Slide 1

Technology Today, Technology Tomorrow: Might Learning Evolutions lead to Learning Revolutions?

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

20/20 VISION — EDUCATION 3.0

1

Slide 2

Talk Overview

1. Pandemic Pondering
2. Technology Yesterday
3. Education 20/20
4. Technology Today
   30 ways learning is changing…
5. Technology Trends of Tomorrow

Past Now Future

2

Slide 3

July 30, 2020
Part 1: Pandemic Pondering
Disruptive Ecology:
The New Normal of Education in Post COVID-19

SCHOOL CLOSED CORONAVIRUS

3

Slide 4

August 6, 2020
Millions of Americans Have Lost Jobs in the Pandemic—And Robots and AI Are Replacing Them Faster Than Ever
Alana Semuels, Forbes
https://time.com/5876604/machines-jobs-coronavirus/

Millions of Americans Have Lost Jobs in the Pandemic—And Robots and AI Are Replacing Them Faster Than Ever

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

Jarvis the robotic butler on duty at the Grand Hotel in Sunnyvale, Calif., on July 30

4

Slide 5

October 27, 2020
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/us-lost-over-60-million-jobs-now-robots-tech-and-artificial-intelligence-will-take-millions-more/?sh=2a6f599514f2
Video (1:20): http://curtbonk.com/automation.html
Video (1:20): http://curtbonk.com/automation2.html

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

Jack Kelly Senior Contributor

5

Slide 6

November 27, 2020
Robots on the rise as Americans experience record job losses amid pandemic
Lauran Arantani, The Guardian
https://www.theguardian.com/technology/2020/nov/27/robots-replacing-jobs-automation-unemployment-us

Robots on the rise as Americans experience record job losses amid pandemic

6

March 26, 2021
100 million more children fail basic reading skills because of COVID-19
UN News
https://news.un.org/en/story/2021/03/1088392

7

February 26, 2021
Ever have 'Zoom fatigue?' These are the causes and how to fix them, researchers say
Brett Molina, USA Today
https://www.usatoday.com/story/tech/2021/02/26/zoom-fatigue-causes-and-how-to-fix/6831569002/

8

March 8, 2021
As Many Parents Fret Over Remote Learning, Some Find Their Kids Are Thriving
Eva Tedfaye, MindShift
https://www.kqed.org/mindshift/57480/as-many-parents-fret-over-remote-learning-some-find-their-kids-are-thriving

9

May 7, 2021
Why some black teens thrived with remote school
Shaylah Brown, USA Today
https://www.usatoday.com/story/news/education/2021/05/07/how-black-students-new-jersey-excel-school-remote-learning/4972788501/

10

May 29, 2021
New Models of Education Emerging
Silver Lining for Learning
https://silverliningforlearning.org/

11

Part 2: Technology Yesterday

12

2

October 5, 2020
Remote learning isn't new:
Radio instruction in the 1937 polio epidemic
Katherine A. Foss, The Conversation
https://theconversation.com/amp/remote-learning-isnt-new-radio-instruction-in-the-1937-polio-epidemic-143797

13

June 3, 2017
How PLATO changed the World...in 1960
Cait Etherington, ElearningInside News
https://www.youtube.com/watch?v=tTmWcGhlXgA
https://news.elearninginside.com/how-plato-changed-the-world-in-1960/
PLATO was the first generalized computer-assisted instruction system. Starting in 1960, it ran on the University of Illinois' ILLIAC I computer. By the late 1970s, it supported several thousand graphics terminals distributed worldwide, running on nearly a dozen different networked mainframe computers. Many modern concepts in multi-user computing were originally developed on PLATO, including forums, message boards, online testing, e-mail, chat rooms, picture languages, instant messaging, remote screen sharing, and multiplayer games.

14

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.

