax Infographic
https://cpb-us-e1.wpmucdn.com/news-network.rice.edu/dist/c/2/files/2018/07/infographic-2018_final-21jjdwm.pdf

64

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

65

July 22, 2019
Learning is More Audio-Based
Defense Health Agency (DHA)
https://deployedmedicine.com/market/11/content/30

66

March 22, 2012
Learning is More Video-Based
Defense Health Agency (DHA)
https://deployedmedicine.com/market/11/content/30
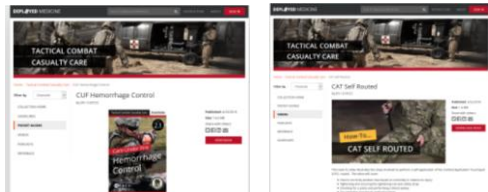
67

January 23, 2020
Learning is More Video-Based
Coronavirus: UK-made 'Plague' game downloads soar in China amid virus outbreak
Sky News, UK
https://news.sky.com/story/coronavirus-uk-made-plague-game-downloads-soar-in-china-amid-virus-outbreak-11915754
Whole video: http://curtbonk.com/corona.html
First 25 seconds: http://curtbonk.com/corona-25.html
First 58 seconds: http://curtbonk.com/corona-58.html

68

May 7, 2019
Learning is More Online
Simulated Natural Disaster Field Training Exercise
Captains Career Course
https://www.dvidshub.net/image/5343668/captains-career-course
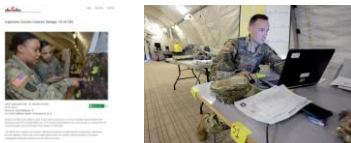
69

December 2019
Learning is More Online
IU Online Newsletter
Fall 2019 shows continued online growth
https://teachingonline.iu.edu/about/newsletter/articles/191220-fallcensus.html
A word from the director
https://teachingonline.iu.edu/about/newsletter/articles/191220-foley.html
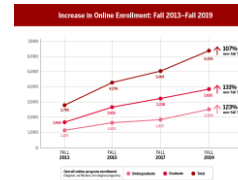
70

November 10, 2019
Learning is More Online
IU online enrollment on significant upswing
Michael Reschke, Herald Times
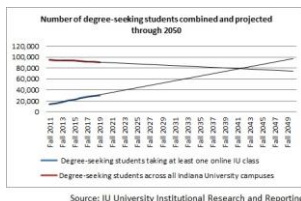
71

January 1, 2018
Learning is More Synchronous
Indiana doctor finds perfect fit with virtual assistant, Allen Laman, The Dubois County Herald (Jasper, Indiana)
https://duboiscountyherald.com/b/doctor-finds-perfect-fit-with-virtual-assistant

Live Healthcare Virtual Assistant Joanna Fajardo of Bulacan, Philippines, took medical notes in a checkup for Mike Andrews of Cannelburg with Dr. Timothy Barry of Jasper on Tuesday afternoon at Family Foot & Ankle Care in Jasper.

72

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

73

How Learning is Changing:
Mega Trend #3. Customization

massive
self-directed   blended
flipped
communal   personal
competency-based
on-demand   modifiable
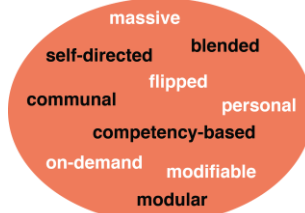modular

74

February 11, 2020
Learning is More Blended
Healthcare Communication Skills

75

May 12, 2017 (Customization)
Learning is More Modifiable
**The Future of Collaboration Spaces Encompasses Video
Interactive, Mobile, Julie Johnston, IU, Campus Technology**

76

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

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.