15

May 22, 2019
Who Remembers VisiCalc???
How computing's first 'killer app' changed everything
Tom Harford, BBC News
https://www.bbc.com/news/business-47802280
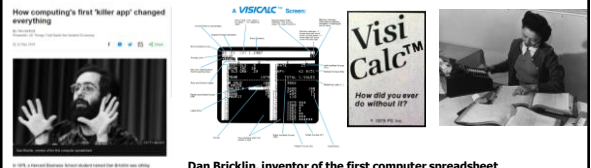
Dan Bricklin, inventor of the first computer spreadsheet

16

May 10, 2013
10 ed-tech tools of the 70s, 80s, and 90s
eSchool News, Meris Stansbury
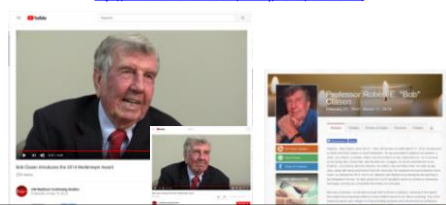http://www.eschoolnews.com/2013/05/10/10-ed-tech-tools-of-the-70s-80s-and-90s/print/

17

September 19, 2014
Bob Clasen, University of Wisconsin
https://www.youtube.com/watch?v=kCm1_MGaqec&feature=youtu.be
February 27, 1934-March 17, 2018
https://www.cressfuneralservice.com/obituary/249139/Robert-Clasen/

18

3

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=qmbuobk7
Rocky's Boots: https://www.youtube.com/watch?v=a-NLh58bIIk
Project YES (Curt Bonk): https://youtu.be/bZD5mQH4Ups

```
Please choose:
1  How to Move
2  Building Machines
3  Logic Gates
4  Rocky's Boots
5  Flipflops
6  Rocky's Challenge
7  End
Rocky suggests,"Play them in order".
```

THE RISE AND FALL OF THE COMPANY BEHIND 'READER RABBIT' AND ALL YOUR FAVORITE EDUCATIONAL GAMES

19

34 years ago…
Knowledge Navigator (1987)
Apple Computer
http://www.youtube.com/watch?v=hb4AzF6wEoc

20

August 6, 2021
The Web will be 30!
http://info.cern.ch/ **(First website)**
http://money.cnn.com/2016/08/06/technology/world-wide-web-25-years-old/index.html?iid=hp-stack-dom
https://webfoundation.org/about/vision/history-of-the-web/
https://home.cern/science/computing/birth-web/short-history-web

History of the Web
A short history of the Web
Where the Web was born

THE WORLD WIDE WEB BEGINS ON MARCH 12, 1989

21

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.

22

January 15, 2021
Wikipedia is 20!
Simon Garfield, Esquire: 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/

What We Know And Can Agree On:
Wikipedia At 20

Two decades of free knowledge
WIKIPEDIA 20

23

April 4, 2021
MIT OpenCourseWare is 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

Celebrating Two Decades of Sharing

OCW 20

MIT News

How MIT OpenCourseWare became an educational resource to millions around the world
Celebrating 20 remarkable years, MIT OCW looks to the future, informed by learning needs underscored by the Covid-19 pandemic.
MIT Open Learning
April 6, 2021

24

Fast Forward to 2021…
"Anyone can now learn anything from anyone at any time."

SKILLSHARE

Learn anything from anyone, anywhere.

25

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)

26

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

Thailand Education 4.0

27

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
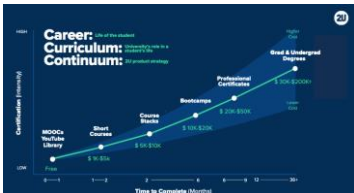
28

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

29

February 25, 2020
The 60 Year Curriculum:
Developing New Educational Models to Serve the Agile Labor Market
Chris Dede, Harvard University, The Evolllution
https://evolllution.com/revenue-streams/professional_development/the-60-year-curriculum-developing-new-educational-models-to-serve-the-agile-labor-market/
219: The 60-Year Curriculum with Rovy Branon
https://teibelinc.com/podcast/219

30

5

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, eCampus News
https://www.ecampusnews.com/campus-administration/education-gen-z-phisital-student/
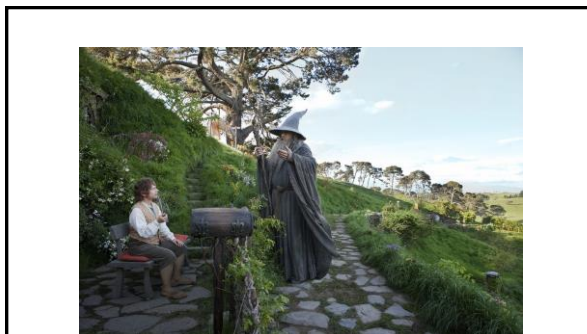

31

Part 3. Education 20/20

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33

From Instructor as Credit Manager and Court Room Judge

34

1. Instructor as Counselor

35

2. Instructor as Consultant

36

3. Instructor as Conductor

37

4. Instructor as Course Ambassador

38

5. Instructor as Curator

39

6. Instructor as Concierge

40

7. Instructor as Camping Trip Guide

41

8. Instructor as Cultivator

42

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
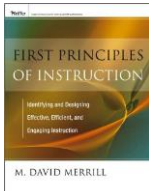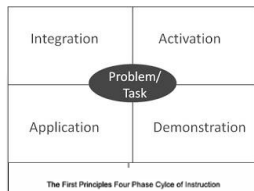Community Organizer
Chemist
Care Giver
Cultivator
Colleague

43

44

Merrill's First Principles of Teaching/Instruction
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

| Integration | Activation |
| Application | Demonstration |

Problem/Task

FIRST PRINCIPLES OF INSTRUCTION

M. DAVID MERRILL

The First Principles Four Phase Cylce of Instruction

45

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/

20 Principles of Life

Education 4.0
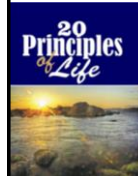
46

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.)

47

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.)
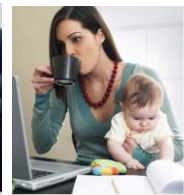
48

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.)

49

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.)

50

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.)

51

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.)

52

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.)

53

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.)

54

9

9. The Principle of Spontaneity
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., try stuff out and debrief, teach agenda or syllabus, combine ideas, etc.)

55

10. The Principle of Organization
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
(e.g., create and share agenda in advance, contact guest speakers in advance and share their bios and pics, arrange order of student presentations, etc.)
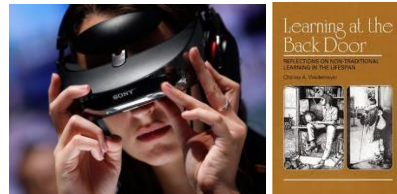

56

11. The Principle of Sharing
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

57

12. The Principle of Nontraditional Learning
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

58

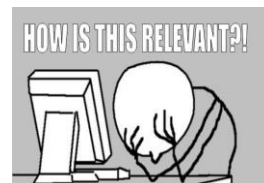## 13. The Principle of Passion and Inspiration
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

59

14. The Principle of Relevance and Meaningfulness
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

60

15. The Principle of Trial and Error (i.e., it is ok to fail)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

61

16. The Principle of Expanded Resources
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

62

## The World of Open Education

63

The World is Open:
How Web Technology Is Revolutioning 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
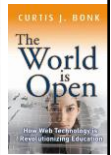
64

65

The World is very open!
(South University of Science and Technology of China, Wednesday June 10, 2015)

66

17. The Principle of Human Connectedness
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

67

18. The Principle of Cognitive Apprenticeship
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

68

19. The Principle of Purpose and Vision
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

"One Purpose"

69

20. ??? (what is missing)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

70

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

Flexibility • Support and Feedback • Choice and Options • Nontraditional Learning • Convenience • Spontaneity • Passion and Inspiration • Collegiality • Organization • Relevance and Meaningfulness • Sharing • Trial and Error (i.e., it is ok to fail) • Cheerfulness and Optimism • Purpose and Vision • Expanded Resources • High Expectations • Human Connectedness • #20 ??? • Empowerment and Autonomy • Cognitive Apprenticeship

71

Clearly…
Learning is Changing!

How Online Learning is Changing Classroom Design

72

12

**Part 4. Thirty Ways
Learning is Changing…**
(i.e., it's more informal, video-based, ubiquitous, collaborative, self-directed, global, mobile, open, massive, etc.)

Horizon Report | 2019 Higher Education Edition
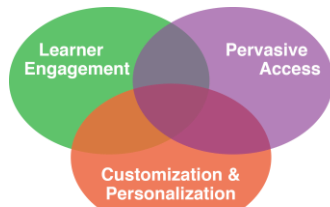
73

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

In China's Silicon Valley, Edtech Starts at the 'MOOC Times Building'

Educational technology is coming of age during the pandemic

Nowhere more so than in India

74

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

Learner Engagement

Pervasive Access

Customization & Personalization

75

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

social
mobile   hands-on
touch-sensored
visual
game-based   adventurous
digital & resource rich
immersive
collaborative

76

March 2021
Learning is More Mobile
Best small phone 2021: The top tiny, compact smartphone choices
James Rogerson, TechRadar
https://www.techradar.com/best/best-small-phone

compact smartphone choices

The best small phones don't have to have lesser specs

The Octopus watch from Joy, an icon-based watch for kids to have good habits is on display during CES.