77

January 2, 2018
Learning is More Personal
**5G to AR: Here are 7 technologies to
watch in 2018, Edward C. Baig, USA Today**
https://www.usatoday.com/story/tech/news/2018/01/02/artificial-intelligence-end-world-overblown-fears/985813001/
(e.g., Augmented hearing)
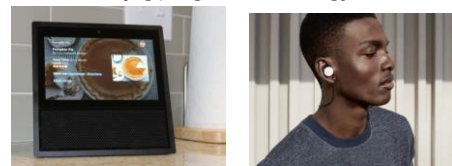
78

13

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*

79

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.*

80

May 9, 2018
Learning is More On Demand
Google Duplex Demo from Google IO 2018
Video (4:11): https://www.youtube.com/watch?v=bd1mEm2Fy08
Video (2:05): http://curtbonk.com/google40-245.html
Entire video (4:11): http://curtbonk.com/google2018.html
Donald Clark Plan B
http://donaldclarkplanb.blogspot.ca/2018/05/google-just-announced-ai-bot-that-could.html?m=1

81

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/reviews/2017/05/09/amazon-echo-show-touchscreen-video-alexa/101448844/
24 seconds: http://curtbonk.com/jetsons24.html
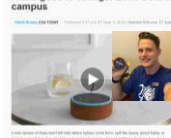44 Seconds: http://curtbonk.com/jetsons44.html

82

August 2, 2018
Learning is More On Demand
Hey, Alexa, Should We Bring Virtual Assistants to Campus? These Colleges Gave Them a Shot
Lindsey Ellis, The Chronicle of Higher Education
https://www.chronicle.com/article/Hey-Alexa-Should-We-Bring/244129

83

January 9, 2017
Learning is More On Demand
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
The Terribly Thin Conception of Ethics in Digital Technology, David Golumbia, Uncomputing
http://www.uncomputing.org/
Bot teacher that impressed and fooled everyone, Donald Clark, Plan B
http://donaldclarkplanb.blogspot.co.uk/2016/12/bot-teacher-that-impressed-and-fooled.html
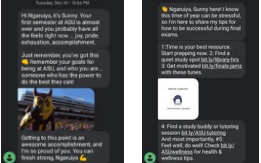
84
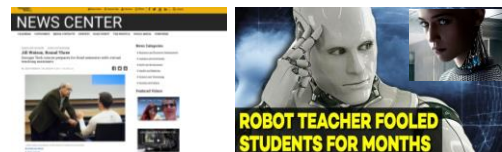
14

January 29, 2020
Learning is More On-Demand
Arizona State University students embrace and profess their love to a chatbot named Sunny
Rachel Leingang, Arizona Republic
https://www.azcentral.com/story/news/local/arizona-education/2020/01/29/arizona-state-university-ai-chatbot-sunny-works-recruit-retain-students/4554780002/

85

June 19, 2019
Learning is More On-Demand
DeepZen will allow authors to turn ebooks into audiobooks
Michael Kozlowski, Good e-Reader
Deep Zen, IBM
http://deepzen.io/
1) http://curtbonk.com/deepzen1.html
2) http://curtbonk.com/deepzen2.html
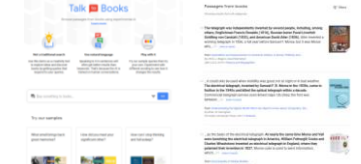
86

September 17, 2018
Learning is More On Demand
Talk to Books
https://books.google.com/talktobooks/
https://qz.com/1252664/talk-to-books-at-ted-2018-ray-kurzweil-unveils-googles-astounding-new-search-tool-will-answer-any-question-by-reading-thousands-of-books/

87

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/science-research/article/2115271/china-wants-bring-artificial-intelligence-its-classrooms-boost
Video 1:33: http://curtbonk.com/chinese-ai.html

Size of internet-enabled education market (billion yuan)

Year	Value
2013	92.4
2014	122
2015	161
2016	212.5
2017*	280.5

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MOOC Trends and Recent Data

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

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September 9, 2019
Asha Kanwar, President and CEO, Commonwealth of Learning (COL), PCF9 Conference, Edinburgh, Scotland
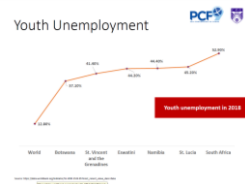
Inclusion
- 186 million disabled children have not completed primary school
- 90% disabled children are out of school in developing countries
- Access to tertiary education for people with disabilities is 3%

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September 9, 2019
Asha Kanwar, President and CEO, Commonwealth of Learning (COL), PCF9 Conference, Edinburgh, Scotland

Youth Unemployment

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September 10, 2019
The Future of Learning, Transforming Access
Simon Nelson, CEO, FutureLearn, PCF9 Conference, Edinburgh, Scotland
And the threat of AI and automation is very real. A 2017 report by McKinsey found that half of all current work activities could be automated, using technology that already exists. and that by 2030 anywhere from 75 million to 375 million workers worldwide will be displaced from their old jobs and require retraining.