77

March 1, 2021
Learning is Hands-on
Student Designed Videos
M-Learning for K-12 Education
Terri and Terri https://www.youtube.com/watch?app=desktop&v=4gv_mc7D6vo
Amy Papst: https://www.youtube.com/watch?v=j1caqGoSqrE&feature=youtu.be
Qi Li, Gangnam: http://www.youtube.com/watch?v=7Q429IqxZaU&feature=youtu.be
Miguel Lara (Web 2.0 FREEDOM): http://www.youtube.com/watch?v=8cmCFWi9IW8
Kimberly Vincent-Layton: https://www.youtube.com/watch?v=4Ic39_rYLII&feature=youtu.be

78

13

May 11, 2020
Learning is More Game-based
What is smileUP & How to use it?
SMILE, Paul Kim at Stanford
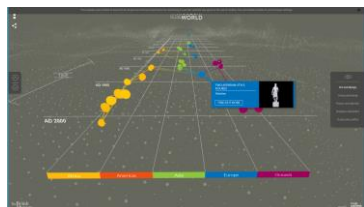https://www.youtube.com/watch?v=pblU8sSALWo
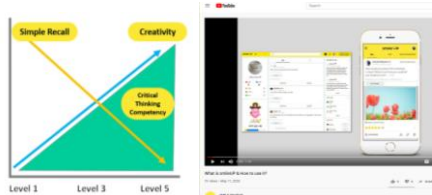
79

March 21, 2021
Learning is Digitally Rich
ELCL 6270: Teaching Physical Science with the STEAM Approach
Heejung An: ANH2@wpunj.edu, William Paterson University
https://padlet.com/anh21/4haa7swcscf1r77s
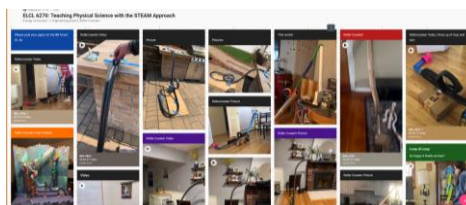
80

October 20, 2020
Learning is More Visual
The British Museum
https://britishmuseum.withgoogle.com/

81

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=2SOWdqfAYhw (April 22, 2018)
Video: 1:00 Microsoft AI + Iconem: Preserving History ft. Common:
https://www.youtube.com/watch?v=ZDZjaIhzMSM (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)
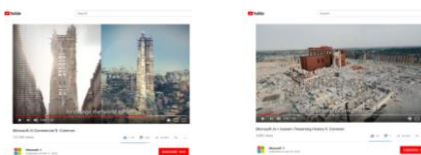
82

November 23, 2020
Learning is More Immersive
Can AR be the antidote to virtual classroom shortcomings?
Parker McDonnough, eSchool News
https://www.eschoolnews.com/2020/11/23/can-ar-be-the-antidote-to-virtual-classroom-shortcomings/2/
https://www.zdnet.com/article/view-pyramids-of-ancient-egypt-via-this-360-degree-vr-capture/
AR brings learning to life and allows students to experience education during distance learning. With AR, students can walk through Stonehenge, tour the Egyptian pyramids, go on a virtual field trip of the Louvre Museum, or explore the cavities of the human heart – all from the comfort of their homes. Students can even take a journey to outer space or visit UNESCO world heritage sites....explore Mount Rushmore or the muscular system in AR.
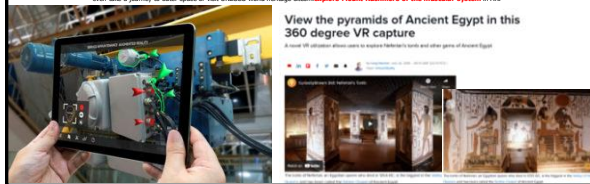
83

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 video: https://vialogues.com/vialogues/play/38337/
All: http://curtbonk.com/chemistry-vr.html
01-:41: http://curtbonk.com/chemistry-vr-1.html
.41-1:16: http://curtbonk.com/chemistry-vr-2.html
1:16-1:38: http://curtbonk.com/chemistry-vr-3.html

84

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.

85

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

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

86

April 21, 2021
Learning is More Open
Why Open Access Is a Game Changer
Britt Glaunsinger, Inside Higher Ed
https://www.insidehighered.com/views/2021/04/21/significant-benefits-sharing-scientific-expertise-through-open-access-opinion

87

June 23, 2020
Learning is More Synchronous
Turns Out You Can Build Community in a Zoom Classroom
Rachel Toor, The Chronicle of Higher Education
https://www.chronicle.com/article/Turns-Out-You-Can-Build/249038

88

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.economist.com/international/2020/11/11/educational-technology-is-coming-of-age-during-the-pandemic

89

May 26, 2021
Learning is More Global
Chatterbox: Master a Language, Change a Life
The overall winner in the competition was **Chatterbox,** an online language school powered by refugees
https://www.chatterbox.io/
Mursal Hedayat, London
https://www.youtube.com/watch?v=3K3VexuIpe0

90

15

July 7, 2020
Learning is More Immediate...
Science in the News
'Holy Grail' of dinosaur fossils discovered in Egyptian desert, Doyle Rice, USA Today
https://www.usatoday.com/story/tech/science/2018/01/29/holy-grail-dinosaur-fossils-discovered-egyptian-desert/1075410001/
'Siberian unicorn' once walked among early humans, Tara John, CNN
https://edition.cnn.com/2018/11/27/europe/siberian-unicorn-humans-scli-intl/index.html
https://www.usatoday.com/story/news/nation/2020/07/07/kangsnapton-holy-ancient-dinosaur-ancestor-tiny-bed-fuzzy-skin/5389075002/
Video: 53 seconds

91

April 11, 2020
Learning is More Video-based...
(e.g., Flipgrid)
Ed Tech with Adam: https://www.youtube.com/watch?v=hysv0PwqsFs
https://techcrunch.com/2018/06/18/microsoft-acquires-social-learning-platform-flipgrid/

92

July 25, 2020
Learning is More Video-based...
Silver Lining for Learning
https://silverliningforlearning.org/
https://www.youtube.com/channel/UC9XEsh89grIlpmVVpQt-_aA/live

93

June 26, 2020
Learning is More Video-based...
Learning from Home with Sir Ken Robinson
- Episode 3 with Natalie Bigney
https://www.youtube.com/watch?v=1hpikfzI3p0&feature=youtu.be

94

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/
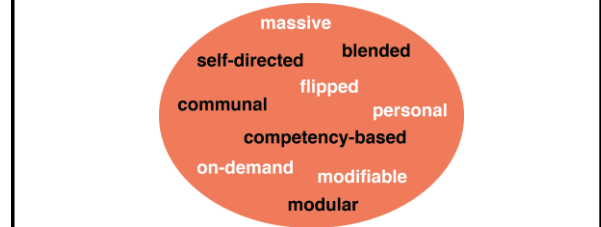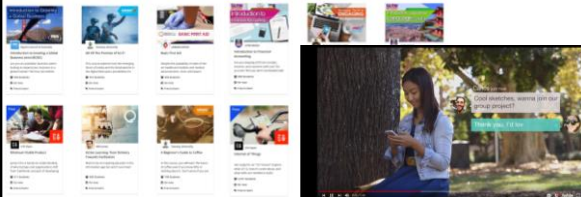
95

How Learning is Changing:
Mega Trend #3. Customization

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

96

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

97

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-courses-digital-marketing-coding-video-project-mgt/4763042801/

98

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)

99

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/

100

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-ceo-sal-khan-prepping-fall-virtual-learning/5525480002/

101

March 2, 2018
Learning is More Modifiable
The Architecture of Ideal Learning Environments
Emelina Minero, Edutopia
https://www.edutopia.org/article/architecture-ideal-learning-environments

102

Mosaic Active Learning Classrooms
ALC for Pre-service Teachers' CSCL

103

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

104

May/June 2020
Learning is More On Demand
Chatting with Chatbots and Text Buddies
Lindsey McKenzie, Inside Higher Ed
https://www.insidehighered.com/news/2019/09/06/expansion-chatbots-higher-ed
https://www.usatoday.com/story/tech/2019/11/08/alexa-google-assistant-ai-robots-become-substitute-friends/4057885002/

105

August 27, 2020
Alternative Credentials on the Rise
Paul Fain, Inside Higher Ed
https://www.insidehighered.com/news/2020/08/27/interest-spikes-short-term-online-credentials-will-it-be-sustained