75-375 m displaced workers by 2030

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

13.9 million new students per year until 2030
700 new universities needed EACH YEAR to meet demand

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September 10, 2019
Learning is More Massive
The Future of Learning, Transforming Access
Simon Nelson, CEO, FutureLearn, PCF9 Conference, Edinburgh, Scotland
(That would require around 13 new universities to be built each week, each serving 20,000 students, if they were all to be educated in person. That is obviously unfeasible.)

803,000 on mental health courses   113,000 on cancer courses
71,000 on dementia courses
1 million learners on teaching courses

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December 17, 2019
Learning is More Massive
Weirdness #2: Online Degrees Slowdown: A Review of MOOC Stats and Trends in 2019
Dhawal Shah, Class Central
https://www.classcentral.com/report/moocs-stats-and-trends-2019/
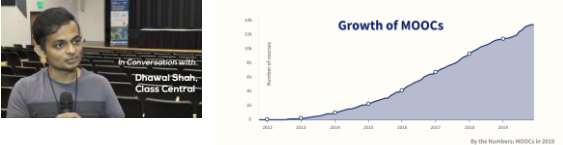
110M Students   900+ Universities
13.5k Courses   820 Microcredentials   50 MOOC-based degrees

96

December 17, 2019
Learning is More Massive
Online Degrees Slowdown:
A Review of MOOC Stats and Trends in 2019
Dhawal Shah, Class Central
https://www.classcentral.com/report/moocs-stats-and-trends-2019/

97

Weirdness #3: Winter Discounts
December 15, 2019
Learning is More Massive
Coursera <no-reply@m.mail.coursera.org>
Ends TOMORROW: 50% off top tech Specializations

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Weirdness #4: Summer MOOC Discounts
Email inbox: June 10, 2018
edX (Summer discounts)
https://www.edx.org/course

99

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/article/report-59-of-employed-data-scientists-learned-skills-on-their-own-or-via-a-mooc/

100

Weirdness #5: Hundred+ MOOC Clubs
September 11, 2019
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."

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November 20, 2019
Learning is More Massive
Who's Completing Microcredentials?
Lilah Burke, Inside Higher Ed
https://www.insidehighered.com/digital-learning/article/2019/11/20/new-report-offers-analysis-microcredential-completers

102

17

November 2019
Learning is More Massive
Benefits and Costs of MOOC-Based Alternative Credentials
2018-2019 Results from End-of-Program Surveys
Fiona Hollands and Aasiya Kazi, Teachers College
https://8606adb0-7829-4e6c-a502-3e181c6f3720.filesusr.com/ugd/cc7beb_a74e1be71afb4e72bb7f44adaf03d9eb.pdf

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October 2018
Learning is More Massive
Benefits and Costs of MOOC-Based Alternative Credentials
2017 - 2018 Baseline Survey Results
Fiona Hollands and Aasiya Kazi, Teachers College
https://docs.wixstatic.com/ugd/cc7beb_5803e625ebee463ebc6f4796027366f1.pdf

Suggested citation:

Hollands, F., & Kazi, A. (2018). Benefits and Costs of MOOC-Based Alternative Credentials: 2017-2018 Results from End-of-Program Surveys. Center for Benefit-Cost Studies of Education, Teachers College, Columbia University.

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November 2019
Learning is More Massive
Benefits and Costs of MOOC-Based Alternative Credentials
2018-2019 Results from End-of-Program Surveys
Fiona Hollands and Aasiya Kazi, Teachers College
https://8606adb0-7829-4e6c-a502-3e181c6f3720.filesusr.com/ugd/cc7beb_a74e1be71afb4e72bb7f44adaf03d9eb.pdf

105

December 16, 2019
2020 Impact Report, edX
https://www.edx.org/sites/default/files/2020-impact-report.pdf

106

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/articles/2017/03/01/edx-expands-micromasters-programs-with-data-science-digital-leadership-and-more.aspx
Lindsey McKenzie, Inside Higher Ed
https://www.insidehighered.com/news/2018/10/12/edx-launches-nine-low-cost-online-degrees

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October 3, 2019
Learning is More Modular
Google IT Professional Certificates
Coursera Blog
https://grow.google/programs/it-support/?cid=wc&source=ams&sourceId=61203
Video: Melinda Williams: Aspiring IT Support Specialist (2:57)
https://www.youtube.com/watch?time_continue=107&v=fvhPKZWbfns&feature=emb_logo
https://blog.coursera.org/looking-back-at-the-first-years-impact-of-the-google-it-support-professional-certificate/

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**MOOCs and Open Education
(book projects)**
http://moocsbook.com/

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Tired of MOOCs…?

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

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November 19, 2020
Technology Tomorrow
Washington Post
By 2025, there will be over 80 billion devices
connected to the Internet (Washington Post, Source:
Charter Spectrum Network)

113

October 19, 2019
1. Medical Robot Remote Doctor Visits
Sci-Fi gadgets that are now a reality
Edmund C. Baig, USA Today
https://www.usatoday.com/picture-gallery/tech/2019/10/19/sci-fi-gadgets-now-part-daily-life-phones-jetpacks/4007701002/
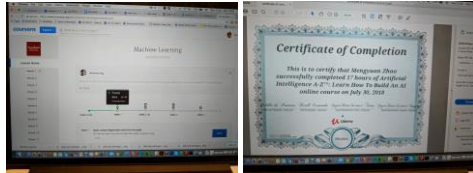

114

19

August 1, 2018
2. Independent Studies Via MOOCs
MOOC: AI A-Z: Learning How to Build an AI Online Course and Machine Learning
Mengyuan Zhao
https://www.udemy.com/artificial-intelligence-az/
https://www.coursera.org/learn/machine-learning

115

October 12, 2018
3. OER-Based Courses and Programs
The Chronicle of Higher Education
Launching OER Degree Pathways:
An Early Snapshot of Achieving the Dream's OER Degree Initiative and Emerging Lessons
https://www.achievingthedream.org/sites/default/files/initiatives/launching_oer_degree_pathways.pdf
Griffiths, R., Gardner, S., Lundh, P., Shear, L., Ball, A., Mislevy, J., Wang, S., Desrochers, D., Staisloff, R. (2018). *Participant Experiences and Financial Impacts: Findings from Year 2 of Achieving the Dream's OER Degree Initiative.* Menlo Park, CA: SRI International.

Saving money with open-ed resources.
- A large-scale effort to encourage the use of open-education resources has helped students save money and bolstered their learning, according to a report, released today, on the findings from the second year of Achieving the Dream's OER Degree Initiative. The study found that:
- Students saved between $66 and $121 per course.
- Over 60 percent of students reported that the overall quality of their learning experience in an OER course was higher in comparison to a typical, non-OER course.
- The number of OER courses at participating institutions jumped from 13 in 2016 to 385 in the spring of 2018; the number of students enrolled in OER courses went from 3,404 in 2016 to 37,398 in 2017.

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October 1, 2019
4. Brain Wave Trackers
How China Is Using Artificial Intelligence in Classrooms | WSJ
Video (5:43): https://www.youtube.com/watch?v=JMLsHI8aV0g&feature=emb_logo
A growing number of classrooms in China are equipped with artificial-intelligence cameras and brain-wave trackers. While many parents and teachers see them as tools to improve grades, they've become some children's worst nightmare.

117

February 27, 2017
5. Web Conferencing Walls
Global Learning Partner or PBL Team Selection Walls
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

118

September 26, 2018
6. Interactive Agents and Tutors
Pushing the Boundaries of Learning With AI
Lindsay McKenzie, Inside Higher Ed
https://www.insidehighered.com/digital-learning/article/2018/09/26/academics-push-expand-use-ai-higher-ed-teaching-and-learning
https://www.ibm.com/blogs/research/2018/08/mandarin-language-ai/
https://www.youtube.com/watch?time_continue=4&v=7EuSTu1iR2A
1:17: http://curtbonk.com/mandarin.html

119

January 30, 2017
7. Professor Einstein PDA's
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/

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2/11/2020

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But we are entering a jumping off point...
(South University of Science and Technology of China, Wednesday June 10, 2015)

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Any Questions or Comments?

Slides at: TrainingShare.com
Papers: PublicationShare.com
Free book: http://tec-variety.com/
Email: cjbonk@indiana.edu

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