106

August 27, 2020
Alternative Credentials on the Rise
Paul Fain, Inside Higher Ed
https://www.insidehighered.com/news/2020/08/27/interest-spikes-short-term-online-credentials-will-it-be-sustained
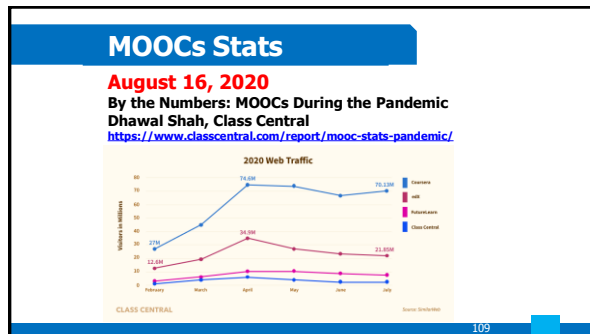
107

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%).
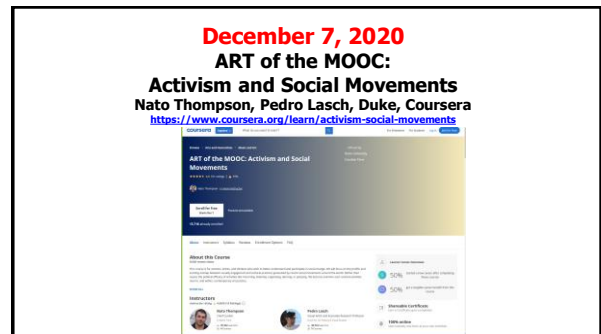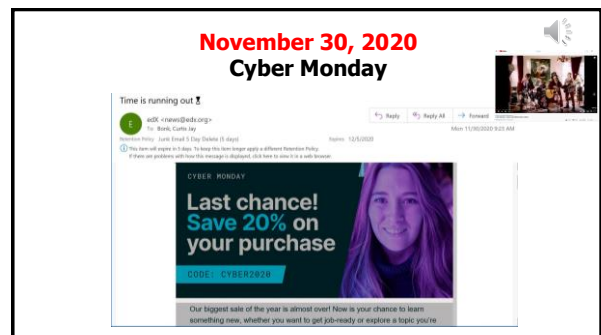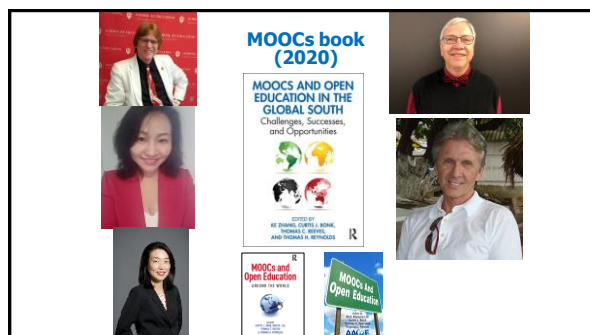
108

109

110

111

112

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114

November 26, 2019
Chapter 14. Capacity Building of Teachers: A Case Study of the Technology-Enabled Learning (TEL) Massive Open Online Courses
Sanjaya Mishra, Martha Cleveland-Innes, and Nathaniel Ostashewski

Week 1: Models of Technology-Enabled Learning
1.1: Community of Inquiry
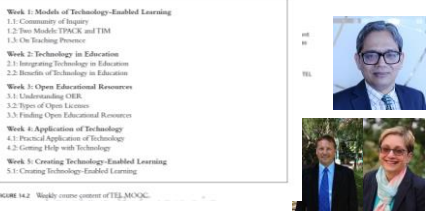1.2: Two Models TPACK and TIM
1.3: On Teaching Presence

Week 2: Technology in Education
2.1: Integrating Technology in Education
2.2: Benefits of Technology in Education

Week 3: Open Educational Resources
3.1: Understanding OER
3.2: Types of Open Licenses
3.3: Finding Open Educational Resources

Week 4: Application of Technology
4.1: Practical Application of Technology
4.2: Getting Help with Technology

Week 5: Creating Technology-Enabled Learning
5.1: Creating Technology-Enabled Learning

FIGURE 14.2 Weekly course content of TEL MOOC.

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November 26, 2019
Chapter 16: Courses for a Cause:
MOOC Contributions to a "Better Place for All"
(Marianne Krasny et al., 2020)

116

November 26, 2019
Chapter 25. Responsive Innovations in MOOCs for Development: A Case Study of AgMOOCs in India 300
Balaji Venkataraman and Tadinada V. Prabhakar
(agMOOCs in India)
http://www.agmoocs.in/

117

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

118

June 8, 2019
The second half of humanity is joining the internet:
They will change it, and it will change them
The Economist
https://www.economist.com/leaders/2019/06/08/the-second-half-of-humanity-is-joining-the-internet

The second half of humanity is joining the internet
They will change it, and it will change them

119

Part 5. Tech Trends of Tomorrow
http://www.huffingtonpost.ca/dr-marie-bountrogianni/prepare-for-future-learni_b_16407756.html

How Human is Too Human for Robots?

120

121

1. Robot Collaborators/Partners
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

122

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

123

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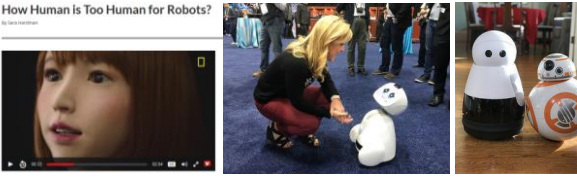**What Online Education Can Learn from Netflix**
Henry Kronk, E-learning Inside News
https://theumlaut.com/binge-learning-is-online-education-s-killer-app-84da18f8ae76

124

4. Rise of Super E-Mentors and AI Coaches

125

September 26, 2018
5. Interactive Agents and Tutors
Pushing the Boundaries of Learning With AI
Lindsay McKenzie, Inside Higher Ed
https://www.insidehighered.com/digital/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
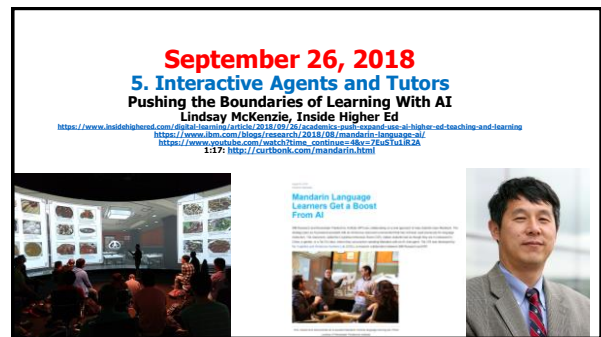
126

January 30, 2017
6. Professor Einstein PDA's
http://www.usatoday.com/story/tech/2017/01/30/robotic-barista-now-serving-really-fast/95888780/

When the Teaching Assistant Is a Robot

Twenty-Four Seven Tutoring

Professor Einstein, an educational Wi-Fi connected robot is on display at the Hanson Robot display during the opening day of Consumer Electronics Show 2017. (Photo: Robert Hanashiro, USA TODAY)
http://www.usatoday.com/story/tech/2017/01/30/robotic-barista-now-serving-really-fast/95888780/

127

June 15, 2019
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.

128

April 23, 2021
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://curtbonk.com/metaverse.html
MetaHuman Creator: High-Fidelity Digital Humans Made Easy | Unreal Engine
https://www.youtube.com/watch?v=S3FJvZYpH8c
https://www.usatoday.com/in-depth/tech/2021/04/21/minecraft-roblox-fortnite-nft-creating-metaverse/7000381002/

129

9. World Knowledge Refreshment Stations
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

130

January 25, 2021
10. AI Generated Teachers
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? In a word, weird.

By Tom Bartlett | JANUARY 25, 2021

131

June 10, 2020
Learning in 2050
Edward J. Mahoney and Joshua Kim, Inside Higher Ed
https://www.insidehighered.com/digital-learning/blogs/learning-innovation/learning-2050

Per Kim and Mahoney: "Where might we be in 2050? As we said, a lot can happen. We might see changes in how we use technology, and how students use technology engage in both curricular and co-curricular activities."

132

22

Chat Window Poll: Is this an Evolution or Revolution?

133

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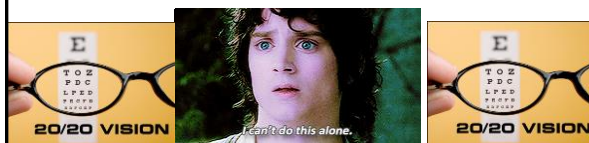

134

Things are heating up!

135

The Learning Revolution is coming within reach!

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Remember…
"I cannot do this alone."
"I cannot do this alone."
"I cannot do this alone."
"I cannot do this alone."

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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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